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THE

EDINBURGH

MEDICAL AND PHYSICAL DICTIONARY.

VOL. II.

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THE

EDINBURGH
MEDICAL AND PHYSICAL DICTIONARY,

CONTAINING
AN EXPLANATION OF THE TERMS OF ART
IN

ANATOMY,
PHYSIOLOGY,
PATHOLOGY,
THERAPEUTICS,
SURGERY,
MIDWIFERY,
PHARMACY,
MATERIA MEDICA,
BOTANY,
CHEMISTRY,
NATURAL HISTORY,
&c. &c.

AS EMPLOYED IN THE PRESENT IMPROVED STATE OF MEDICAL SCIENCE;

AND ALSO,

A COPIOUS ACCOUNT OF DISEASES AND THEIR TREATMENT,
AGREEABLY TO THE DOCTRINES OF
CULLEN, MONRO, HUNTER, FORDYCE, GREGORY, DENHAM, SAUNDERS, HOME,
AND OTHER MODERN TEACHERS IN EDINBURGH AND LONDON.

TO WHICH IS ADDED,
A COPIOUS GLOSSARY OF OBSOLETE TERMS,
CALCULATED TO ASSIST THOSE WHO HAVE OCCASION TO REFER TO
THE WRITINGS OF THE ANCIENTS.

IN TWO VOLUMES, WITH MANY PLATES.

BIBLIOTH. COLL. REG. MED. EDIN.

By ROBERT MORRIS, M.D.
JAMES KENDRICK, Surgeon, F.L.S.
AND OTHERS.

Volume II.

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THE EDINBURGH

MEDICAL AND PHYSICAL DICTIONARY.

F. or ft. in a physician's prescription, are abbreviations of *fiat*, or *fiant*, let it, or them, be made. Thus *ft. bolus*, let the substance or substances prescribed be made into a bolus; *f. mistura*, into a mixture, &c.

FA'BA. See Bean.

FA'BA CRA'SSA, also called *telephium*, *fabaria crassula*, and *anacampseros*. The plant which appears under these names in various foreign pharmacopœias, is the orphine, *sedum telephium; foliis planiusculis serratis*, *corymbo foliose*, *caule erecto*, Linn. It was formerly ranked as an antiphlogistic, but in our dispensatories is now forgotten.

FA'BA FEBRIFU'GA. See Faba indica.

FA'BA I'NDICA, *faba Sancti Ignatii*, or *faba febrifuga*. The seed of a gourd-like fruit, the produce of the *Ignatia amara*, Linn. They are of a roundish figure, very irregular and uneven, about the size of a small nutmeg, semitransparent, and of a horny texture. They are very bitter, and have no considerable smell. They are said to be used in the Philippine islands in various diseases. They act as a vomit and purgative. Infusions are also given in the cure of intermittents, &c.

FA'BA PECHU'RIM, or *faba pechuris;* an oblong oval, brown, and ponderous seed, brought from the Brazils, supposed to be the produce of a species of *Laurus*. They smell like musk, or between it and the scent of sassafras. They are exhibited as carminatives in flatulent cholics, diarrhœas, and dysenteries, prevalent in that climate.

FA'BA PURGA'TRIX. See Ricinus major.

FA'BA SANCTI IGNATII. See Faba indica.

FA'BA SUI'LLA. See Hyosciamus.

FABA'RIA, (from *faba*, a bean, which it resembles); orphine. See Faba crassa.

FABRICIUS (Jerome), an Italian, usually called *Aquapendente*, from the place of his nativity, was a physician of great repute in his day. He laid the foundation of his future acquisitions at Padua, and afterwards applied himself to physic, under the famous Fallopius. He applied principally to chirurgery and anatomy, which he professed with high reputation at Padua, for forty years. The republic of Venice settled upon him a yearly stipend of a thousand crowns in gold, and honoured him with a statue and a gold chain. He died about 1603, leaving behind him several treatises both in physic and surgery, which, considering the state of knowledge at that period, possess considerable merit.

FACE. See Facies.

FACIA'LIS NE'RVUS, the facial nerve; the *portio dura* of the auditory nerve. These nerves are two in number, and are properly the eighth pair: but are commonly called the seventh, being reckoned with the auditory, which is the portio mollis of the seventh pair. They arise from the fourth ventricle of the brain, pass through the petrous portion of the temporal bone to the face, where they form the *pes anserina*, which supplies the integuments of the face and forehead.

FA'CIES, the face. The bones which compose the face are divided into those of the upper and under jaw. The upper consists of thirteen bones, viz. two superior maxillary, two jugal, two nasal, two lachrymal, two inferior spongy, two palatine, and the vomer. The under jaw is formed of one bone, the inferior maxillary bone. See Maxilla. The muscles of the face are those of the eye-lids, eye-ball, nose, mouth, and lips.

FA'CIES HIPPOCRA'TICA; that particular disposition of the features which immediately precedes the stroke of death; so called, because first noticed by Hippocrates. The following is the description which he gives of the looks of a dying man:—"When a patient," says he, "has his nose sharp, his eyes sunk, his temples hollow, his ears cold and contracted, the skin of his forehead tense and dry, and the colour of his face tending to a pale-green or lead colour, one may give out for certain, that death is very near at hand; unless the strength of the patient has been exhausted all at once by long watchings, or by a looseness, or being a long time without eating." This observation has been confirmed by those of succeeding physicians, who have, from him, therefore denominated it the *Hippocratic face.* The lips hanging relaxed and cold, are likewise looked upon by this author as a confirmation of the foregoing prognostic.

FACTITIOUS, an epithet applied to any thing which is made by art, in opposition to that which is native, or found already made in nature. *Factitious cinnabar* is an instance.

FACULTY, the power or ability by which any act is performed, whether it be mental or bodily.

FÆ'CES, (the plural of *fæx);* the alvine excretions or stools.

FÆ'CULA, (dim. of *fæx);* the substance obtained by bruising or grinding certain vegetables or grains in water. The fæcula is that part which, after a while, falls to the bottom. This, in plants, appears to be only a slight alteration of their mucilage, for it differs from mucilage in no other respect than being insoluble in cold water, in which it falls with wonderful quickness. There are few plants which do not contain fæcula; but the seeds of gramineous and leguminous vegetables, as all tuberose roots, contain it in great abundance.

FÆ'X, the alvine excretion. See Fæces.

FA'GARA OCTA'NDRA; the systematic name of the plant which affords tacamahaca. See Tacamahaca.

FAGOPY'RUM, buckwheat, or brank, a species of Polygonum.

FA'GUS, (φαγος, from φαγω, *to eat;* its nut being one of the first fruits eaten by man); the beech tree. *Fàgus sylvatica; foliis ovatis, obsolete serratis,* Linn. The fruit and interior bark are used medicinally in some countries; the former in obstinate head-achs, and the latter in the cure of hectic fever.

FA'GUS CASTA'NEA; the systematic name of the chesnut tree. See Castanea.

FA'GUS SYLVA'TICA; the systematic name of the beech tree. See Fagus.

FAINTING. See Syncope.

FAINTS, a name given to the weak spirituous liquor, that runs from the still in rectifying low wines, after the proof-spirit is taken off. This term denotes also the last runnings of all spirits distilled by the alembic. The clearing of the worm is a very essential point, in order to the obtaining a pure spirit by the subsequent distillation; indeed all other measures are fruitless without it. See Distillation.

FAIRBURN-WATER; a sulphureous spring in the county of Ross, in the North of Scotland. Its properties are somewhat similar to the waters of Harrowgate.

FALCIFO'RMIS PROCE'SSUS, (from *falx,* a scythe, and *forma,* resemblance); the falx, or falciform process; a process of the dura mater, that arises from the *crista galli,* separates the hemispheres of the brain, and terminates in the tentorium. See Cerebrum.

FALLING SICKNESS, a popular name for the epilepsy. See Epilepsia.

FALLOPIAN TUBE. See Tuba Fallopiana.

FALLOPIAN LIGAMENT. See Poupart's ligament.

FALLO'PIUS (Gabriel), a very celebrated physician and anatomist of Italy, was descended from a noble family, and born at Modena in 1490. He enjoyed a strong and vigorous constitution, with great abilities of mind, which he cultivated by intense application to philosophy, physic, botany, and anatomy. In this last he made some discoveries, and, among the rest, that of the tubes by which the ova descend from the ovarium, and which, from him, are called the Fallopian Tubes. He practised physic with great success, and gained the character of one of the ablest physicians of his age. He was made professor of anatomy at Pisa in the year 1548, then at Padua in the year 1551; at which last place he died upon the 9th of October, 1563, aged 72 years. His writings were first published separately, and afterwards collected and printed with the title of "*Opera Genuina Omnia, tam Practica, quam Theoretica, in tres tomos distributa.*" They were printed at Venice in 1584, and in 1606; and at Francfort in 1600, "*cum Operum Appendice,*" and in 1606, in folio.

FA'LX, the falling process of the dura mater. See Falciformis processus.

FA'MES CANI'NA, a name for that inordinate disposition for food termed *bulimia.* See Bulimia.

FA'RFARA, (from *farfarus,* the white poplar, so called because its leaves resemble the latter). See Tussilago.

FARI'NA, (from *far,* corn, in which it is found;) a term given to the pulverulent and glutinous part of wheat and other seeds, which is obtained by grinding and sifting. It is highly nutritious, and consists of gluten, starch, and mucilage. See Wheat. The term *farinaceous* is given to all articles of food which contain this matter.

FARI'NA FŒ'CUNDANS, in botany, impregnating dust. It is placed on the antheræ of flowers, and falls from thence upon the head of the pistil, or female part of the flower, in order to impregnate the seed. See Botany

FARINA'CEA, (from *farina,* flour or meal). Under this title, Dr. Cullen includes those substances, employed as aliment, called *cerealia, legumina,* and *nuces oleosæ,* which are distinguished as they contain more or less of saccharine and oily matter. In the *cerealia,* the sugar is large in proportion to the oily matter; in the *legumina,* the oil somewhat larger in proportion to the sugar; in the *nuces oleosæ,* the oil in somewhat still greater proportion. Under the title *cerealia* are commonly put the seeds of several gramineous and culmiferous plants that are employed as food for man, viz. *barley, rye, millet, rice, oats, maize, wheat, buckwheat, salep, chesnut,* and *potatoe.* The *legumina,* or pulses, are the *pea, bean,* and *kidney-bean;* which last are, in this country, only employed in their young, green, state. The *nuces oleosæ* are, the *nut, almond, walnut, pistachio nut;* and some products of others, as chocolate.

FA'SCIA, (from *fascis,* a bundle; because by means of a ligature, materials are collected into a bundle);

a bandage, fillet, or roller. Hence it arises, that the aponeurotic expansions of muscles, which bind parts together, are termed *fasciæ*.

FA'SCIA LA'TA, a strong tendinous expansion sent off from the back, and from the tendons of the glutei and adjacent muscles, to surround the muscles of the thigh. It is the thickest on the outside of the thigh and leg, but towards the inside of both becomes gradually thinner. A little below the trochanter major, it is firmly fixed to the linea aspera; and, farther down, to that part of the head of the tibia that is next the fibula, where it sends off the tendinous expansion along the outside of the leg. It serves, by the mechanical resistance it affords, to strengthen the action of the muscles, by keeping them firm in their proper places when in action, particularly the tendons that pass over the joints, where this membrane is always thickest.

FASCIA'LIS MU'SCULUS. See Tensor vaginæ femoris.

FASCICULA'RIS, (from *fasciculus*, a little bundle), in botany, a term applied to the root, and meaning *tuberose*, or having the knobs collected in bundles, as in the *pæony*.

FASCICULA'TUS, (from the same), in botany, a term applied to the leaves. It means growing in bunches, or bundles, as in the larch tree.

FASCI'CULUS, (from *fascis*, a bundle), in botany, a species of inflorescence, in which the flowers grow close to each other, as in a bundle, forming a flat surface, as in the sweet-william.

FASCIOLA, the *fluke* or *gourd-worm*; a genus of insects of the order of vermes intestina; of which the characters are these: the body is flattish, and has a vent hole at the extremity and on the belly. See plate I. There are several species. 1. The *hepatica*, or liver-fluke, grows to two thirds of an inch in length, though it is more usually met with not half that size; and its breadth is nearly equal to two thirds of its length: it is flattish, but somewhat rounded on the back, and has about eight deep longitudinal furrows in two series; its skin is soft and whitish, with a tinge of brown. The hinder part is rounded, the fore part is furnished with a large mouth. It bears some resemblance to the seed of the common gourd, whence it has acquired the name of the *gourd-worm.* It is found in fresh water, in ditches, at the roots of stones, sometimes in the intestines, and often in the substance of the other viscera in quadrupeds. It often infests the liver of sheep, and on that account is called *hepatica.* 2. The *intestinalis*, or intestinal fluke, is of a long slender form, if extended; when contracted, of a suboval form; inhabits the intestines of fresh-water fish, especially in the bream. 3. The *barbata*, is white, with transverse papillæ in the mouth. It is of an oblong shape, and about the size of a cucumber-seed. It is found in the intestines of the sepia lotigo.

FASTIGIA'TUS, (from *fastigium*, the top or roof of a house), in botany, a term applied to the stalks of a plant. It signifies their growing so as to form the appearance of the top or ridge of a house.

FASTING, the abstaining from food. Many wonderful stories are related of long-continued fasting, a great many of which undoubtedly must be false. Others, however, we have on very good authority; particularly an account of a *Fasting Woman*, given in the Phil. Trans. vol. 67, part I. The following remarkable instances of animals being able to live long without food, are related by Sir William Hamilton, in his account of the late earthquakes in Italy (*Phil. Trans.* vol. 73): "At Soriano" says he, "two fattened hogs that had remained buried under a heap of ruins, were taken out alive the 42d day; they were lean and weak, but soon recovered." Again, "At Messina two mules belonging to the duke of Belviso remained under a heap of ruins, one of them 22 days, and the other 23 days: they would not eat for some days, but drank water plentifully, and are now recovered. There are numberless instances of dogs remaining many days in the same situation; and a hen belonging to the British vice-consul at Messina, that had been closely shut up under the ruins of his house, was taken out the 22d day, and is now recovered; it did not eat for some days, but drank freely; it was emaciated, and showed little signs of life at first. From these instances, and those related before of the hogs at Soriano, and several others of the same kind that have been related to me, but which being less remarkable I omit, one may conclude, that long fasting is always attended with great thirst and total loss of appetite." See the article Abstinence.

FAT, (*adeps*, from *adipiscor*, to get, or accumulate); a condensed inflammable substance contained in the cellular membrane (see Cellular membrane), which differs in its appearance very much according to the animal from which it is taken. Its colour is usually white, but sometimes yellow; its taste insipid; and its consistence more or less firm. It has a great analogy with oils. Like them, it is not miscible with water; but it forms soaps with alkalis; and burns in the open air, by the contact of an ignited substance, at a sufficient heat. Neumann treated the fat of the goose, the hog, the sheep, and the ox, in a glass retort by a graduated fire; and he obtained phlegm, an empyreumatic and brownish oil, and a brilliant coal. He concludes from this analysis, that there is little difference between fats; and that that of the ox appears only to contain a little more earthy matter. This very imperfect analysis however throws no light on the nature of fat. We are indebted, for experiments of a much more interesting nature, to Segner and Crell. By the latter a peculiar acid was obtained from fat, called the sebacic. See Sebacic Acid.

Fat is more fluid in living than in dead bodies. It melts with the heat of the fingers in handling it; and its fluidity is in part obstructed by the sacculi which contain it. To take it entirely out of these bags, the method is to set the whole over the fire in a proper vessel; for then the bags burst, and swim in clusters in the form of an oily fluid. This substance increases in quantity in the body by rest and good living; and, on the contrary, diminishes by hard labour and a spare diet. Why nourishment should have this effect, is not so easily conceived. It is commonly supposed by writers, that a sedentary life renders the fat less fluid, and consequently more capable of blocking up the passages of insensible transpiration, through which it would otherwise run off; but this is mere hypothesis. Hard labour seems to dissolve, and consequently fit it for passing out of the body. Some are of opinion, that it returns into the mass of blood by the lymphatics; and experience shows that it can, for some certain time, supply the want of nourishment. See Fasting.

The proportional differences, in the thickness of the membrana adiposa, are observed to be regular in some parts of the body, where either beauty or use require it. Thus we find it in great quantities where the interstices of the muscles would otherwise have left disagreeable hollow, or void, places; but being filled, and as it were padded with fat, the skin is raised, and an agreeable form given to the surface.

In some parts of the body, the fat serves for a cushion or pillow; as on the buttocks, where the laminæ and cells are very numerous. In other parts, this membrane has few or no laminæ, and consequently little or no fat; as on the forehead, elbows, &c. In some places it seems to be braced down by a kind of natural contraction in form of a fold; as in that fold which separates the basis of the chin from the neck, and in that which distinguishes the buttocks from the rest of the thigh. We observe it likewise to be entirely sunk, or as it were perforated, by a kind of dimple or fossula, as in the navel of fat persons. These depressions and folds are never obliterated, let the person be ever so fat; because they are natural, and depend on the particular conformation of the membrana adiposa, the laminæ of which are wanting at these places.

The fat is likewise of great use to the muscles in preserving the flexibility necessary for their actions, and in preventing or lessening their mutual frictions. This use is of the same kind with that of the unctuous matter found in the joints, which is explained in the description under that head. Lastly, the fat, as a fine oily substance in its natural state, may be some defence against the cold, which we find makes more impression on lean than on fat persons.

Animal fats, of different kinds are used in various pharmaceutical preparations; particularly in unguents, plasters, &c. but these differ only in their consistence and not in their medicinal effects. See Axungia.

FATNESS. See Corpulency.

FATU'ITAS, (from *fatuus*, silly); *fatuity*, or foolishness. It is a synonime of *amentia*. See Amentia.

FAU'CES, (of *faux*); a cavity behind the tongue, palatine arch, uvula, and tonsils; from which proceed the pharynx and larynx.

FEAR, a passion of the mind productive of powerful effects on the body. See Terror.

FE'BRES, fevers; an order in the class *pyrexiæ* of Cullen, characterized by the presence of pyrexia, without primary or local affection. See Fever.

FEBRI'CULA, (dim. of *febris*, a fever); a term used to express a slight degree of symptomatic fever.

FEBRIFUGE, (*febrifuga*, from *febris*, a fever, and *fugo*, to drive away); a medicine that possesses the property of abating the violence of a fever.

FE'BRIS CONTI'NUA, a continued fever. This is a genus of disease in the class *pyrexiæ* and order *phlegmasiæ* of Cullen. It has no intermission, but the exacerbations come on twice in a day. The *species* of continued fever are as follow: 1. *Synocha*, or inflammatory fever, known by increased heat; pulse frequent, strong, and hard; urine high-coloured; the senses little impaired. 2. *Typhus*, or putrid fever, which is contagious, and characterized by moderate heat; quick, weak, and small pulse; the senses much impaired, and great prostration of strength. The Typhus has four varieties: 1. *Typhus petechialis*, typhus with petechiæ: 2. *Typhus mitior*, the nervous fever: 3. *Typhus gravior*, the putrid fever: 4. *Typhus icterodes*, the yellow fever. See Typhus.

FE'BRIS ERYSIPELATO'SA. See Erysipelas.

FE'BRIS HE'CTICA, hectic fever; a genus of disease in the class *pyrexiæ* and order *febres* of Dr. Cullen. It is known by exacerbations at noon, but chiefly in the evening, with slight remissions in the morning, after nocturnal sweats; the urine depositing a lateritious sediment; the appetite good, and thirst moderate. This fever is symptomatic of the scrophula, phthisis, diseased viscera, &c. See Hectic Fever.

FE'BRIS INFLAMMATO'RIA. See Febris continua.

FE'BRIS INTERMITTENS, intermittent fever, or ague; a genus of disease in the class *pyrexiæ* and order *febres*. It is marked by cold, hot, and sweating stages in succession, during each paroxysm, and followed by an intermission or remission. There are three species: 1. *Intermittens quotidiana*, or quotidian ague: the paroxysms return in the morning at an interval of about twenty-four hours. 2. *Intermittens tertiana*, or tertian ague; the paroxysms commonly coming on at noon, at an interval of about forty-eight hours. 3. *Intermittens quartana*, or quartan ague; the paroxysms coming on in the afternoon, with an interval of about seventy-two hours. See Quotidiana, Tertiana, &c.

FE'BRIS NERVO'SA, the nervous fever; a variety of the *typhus mitior* of Dr. Cullen, but by many considered as a distinct affection. It usually begins with loss of appetite, heat, and vertigo; to which succeed nausea, vomiting, great languor, and head ach, described, by some, like cold water pouring over the top; by others, a sense of weight. The pulse, before little increased, then becomes quick, feeble, and tremulous; the tongue is covered with a white crust, and there is great anxiety about the præcordia. Towards the seventh or eighth day, the vertigo is increased, and tinnitus aurium, cophosis, delirium, and a dry and tremulous tongue, take place. This disease has been observed mostly to terminate about the fourteenth or twentieth day.

FE'BRIS PU'TRIDA. See Fever and Typhus.

FE'BRIS VESICULO'SA. See Erysipelas.

FE'CULA. See Fæcula.

FEELING. See Touch.

FEL, the gall, or bile. See Bile.

FELT-SPAR, or RHOMBIC QUARTZ, the *petuntse* of the Chinese; a genus of siliceous earths, according to Cronstedt, resembling the jasper in most respects. Its German name is *feld-spat*, from the word *feld*, which signifies a field, and likewise a compartment, or regular surface. Mr. Kirwan observes, that it is found of many different colours, as white, yellow, red, brown, green, violet, &c. sometimes crystallized in rhombs, cubes, or parallelopipeds; at other times without any regular figure. It breaks like spar, but the texture is close though lamellar. The specific gravity, according to that author, is from 2.400 to 2.600, but Mr. Grechard says he found it as high as 3.500; in which case Mr. Kirwan is of opinion that it was mixed with some metallic particles. It is harder than the fluor spars, but less so than quartz. It also melts without addition more perfectly and easily than the fluors, forming a whitish glass, which does not corrode the crucibles as that from fluor does. It is entirely dissolved without effervescence by the microcosmic salt and by borax; but unites with difficulty to fixed alkalis. In its crystallized state it decrepitates in the fire, but not otherwise. It is found in loose masses, about two inches long at most, without forming either veins or strata. It is also found mixed with sand or clay; or sometimes imbedded in other stones, as granite, &c. One hundred parts of the white spar contain 67 of siliceous, 14 of argillaceous, 11 of ponderous earth, and 8 of magnesia. According to Mr. Kirwan, it is undoubtedly the stone used by the Saxons, as *petuntsa*, in their porcelain manufactures. Cronstedt, who supposes this stone to be of the same nature with jasper, remarks, that "if the rhombic quartz and jasper were of the same species, that sort of porphyry, which is made up of these two bodies, ought only to be ranked with the *jaspers*, instead of being placed with the *saxa*. It is observable, however, in old monuments, which have been long exposed to the air, that though porphyry had decayed in such a manner as to lose its polish, yet granite, though equally old, and composed for the most part of rhombic quartz, has preserved its lustre. This, however, does not contradict the possibility of rhombic quartz being the same substance with the jasper: the calcareous spar, for instance, being found to bear the weather, and even fire, better than limestone."

FEL-WORT; a plant so called from its having a bitter taste, like bile. See GENTIANA.

FEMALE, a term peculiar to animals; signifying that sex which conceives and generates its young within itself.

FEMUR, (from *fero*, to bear, as being the great support of the trunk), or *os femoris;* the thigh-bone. This is the longest bone in the skeleton, and the largest and strongest of any of the cylindrical bones. Dr. Monro says, its situation is not perpendicular; for the lower end is inclined considerably inwards; so that the knees are almost contiguous, while there is a considerable distance between the thigh-bones above; and this is of great use, since sufficient space is thereby left for the external parts of generation, the two great cloacæ of urine and fæces, and for the large thick muscles that move the thigh inwards. At the same time this situation of the thigh-bones renders our progression quicker, surer, straighter, and in less room: for, had the knees been at a greater distance from each other, we must have been obliged to describe some part of a circle with the trunk of our body in making a long step: and when one leg was raised from the ground, our centre of gravity would have been too far from the base of the other, and we should consequently have been in danger of falling; so that our steps would neither have been straight nor firm, nor would it have been possible to walk in a narrow path, had our thigh-bones been otherwise placed. In consequence, however, of the weight of the body bearing so obliquely on the joint of the knee by this situation of the thigh-bones, weak and rickety children become knock-knee'd.

The upper end of the femur is not continued in a straight line with the body of it, but is set off obliquely inwards and upwards, whereby the distance here, between these two bones at their upper part, is considerably increased. This end is formed into a large smooth round head, which is the greater portion of a sphere unequally divided. Towards its lower internal part a round rough spongy pit is observable, where the strong ligament, commonly, but unjustly, called the *round one*, is fixed, to be extended from thence to the lower internal part of the receiving cavity, where it is considerably broader than near to the head of the thigh-bone. The small part below the head, called the *cervix*, of the os femoris, has a great many large holes, into which the fibres of the strong ligament, continued from the capsular, enter, and are thereby firmly united to it; and round the root of the neck, where it rises from the bones, a rough ridge is found, where the capsular ligament of the articulation itself is connected. Below the back part of this root, the large unequal protuberance, called the *great trochanter*, stands out; the external convex part of which is distinguished into three different surfaces: whereof the one on the fore-part is scabrous and rough, for the insertion of the glutæus minimus; the superior one is smooth, and has the glutæus medius inserted into it; and the one behind is made flat and smooth, by the tendon of the glutæus maximus passing over it. The upper edge of this process is sharp and pointed at its back part, where the glutæus medius is fixed; but forwards it is more obtuse, and has two superficial pits formed in it: into the superior of these the pyriformis is implanted; and the obturator internus and gemini are fixed into the lower one. From the hindmost prominent part of this great trochanter, a rough ridge runs backwards and downwards, into which the quadratus is inserted. In the deep hollow, at the internal upper side of this ridge, the obturator externus is implanted. More internally, a conoïd process, called the *lesser trochanter*, rises for the insertion of the psoas muscle and iliacus internus; and the pectineus is implanted into a rough hollow below its internal root. The muscles inserted into those two processes being the principal instruments of the rotatory motion of the thigh, have occasioned the name of *trochanters* to be given to those processes. The tendons that are fixed into or pass over the great trochanter, cause bruises, by falls on this part, to be attended with great pain and weakness of the limb, which generally remain for a considerable time.

The body of the os femoris is convex on the fore-part, and made hollow behind, by the action of the muscles that move it and the leg, and for the conveniency of sitting, without bearing too much on these muscles; and probably the weight of the legs, depending from the thighs in that posture, contributes to this curvature. The fore-part of the thigh-bone is a little flatted above by the beginning of the cruræus muscle, as it is also below by the same muscle and the rectus. Its external surface is likewise made flat below by the vastus externus, where it is separated from the former by an obtuse ridge. The vastus internus depresses a little the lower part of the internal surface. The posterior concave surface has a ridge rising in its middle, commonly called *linea aspera*, into which the triceps is inserted, and the short head of the biceps flexor tibiæ rises from it. At the upper part of it the medullary vessels enter by a small hole that runs obliquely upwards. A little above these there is a rough fossa or two, where the tendon of the glutæus maximus is fixed. The lower end of the linea aspera divides into two, which descend towards each side. The two vasti muscles have part of their origin from these ridges; and the long tendon of the triceps is fixed to the internal, by a part of the fascia aponeurotica of the thigh. Near the beginning of the internal ridge, there is a discontinuation of the ridge, where the crural artery passes through the aponeurosis. Between these two rough lines, the bone is made flat by the large blood-vessels and nerves which pass upon it; and near the end of each of these ridges, a small smooth protuberance may often be remarked, where the two heads of the external gastrocnemius muscle take their rise, and where sesamoid bones are sometimes found; and from the fore part of the internal tubercle a strong ligament is extended to the inside of the tibia.

The lower end of the os femoris is larger than any other part of it, and is formed into a great protuberance on each side, called its *condyles;* between which a considerable cavity is found, especially at the back part, in which the crural vessels and nerves lie immersed in fat. The internal condyle is longer than the external, which must happen from the oblique position of this bone, to give less obliquity to the leg. Each of these processes seem to be divided into its plain smooth surface. The mark of division on the external is a notch, and on the internal a small protuberance. The fore-part of this division, on which the patella moves, is formed like a pulley, the external side of which is highest. Behind, there are two oblong large heads, whose greatest extent is backwards, for the motion of the tibia: and from the rough cavity between them, but near to the base of the internal condyle, the strong ligament, commonly called the *crucial*, has its rise; a little above which, a protuberance gives insertion to the tendon of the triceps. The condyles, both on the outer and inner side of the knee, are made flat by the muscles passing along them. On the back-part of the internal, a slight depression is made by the tendons of the gracilis and sartorius; and on the external such another is formed by the biceps flexor cruris; behind which a deep fossa is to be observed, where the poplitæus muscle has its origin. From the tubercle immediately before this cavity, a strong ligament goes out to the upper part of the fibula. Round this lower end of the thigh-bone, large holes are found, into which the ligaments for the security of the joints are fixed, and blood-vessels pass to the internal substance of the bone.

All the processes of the femur are cartilaginous in new-born children; and afterwards become small apophyses, with large epiphyses.

The thigh-bone being articulated above with the acetabulum of the ossa innominata, which affords its round head a secure and extensive play, can be moved to every side; but is restrained in its motion outwards by the high brims of the cavity, and by the round ligament; for otherwise the head of the bone would have been frequently thrust out at the breach of the brims on the insides, which allows the thigh to move considerably inward. The body of the femur has little or no rotatory motion, though the head most commonly moves round its own axis; because the oblique progress of the neck and head from the bone is such, that the rotatory motion of the head can only bring the body of the bone forwards and backwards. Nor is the head, as in the arm, ever capable of being brought to a straight direction with its body; so far however, as the head can move within the cavity backwards and forwards, the rest of the bone may have a partial rotation. When the thigh-bone resits the actions of its muscles more than the trunk of the body can then do, as in standing, these muscles have their effect on the trunk, causing it to bend forward, raising it up, inclining it to the one or the other side, twisting it obliquely, &c. for which the rolling of the acetabula of the ossa innominata on the round heads of the thigh-bones is well fitted. The os femoris is articulated below to the tibia and to the patella. See Patella.

The nearness of the small neck to the round head of the thigh-bone, and its upper end being covered with very thick muscles, render it much more difficult to distinguish between a luxation and fracture here, than in any other part of the body.

FEMORAL ARTERY. See Arteries.

FENNEL. See Fæniculum.

FENNEL-HOG'S. See Peucedanum.

FENE'STRA OVA'LIS, an oblong or elliptical foramen, situated between the cavity of the tympanum, and the vestibulum, in the ear. It is closed by the stapes. See Tympanum.

FENE'STRA ROTU'NDA, a round foramen, leading from the tympanum to the cochlea of the ear. It is usually found to be covered by a membrane in the recent subject. See Tympanum.

FENUGREEK. See Trigonella.

FERMENT, any body which, being applied to another, produces fermentation. See Fermentation. Ferments are either matters already in the act of fermentation, or that soon run into this act. Of the first kind are the yeast of fermenting beer, or fermenting wine, &c.; and of the second are the new expressed vegetable juices of summer fruit. Among distillers, all those bodies are called ferments, which, when added to the liquor, only correct some fault in it, and, by removing some obstacle to fermentation, forward it by secondary means: as also such as, being added in time of fermentation, make the liquor yield a larger proportion of spirit, and give it a finer flavour.

FERMENTATION, a spontaneous and sensible internal motion of the constituent particles of a moist, fluid, mixed or compound, body; by the continuance of which motion, these particles are gradually removed from their former situation or combination, and again, after some visible separation is made, joined together in a different order and arrangement, so that a new compound is formed, having qualities very sensibly different from those of the original fluid.

Fermentation, properly so called, is confined to the vegetable and animal kingdoms; for the effervescences between acids and alkalis, however much they may resemble the fermentation of vinous liquors, are nevertheless exceedingly different. It is divided into three kinds; or rather, there are three different stages of it, viz. the vinous, the acetous, and the putrefactive. Of the first, vegetables alone are susceptible; the flesh of young animals is in some slight degree susceptible of the second; but animal substances are particularly susceptible of the third, which vegetables do not so easily fall into without previously undergoing the first and second. See Animal Substances. The produce of the first stage is wine, or some other vinous liquor; of the second, vinegar; and of the third, ammonia.

Fermentation is one of the most obscure processes in nature, and no attempt has been made to solve it with any degree of probability. All that we know with regard to it is, that the liquor, however clear and transparent at first, no sooner begins to ferment, than it becomes turbid, deposits a sediment, emits a great quantity of carbonic acid gas, and throws up a scum to the top, acquiring at the same time some degree of heat.

These phenomena seem to point out fermentation as a process ultimately tending to the entire dissolution of the fermenting substance, and depending upon the action of the caloric, ethereal fluid, or whatever else we please to call it, which pervades, and makes an essential ingredient in, the composition of all bodies. From such experiments as have been made upon this subject, it appears, that whether carbonic acid be the bond of connection between the particles of terrestrial bodies or not, yet the emission of it from any substance is always attended with a dissolution of that substance. We cannot, however, in the present case, say that the emission of carbonic acid air is the *cause* of fermentation. It is in fact otherwise. Fixed air has no tendency to *fly off* from terrestrial substances with which it is united; on the contrary, it will very readily leave the atmosphere after it has been united with it, to join itself to such substances as are capable of absorbing it. The emission of it, therefore, must depend upon the action of some other fluid or substance, in a latent state, with which we are not acquainted. But from what cause this unknown principle originally begins to operate in this manner, seems to be entirely inexplicable, except that it appears somehow or other to depend on water and air; for, if these are totally excluded, fermentation will not proceed. Mr. Henry of Manchester, and Dr. Pennington of Philadelphia, have taken some pains to investigate this subject. The theory of fermentation adopted by the latter is to the following purpose: 1. The heat occurring in the mixture, he explains on Dr. Black's principles of latent heat. 2. In the fermenting process, he supposes the inflammable part of the mixture to have a tendency to combine with pure air, and thus to form what is called *fixed air*. 3. The pure air is supposed to be derived from the atmosphere, while inflammable air is furnished by the fermenting liquor. 4. The fixed air, found in such plenty above the liquid while in a state of fermentation, does not exist in it originally, but is formed by a combination of the two ingredients just mentioned. 5. On these principles, the heat which takes place in the mixture may be particularly explained in the following manner: "Suppose that the quantity of heat in the two airs before combination was in each as *ten;* or, in other words, that they were capable of containing that quantity in a latent state, essential to their existence as matter in that form; when they unite, they form a very different kind of air, which is not capable of combining with so much heat, and perhaps quite foreign to its existence as that kind of matter: we will suppose then, that it can combine with but a quantity of that heat as *five;* the consequence must then be, that there is a quantity of redundant heat as *fifteen;* and there being no bodies at hand undergoing any changes in their properties, by which their capacities to unite with heat, as a principle, are increased, it becomes *mechanically diffused* among those bodies which are nearest to it; it gives the redundant heat to the hand," &c.

The process of fermentation is one of the great preparatives of the distillery. See Distillation.

FERN, MALE. See Filix.

FERN, FEMALE. See Filix fæmina.

FERRAME'NTA CANDE'NTIA, red-hot irons. So Celsus calls the actual cauteries.

FE'RRI LIMATU'RA, iron-filings. These possess tonic, astringent, and deobstruent virtues, and are calculated to relieve chlorosis, and other diseases in which tonics are indicated; especially where crudity in the primæ viæ abounds. Some of the Edinburgh professors, however, recommend the *scales* which fall, round the anvil of the blacksmith, from hammered iron, in preference to iron-filings.

FE'RRI RUBI'GO. See Rubigo ferri.

FE'RRUM, iron. See Iron.

FE'RRUM ACETA'TUM, acetated iron; a remedy exclusively directed by the Dublin college.

Tinctura Ferri Acetati. Dubl.

Take of Acetated vegetable alkali;
Vitriolated iron, of each one ounce;
Alcohol, two pounds.
Rub the acetated alkali and vitriolated iron together in a glass mortar, until the mass deliquesces; then add, during the trituration, the alcohol, and strain the solution.

The acetate of potass and sulphate of iron decompose each other, and form acetate of iron, and sulphate of potass. But as the sulphate of potass is not soluble in alcohol, the solution, after filtration, is an alcoholic solution of acetate of iron. The acetic acid is also capable of combining with both oxids of iron; and as the iron in the sulphate is in the state of black oxid, which has a strong attraction for oxygen, it is probable that the acetate, prepared in the way directed, is a mixed acetate. This preparation has an extremely styptic taste, and is given in doses of thirty or forty drops. As a topical remedy it may also be useful.

FE'RRUM AMMONIACA'LE, a remedy formerly known by the different names of *Flores martiales*, *Flores salis ammoniaci martiales*, *Ens martis*, *Murias ammoniacæ ferratus*, *Sal martis muriaticum sublimatum*, and *Sal ammoniacum martiale.* It is a true ammoniacal muriat of iron, and therefore termed *murias ferri ammoniacalis* in the new chemical nomenclature. It is exhibited in chlorosis, menorrhagia, intermittent fevers, and most cases of debility. There is also a *Tincture of Ammoniacal Iron*, formed of four ounces of the latter dissolved in a pint of proof spirit.

FE'RRUM TARTARISA'TUM; the old *Tartarus chalybeatus*, *Mars solubilis*, or *Ferrum potabile;* now called *tartaris potassæ acidulus ferratus* in the new chemical nomenclature.

Ferrum Tartarisatum. Lond.

Take of Iron filings, one pound;
Crystals of tartar, in powder, two pounds.
Mix them with distilled water into a thick mass, which is to be exposed to the action of the air for eight days, in a wide glass vessel; then grind the matter, after being dried in a sand-bath, to a very minute powder.

This is, in fact, a triple tartrate of iron and potass; the excess of acid in the super-tartrate of potass being saturated by oxid of iron. The iron is oxidized during the first part of the process, in which it is moistened and exposed to the action of the air. The virtues of this preparation are similar to those of the other preparations of iron.

FE'RRUM VITRIOLA'TUM, named heretofore *Vitriolum martis*, *Vitriolum ferri*, *Vitriolum viride*, and *Sal martis;* vitriolated iron. In the new chemical nomenclature, this is very properly called *sulphas ferri*, it being a sulphate of iron. As an article of commerce this substance is commonly obtained by the spontaneous oxidizement of sulphuretted iron, and subsequent lixiviation and crystallization. It is therefore seldom pure, but often contains zinc or copper. The copper may be separated by adding some metallic iron to the solution, but we have no means of separating the zinc; therefore we must prepare it by dissolving iron in diluted sulphuric acid, in order to obtain it in a state of purity. Its crystals are transparent rhomboidal prisms, of a fine green colour.

The colleges have severally given formulæ for the preparation of this substance, but the detail of these is hardly material. It is only necessary to saturate diluted sulphuric acid with iron, and to crystallise the salt in the customary way. The sulphate of iron is decomposed by all the earths and alkalis, and by those salts whose base forms an insoluble compound with sulphuric acid. It is also decomposed by exposure to the air, especially when in solution, and by all substances which part readily with their oxygen. The oxid of iron absorbs oxygen, and passes to the state of red oxid, which forms a red sulphate, possessing properties very different from those of the green sulphate. This preparation is apt to excite pain in the stomach, and spasms in the bowels; and in large doses it causes vomiting. In small doses, however, of from one to three grains, it is excellent as a tonic and astringent, and it is also of use as a topical remedy.

FERTI'LITY, that quality which denominates a thing fruitful or prolific. Nothing can produce fertility in the human species, but what promotes perfect health. To increase the fertility of *vegetables*, says Lord Bacon, we must not only increase the vigour of the earth and of the plant, but also preserve what would otherwise be lost: whence he infers, that much may be saved by setting, in comparison of sowing.

FE'RULA ASSAFÆTIDA; the systematic name of the assafætida plant. See Assafætida.

FEVER *(febris,* from *ferbeo*, pro *ferveo*, to be hot; because heat is its usual attendant); a *pyrexia* without any primary local disease, preceded by languor, lassitude, and other signs of debility. After the discovery of the circulation, Sylvius de la Boe asserted, that fever proceeded from an increased velocity of the blood, and that an increased quickness of the pulse was its pathognomic. This, however, we are not to admit as true, because then the cure of fevers would consist only in diminishing the velocity of the blood, which is very easily done; yet sometimes it is necessary to increase this velocity, in order to cure the fever. To this doctrine Bellini and Boerhaave added the doctrine of acrimony and a *lentor* or viscidity in the blood; and this theory continued to be followed till the time of Cullen. Hoffman considers fevers as entirely consisting in a change of the state of motion in the muscular fibres, which undoubtedly depends on that of the nervous system. The particular cause is a *spasm* in the extreme arteries; and the cure consists in a relaxation of that spasm, without regarding the fluids, but only so far as they effect the nervous system.

1. The following are the *general phenomena of fevers*, as laid down by Dr. Cullen. The person is affected first with a languor, or sense of debility, inactivity, and sluggishness. The face and extremities become pale; the features shrink; the bulk of every external part is diminished, and the skin all over the body appears constricted as if by cold. A coldness of the extremities may now be perceived by another person, though the patient himself takes little or no notice of it. At length the cold becomes also perceptible to him; first, commonly in his back, and thence passing over the whole body; though now his skin frequently feels warm to another person. The sense of cold continually increases, and at length produces a tremor in all his limbs, with frequent successions or rigors of the trunk of the body. When this sense of cold and its effects have continued for some time, they become less violent, and alternate, with warm flushings. By degrees the cold goes off entirely, and a heat greater than in a natural state prevails all over the body. With this heat the colour of the skin returns, and a preternatural redness appears, especially in the face. With the heat and redness the skin is relaxed and smoothed, but for some time it continues dry. The features of the face, and other parts of the body, recover their usual size, and even become more turgid. When the heat, redness, and turgescence, have increased and continued for some time, a moisture appears upon the face, which, by degrees, becomes a sweat, and at length prevails over the whole body. As this sweat continues to flow, the heat of the body abates; the sweat, after continuing some time, gradually ceases; the body returns to its usual temperature, and most of the functions are restored to their ordinary state.

From these general appearances, the paroxysm may be divided into three different stages, viz. the *cold*, the *hot*, and the *sweating*, stages or fits; in each of which a considerable change happens to several of the functions.

On the first approach of languor, the pulse sometimes becomes slower, and always weaker, than before; and as the sense of cold comes on, it becomes smaller, very frequent, and often irregular. As the cold wears off and the heat comes on, the pulse becomes more regular, hard, and full, and in these respects increases till the sweat breaks out. As the sweat flows, the pulse becomes softer and less frequent, until the sweat ceasing altogether, it returns to its usual state. The respiration during the cold stage is small, frequent, and anxious; as the hot stage comes on, it becomes fuller, and more free, but is still frequent and anxious, till the flowing of the sweat relieves the anxiety, and renders the breathing less frequent. On the approach of the cold stage, the appetite ceases, and does not return till either the paroxysm is at an end, or the sweat has flowed for some time. Generally, however, during the whole paroxysm, there is not only a want of appetite, but an aversion from all solid food, especially of the animal kind. As the cold stage advances, nausea and vomiting frequently come on, with the discharge of a matter for the most part bilious; but when the hot stage is pretty well advanced, this sickness abates, and commonly goes off altogether when the sweat breaks out. A considerable degree of thirst is commonly felt during the whole course of the paroxysm. In the cold stage it seems to arise from the dryness and clamminess of the mouth and fauces; and during the hot stage, from the heat which then prevails: but, as the sweat flows, the mouth becomes more moist, and the thirst, together with the heat, gradually abates.

In the course of the paroxysm, a considerable change is also made in the state of the secretions. The circumstances already mentioned show it with regard to the saliva, and it is still more remarkable with regard to the urine. In the cold stage, the urine is almost colourless, and without cloud or sediment. In the hot stage it becomes high coloured, but is still without sediment. After the sweat has flowed freely, the urine deposits a sediment commonly lateritious, and continues to do so for some time after the paroxysm is over. Stools seldom occur till towards the end of a paroxysm, except in certain uncommon cases which are attended throughout with a diarrhœa.

It frequently happens also that tumors, subsisting on the surface of the body, suffer, during the cold stage of fevers, a considerable diminution of their bulk; but which returns, though not always, during the sweating stage, or after the paroxysm is over.

During the cold stage, the sensibility is often greatly impaired; but when the hot stage comes on, the sensibility is recovered, and often considerably increased. When the cold stage comes on, the attention and recollection become difficult, and continue so, more or less, during the whole paroxysm. Hence some confusion of thought takes place, and often arises to a delirium, which sometimes comes on at the beginning of the cold stage, but more frequently not till the hot stage is formed. With the cold stage also comes on a kind of drowsiness or stupor, which sometimes increases to such a degree that the patient becomes comatose and almost apoplectic. In this stage also a head-ach sometimes comes on; but more commonly this is not felt till the hot stage is formed, and then it is usually attended with a throbbing of the temples. The head-ach continues till the sweat breaks out; but as this flows more freely, that gradually wears off. At the same time there are commonly pains of the back, and some in the great joints; which are to be derived from the same causes with the head-ach.

2. But although these are the principal phenomena to be observed in the paroxysm of a fever; yet it is very seldom that the disease is terminated by a single paroxysm such as has been described. It more generally happens, that after the series of phenomena above mentioned, and after the patient has been for a certain length of time free from them, the same series of phenomena begin again to arise, and to observe the same course as before; and these states of fever and apyrexia often continue to alternate with each other for a great number of times. In these cases, the length of time from the end of one paroxysm to the beginning of another is called an *in-*

termission; and the length of time from the beginning of one paroxysm to the beginning of another is called an *interval*.

When the disease consists of a number of paroxysms, it is generally to be observed, that the intervals between them are nearly equal; but these intervals are of different lengths in different cases. The most usual interval is that of forty-eight hours, which is named the *tertian* period. The next most common is that of seventy-two hours, and is named the *quartan* period. An interval of twenty-four hours is called the *quotidian* period. This last is not unfrequent; but all intervals longer than the quartan are extremely rare, and probably only irregularities of the tertian or quartan periods.

The paroxysms of pure intermittent fever are always finished in less than twenty-four hours. But it frequently happens that there are fevers which consist of repeated paroxysms without any entire intermission between them: yet in such cases it is observed, that though the hot and sweating stages of the paroxysms do not entirely cease before the twenty-four hours from their beginning have expired, they suffer, however, before that time, a considerable abatement or *remission* of their violence; and at the return of the quotidian period, a paroxysm is in some shape renewed, and runs the same course as before. This constitutes what is called a *remittent fever*. In many cases, however, this remission is not considerable, and perhaps takes place without sweat; the returning paroxysm is not marked by the usual symptoms of a cold stage, but is chiefly known by the aggravation or *exacerbation* of a hot stage; in which cases the disease is called a *continued* fever. In some cases the remissions and exacerbations are so inconsiderable, that they are not easily observed or distinguished; and this has led physians to imagine that there is a species of fever subsisting for several days together, and seemingly consisting of one paroxysm only. This they have called a *continent* fever; but Dr. Cullen assures us, that, in a long course of practice, he had no opportunity of observing such a fever.

With respect to the form or *type* of fevers, it may be observed, that the quartan, while it has the longest interval, has, at the same time, the longest and most violent cold stage, but, upon the whole, the shortest paroxysm; the tertian, having a shorter interval than the quartan, has, at the same time, a shorter and less violent cold stage, but a longer paroxysm; and lastly, that the quotidian, with the shortest interval, has the least of a cold stage, but the longest paroxysm. The type of fevers is sometimes changed in their course. When this happens, it is generally in the following manner: both tertians and quartans change into quotidians; quotidians into remittents; and these last become often of the most continued kind; and in all these cases the fever has its paroxysms protracted longer than usual, before it changes into a type of more frequent repetition.

From all this it is concluded, that every fever consists of repeated paroxysms, and differs from others only in the circumstances and repetition of the paroxysms; and therefore, that it seems allowable, to take the paroxysm of a pure intermittent, as an example and model of the whole.

3. Dr. Cullen explains the causes of fever in the following way: the proximate cause, he says, has hitherto eluded the researches of physicians; but as the hot stage is so constantly preceded by a cold one, he presumes that the cold stage is the *cause* of the hot one, and, consequently, that the cause of the cold stage is the cause of all that follows in the course of the paroxysm. The cold stage, he observes, is always preceded by evident marks of a general debility prevailing in the system. The smallness and weakness of the pulse, the paleness and coldness of the extreme parts, with the shrinking of the whole body, sufficiently show, that the action of the heart and larger arteries is, for the time, extremely weakened. At the same time the languor, inactivity, and debility of the animal motions, the imperfect sensations, the feeling of cold while the body is truly warm, and some other symptoms, all shew that the energy of the brain itself is, on this occasion, greatly weakened; and as this weakness of the action of the heart can hardly be attributed to any other cause, it is also a proof of the diminished energy of the brain. Another proof of the existence of debility is, that when the paroxysms of a fever have ceased to be repeated, they may be again renewed; and are most commonly renewed by the application of debilitating powers.

Hence, says our author, it is evident, that there are three states which always take place in fever, viz. a state of *debility*, a state of *cold*, and a state of *heat*; and as these states regularly succeed each other in the order abovementioned, it is to be presumed that they are in the series of cause and effect with regard to one another. The hot stage, he thinks, is an effect of the *vis medicatrix naturæ*, so famous in the schools of physic, and it is probable that many symptoms of diseases are owing to the same cause. To this cause he also inclines to attribute some of the symptoms of the cold stage, but is obliged to refer them to a law which he says exists in the animal economy, whereby those powers which have a tendency to hurt and destroy the system, often excite such motions as are suited to obviate the effects of the noxious power. That some part of the cold stage is owing to the vis medicatrix, he thinks further probable, because the cold stage appears universally to be a means of producing the hot, because cold externally applied, has very often similar effects; and especially because it seems to be in proportion to the degree of tremor in the cold stage that the hot one proceeds, more or less quickly, to a termination of the paroxysm, and to a more complete solution and longer intermission.

In the time of the cold stage, there seems to be a *spasm* induced every-where on the extremities of the arteries, particularly of those upon the surface of the body. This appears from the suppression of all the excretions, and from the shrinking of the external parts; and though this may in part be attributed to the weaker action of the heart in propelling the blood into the extreme vessels, yet as these symptoms often continue after the action of the heart is restored, there is reason to believe that a spasmodic constriction has taken place, and that it subsists for some time, and supports the hot stage; for this stage ceases with the flowing of the sweat, and the return of other excretions, which are marks of the relaxation of vessels formerly constricted.

The idea of fever then may be, that a spasm of the extreme vessels, however induced, may prove an irritation to the heart and arteries, and that this continues till the spasm is relaxed and overcome. Still, however, it will remain a question what is the cause of this spasm; whether it be directly produced by the remote causes of fever, or if it is only a part of the vis medicatrix naturæ. Doctor Cullen inclines to the latter opinion, first, because it is certain that debility lays the foundation of fever; secondly, because, supposing this uncertain, we can more easily perceive how debility induces spasm, than how spasm produces debility, which always more or less appears; and thirdly, because we perceive that the degree of spasm formed, and the obstinacy of its continuance, depend, in many cases, upon the power of the causes inducing debility, and upon the debility induced; for the more powerful the debilitating causes, and the greater the debility produced, the paroxysms are the longer, and the more frequently repeated. From hence, says he, we are led to believe, that, together with the *spasm*, there is an *atony* subsisting in the extreme vessels, and that the relaxation of the spasm requires the restoring of the tone and action of these.

This may be illustrated from considering the symptoms which take place with respect to the functions of the stomach in fever, such as the anorexia, nausea, and vomiting. The connection, or consent, which we observe between the perspiration and the appetite in healthy persons, renders it probable, that the tone of the extreme vessels on the surface of the body, and that of the muscular fibres of the stomach, are connected or consenting with each other; and that therefore, in fevers, the want of appetite, or of tone in the muscular fibres of the stomach, may depend upon the atony of the extreme vessels on the surface of the body. A further proof that, in fevers, the fibres of the stomach are affected with an atony, is the nausea and vomiting which so frequently occur, and which so commonly depend upon a debility of the stomach. That the debility of the stomach which produces vomiting, depends upon atony of the extreme vessels on the surface of the body, appears particularly from an observation of Sydenham. In the attack of the plague, a vomiting happens, which prevents any medicine from remaining upon the stomach; and Sydenham tells us, that he could not overcome this vomiting but by external means, applied to produce a sweat or determination to the surface of the body.

The connection between the state of the stomach and that of the extreme vessels on the surface of the body appears from this also, that the vomiting, which so frequently happens in the cold stage of fevers, commonly ceases upon the coming on of the hot, and very certainly upon any sweat coming out. It is indeed probable, that the vomiting in the cold stage of fever, is one of the means employed by nature for restoring the determination to the surface of the body; and it is a circumstance affording a proof, both of this and of the general connection between the stomach and surface of the body, that emetics thrown into the stomach and operating there in the time of the cold stage, commonly put an end to it, and bring on the hot stage. It also affords a proof of the same connection, that cold water taken into the stomach produces an increase of heat on the surface of the body, and is very often a convenient and effectual means of producing sweat.

We draw a proof of the same connection from this also, that cold applied to the surface of the body, when it does not stop perspiration, is always a powerful means of exciting appetite. It may also be considered, whether the fever which so constantly accompanies the digestion of food in the stomach be not induced by filling the stomach, by relaxing its muscular fibres, and thereby inducing an atony of the extreme vessels.

Dr. Cullen acknowledges a difficulty in explaining how an atony and spasm can subsist at the same time in the same vessels, but considers it as a matter of fact which cannot be denied; and at the same time thinks it may be found analogous to what happens upon other occasions in the system, where we often observe atony producing spasm. This atony is supposed to depend upon a diminution of the energy of the brain; and that this diminution takes place in fevers, he concludes, not only from the debility prevailing in so many of the functions of the body as already mentioned, but from the symptoms peculiar to the brain itself.

Delirium is common in fever; and this symptom commonly depends on some inequality in the excitement of the brain, or intellectual organ; and hence it may be concluded, that, in fever, it denotes some diminution in the energy of the brain. Delirium indeed seems often to depend on an increased impetus of the blood in the vessels of the brain, and, therefore, attends phrenitis. It frequently appears also in the hot stage of fevers, accompanied with a head-ach and throbbing of the temples. But, as the impetus of the blood in the vessels of the head is often considerably increased, by exercise, external heat, passions, and other causes, without occasioning any delirium; it must be supposed, that the same impetus, in the case of fever, produces delirium, for this reason only, that at the same time there is some cause which diminishes the energy of the brain, and prevents a free communication between the parts concerned in the intellectual functions. Upon the same principles also he supposes that there is a species of delirium which depends more entirely on the diminished energy of the brain, and may therefore arise when there is no unusual impetus of the blood in the vessels of the brain. Such seems to be the delirium occurring at the beginning of the cold stage of fevers, or in the hot stage of such fevers as show strong marks of debility in the whole system.

"Upon the whole then," says he, "our doctrine of fever is explicitly this:—The remote causes of fever are certain sedative powers applied to the nervous system, which, diminishing the energy of the brain, thereby produce a debility in the whole of the functions, and particularly in the action of the extreme vessels. Such, however, is at the same time the nature of the animal economy, that this debility proves an indirect stimulus to the sanguiferous system; whence, by the intervention of the cold stage and spasm connected with it, the action of the heart and larger arteries is increased, and continues so till it has had the effect of restoring the energy of the brain, of extending this energy to the extreme vessels, of restoring therefore their action, and thereby especially overcoming the spasm affecting them; upon the removing of which, the excretion of sweat, and other marks of the relaxation of excretories, take place."

4. We next proceed to notice some mistakes concerning the nature of fever.—It has been supposed, that a *lentor* or viscidity prevailing in the mass of blood, and stagnating in the extreme vessels, is the cause of the cold stage of fevers and its consequences. But there is no evidence of any such viscidity previously subsisting in the fluids; and as it is very improbable that such a state of them can be suddenly produced, the suddenness with which paroxysms come on renders it more likely that the phenomena depend upon some cause acting on the nervous system, or the primary moving powers of the animal economy.

Another opinion, which has been very universally received, is, that a noxious matter introduced into, or generated in, the body, is the proximate cause of fever; and that the increased action of the heart and arteries, which makes so great a part of the disease, is an effect of the *vis medicatrix naturæ* to expel this morbific matter, and particularly to change and concoct it, so as to render it altogether innocent, or at least fit for being more easily thrown out of the body. This doctrine, however, though of as great antiquity as any in the records of physic, and received into every school of medicine, Dr. Cullen nevertheless considers as exceedingly erroneous. Fevers are produced by cold, fear, and other causes, with all the essential circumstances belonging to the disease, and terminating by sweat, without any evidence or suspicion of morbific matter. There have been fevers suddenly cured by an hæmorrhagy so moderate as could not carry out any considerable portion of a matter diffused over the whole mass of blood; nor can we conceive how the morbific matter could be collected or determined to pass off by such an outlet as in that case is opened. Even supposing a morbific matter were present, there is no explanation given in what manner the concoction of it is performed; nor is it shown that any such change does in fact take place. In certain cases it is indeed evident, that a noxious matter is introduced into the body, and proves the cause of fever. But even in these cases it appears, that the noxious matter is thrown out again, without having suffered any change; that the fever often terminates before the matter is expelled; and that, upon many occasions, without waiting the supposed time of concoction, the fever can be cured, and by remedies that do not seem to operate upon the fluids, or to produce any evacuation.

But though he thus reasons against the notion of fevers being an effort of nature for concocting and expelling a morbific matter, Dr. Cullen by no means denies that the cause of fever frequently operates upon the fluids, and particularly produces a putrescent state of them. This he acknowledges is frequently the case: but at the same time he maintains, that such a change of the fluids is not commonly the cause of fever; that very often it is only an effect; and that there is no reason for believing the termination of the fever to depend upon the expulsion of the putrid matter.

Another opinion with regard to intermittent fevers remains still to be mentioned. In these fevers a great quantity of bile is commonly thrown out by vomiting; and this is so frequently the case, that many have supposed an unusual quantity of bile, and perhaps a peculiar quality of it, to be the cause of intermittent fevers. This, however, does not appear to be well founded. Vomiting, by whatever means excited, if often repeated, with violent straining, seems to be powerful in emulging the biliary ducts, and commonly throws out a great deal of bile. This will happen especially in the case of intermittent fevers. For as, in the state of debility and cold stage of these fevers, the blood is not propelled in the usual quantity into the extreme vessels, and particularly into those on the surface of the body, but is accumulated in the vessels of the internal parts, and particularly in the *vena portarum;* so this may occasion a more copious secretion of bile. The circumstance, however, which chiefly occasions the appearance of bile in these cases is, the influence of warm climates and seasons. These seldom fail to produce a state of the human body, in which the bile is disposed to pass off by its secretories in greater quantity than usual, and perhaps also changed in its quality; as appears from the disease of the cholera, which so frequently occurs in warm seasons. This disease, however, occurs often without fever: and there are very strong reasons for supposing that intermittent fevers for the most part arise from another cause, viz. marsh effluvia; while at the same time there is no evidence of their arising from the state of the bile alone. The marsh effluvia, however, commonly operate in the same season that produces the change of the bile; and therefore, considering the vomiting and other circumstances of the intermittent fevers which here concur, it is not surprising that autumnal intermittents are so often attended with effusions of bile. See MARSH MIASMATA.

5. With regard to the *difference of fever* and its causes, with other physicians, Dr. Cullen supposes, that in every fever there is a power applied to the body which has a tendency to hurt and destroy it, and produces certain motions in it which deviate from the natural state: and, at the same time, in every fever which has its full course, he supposes, that, in consequence of the constitution of the animal economy, there are certain motions excited which have a tendency to obviate the effects of the noxious power, or to correct or remove it. Both these kinds of motions he considers as constituting the disease. The latter, which are of a salutary tendency, and considered as the operations of the *vis medricatrix naturæ,* he calls the RE-ACTION of the system.

From the above doctrine it appears, that, in fever, the circumstances of debility, spasm, and re-action, are chiefly to be considered; and therefore, according as these are different in degree, and different in proportion to one another, they will exhibit the chief differences of fever.

Every fever of more than one day's duration, consists of repeated paroxysms; and in those in which the paroxysms are distinctly observed, it is constantly to be remarked, that every paroxysm is finished in less than 24 hours: but as we cannot perceive any thing in the cause of fevers determining to this, we must suppose it to depend on some general law of the animal economy. Such a law seems to be that which subjects the economy, in many respects, to a diurnal revolution. The cause of this is uncertain; but the returns of sleep and watching, of appetites and excretions, and the changes which regularly occur in the state of the pulse, show sufficiently, that in the human body a diurnal revolution takes place. That the paroxysms are connected with that revolution appears from this, that though the intervals of paroxysms are different in different cases, the times of the accession of the paroxysms are generally fixed to one time of the day; so that quotidians come on in the morning, tertians at noon, and quartans in the afternoon. It is still, however, to be remarked, that as quartans and tertians are apt to become quotidians, these to pass into the state of remittents, and these to become continued; and that, even in the continued form, daily exacerbations and remissions are generally to be observed; all this shows so much the power of diurnal revolution, that when in certain cases, the daily exacerbations and remissions are with difficulty distinguished, we may still presume that the general tendency of the economy prevails; that the disease still consists of repeated paroxysms; and, on the whole, that there is no such disease as hath been commonly called a *continent fever*.

The repetition of the paroxysms depends on the circumstances belonging to them when already formed. The longer these paroxysms are protracted, the sooner they are repeated; and therefore we are to conclude, that the cause of the frequent repetition is to be sought for in the cause of the protraction of the paroxysms. The duration of the whole paroxysm chiefly depends upon that of the hot stage, in which the re-action is operating to take off the spasm formed in the cold stage. We may therefore suspect, that the longer duration of the hot stage, is owing either to the obstinacy of the spasm, or to the weakness of the re-action; and it is probable, that sometimes the one and sometimes the other of these circumstances takes place.

The degree of spasm which takes place in fever may be supposed different, according to the degree of irritability in each particular person; and therefore the re-action in fever being given, the paroxysm, or continuance of the hot stage, may be longer or shorter, according to the degree of spasm that has been formed. One of the causes of the obstinacy of spasm is, that in inflammatory diseases there is a *diathesis phlogistica* prevailing in the body, and this diathesis is supposed by Dr. Cullen to consist in an increased tone of the whole arterial system. When therefore this diathesis accompanies fever, as it sometimes does, it may be supposed to give occasion to the febrile spasms being formed more strongly, and thereby to produce more protracted paroxysms. Accordingly we find, that all inflammatory fevers are of the continued kind, and that all the causes of the diathesis phlogistica have a tendency to change intermittent into continued fevers. As continued fevers, therefore, are in many cases attended with the diathesis phlogistica, our author thence concludes, that this is the cause of their continued form. In many fevers, however, there is no evidence of any diathesis phlogistica being present, or any evidence of more considerable spasm; and in such fevers we must impute the protraction of the paroxysms, and the continued form of the fever, to the weakness of reaction. That this cause takes place, may be concluded from hence, that in many cases of fever wherein the separate paroxysms are the most protracted, and the most difficultly observed, we find the most considerable symptoms of a general debility, and therefore it may be concluded, that in such cases the protracted paroxysms and continued form depend upon a weaker re-action, owing either to the causes of debility applied having been of a more powerful kind, or to circumstances of the patient's constitution favouring their operation.

From the view just now given of the causes of the protraction of paroxysms, and therefore of the form of continued fevers strictly so called, it seems probable, that the remote causes of these operate by occasioning either a phlogistic diathesis, or a weaker reaction; for we can observe, that the most obvious difference of continued fevers depends upon the prevailing of one or other of these states.

6. With regard to the *remote causes of fever*, as this has been considered as consisting chiefly in an increased action of the heart and arteries, physicians have supposed, that certain direct stimulants, fitted to produce this increased action, are the remote causes of fever. In many cases, however, there is no evidence of such stimulants being applied; and in the cases in which they are applied, they either produce only a temporary frequency of pulse, which cannot be considered as a disease, or if they do produce a permanent febrile state, it is by the intervention of a topical inflammation, which produces a disease different from what is strictly to be called a *fever*.

That direct stimulants are the remote causes of fever seems farther improbable, because the supposition does not account for the phænomena attending the accession of fevers, and because other remote causes can with greater certainty be assigned. As fevers are so generally epidemic, it is probable, that some matter floating in the atmosphere, and applied to the bodies of men, ought to be considered as the remote cause of fevers. These matters being present in the atmosphere, and acting upon men, may be considered either as *Miasmata*, or as *Contagions* (see those articles). But though it is probable that fevers generally arise from marsh or human effluvia, we cannot with any certainty exclude some other remote causes which are commonly supposed to have a share in producing them. The first of these causes to be taken notice of is, the operation of cold on the human body.

This acts so differently in different circumstances, that it is difficult to give a satisfactory explanation of it. In certain circumstances *cold* has manifestly a sedative power. It can extinguish the vital principle entirely, either in particular parts, or through the whole body; and, considering how much the vital principle of animals depends upon heat, it cannot be doubted that the power of cold is always more or less directly sedative.—But it is equally manifest, that, in certain circumstances, cold proves a stimulus to the living body, and particularly to the sanguiferous system. Besides the sedative and stimulant powers of cold, it is also manifestly a powerful astringent; causing a contraction of the vessels on the surface of the body, and thereby producing paleness and a suppression of perspiration. It is likewise probable, that this constriction is in some measure communicated to the whole body, and that thereby the application of cold proves a tonic with respect to the whole system.

These several effects of cold do not all take place at the same time, but may be variously combined. The stimulant power taking place, obviates the effects that might otherwise have arisen from the sedative, and in some measure from those of the astringent power. But the stimulant and tonic powers of cold are commonly conjoined, and the former perhaps depend in part upon the latter. See Cold affusion.

In what circumstances these different effects of cold take place, is difficult to determine; but the morbid effects may be observed to be chiefly of four kinds. One is a general inflammatory diathesis of the system; which is commonly accompanied with rheumatism, or other phlegmasia. A second is a catarrhal affection; a third is a gangrene; and a fourth is a proper fever. In producing this last, the operation of cold generally concurs with that of marsh or human effluvia. In all its operations, cold seems to act more powerfully, in proportion as the body, and particularly the vigour of the circulation, is previously more weakened.

Besides cold, there are other powers which seem to be the remote causes of fever; as fear, intemperance in drinking, excess in venery, and other causes, which evidently weaken the system. But, whether any of these sedative powers be alone the remote cause of fever, or if they only concur with the operation of marsh or human effluvia, or if they give an opportunity to the positive operations of cold, are questions not to be answered with certainty.

The *causes of death in fevers* have also been enumerated by Dr. Cullen, and will be found detailed under the article Death.

The symptoms which denote the *violence of reaction* in fevers, are 1. The increased force, frequency, and hardness of the pulse. 2. The increased heat of the body. 3. Those symptoms which are the general marks of an inflammatory diathesis; and more especially those of a particular determination to the brain, lungs, or other important viscera. 4. Those which are the marks of the cause of violent reaction; that is, of a strong spasm, appearing in the suppression of the excretions.

The symptoms which denote *a great deal of debility* are—In the animal functions, 1. The weakness of the voluntary motions. 2. The irregularity of the voluntary motions depending on their debility. 3. The weakness of sensation. 4. The weakness and irregularity of the intellectual operations.—In the vital functions, 1. The weakness of the pulse. 2. The coldness or shrinking of the extremities. 3. The tendency to a deliquium animi in an erect posture. 4. The weakness of respiration.—In the natural functions, 1. The weakness of the stomach, as appearing in anorexia, nausea, and vomiting. 2. Involuntary excretions, depending upon a palsy of the sphincters. 3. Difficult deglutition, depending upon a palsy of the muscle of the fauces.—The symptoms denoting a putrescent state of the fluids, are: 1. In the stomach, the loathing of animal food, nausea, and vomiting, great thirst, and a desire of acids. 2. In the mass of blood an unusual fluidity, so that when drawn out of the veins it does not coagulate as usual; hæmorrhagy from different parts, without marks of increased impetus; effusions under the skin or cuticle, forming petechiæ, maculæ, and vibices, and effusions of a yellow serum under the cuticle. 3. In the state of excretions, frequent, loose, and fetid stools; high-coloured turbid urine; fetid sweats; and the fetor of a blister. 4. The cadaverous smell of the whole body.

With regard to the opinion, that there is something in the nature of fevers which generally determines them to be of a certain duration; and those periods called *Critical Days*, Dr. Cullen's opinion is stated under that article.

For an account of the different species of fever, and their treatment in detail, see their proper names and also the articles, Hectica, Tertiana, Quartana, Typhus, &c.

FEVERFEW. See Matricaria.

FI'BER, (from *fiber*, extreme, because it resides in the extremities of lakes and rivers), the beaver; *Caster fiber*, Linn. This animal has two excretory follicles, near the anus, which are filled with an unctuous substance called castor. See Castoreum.

FIBRE; a simple filament, composed of animal particles, connected together by an intermediate gluten. It is owing to the different arrangements of the fibres that the bones, cellular structure, membranes, muscles, vessels, nerves, and, in short, every part of the body, except the fluids, are formed.

By the name of *muscular* or *moving fibres* in the human body, we call bundles of reddish-coloured threads, which perform all the motions of which we are sensible. When many of these fibres are collected together, and appear more evidently red, they are called a *muscle*. See Muscle. The extreme simplicity of the fabric in these parts has been the cause of the obscurity that prevails in understanding how a small, soft, fleshy portion, can produce such strong and ample motions as we see in man, but more especially in the crustaceous insects. See Muscular motion.

In every muscle we meet with long soft threads, or *fibres*, somewhat elastic, or extensible, and almost constantly disposed parallel with each other; and these, being surrounded with a good deal of cellular substance, are by that fastened together into little bundles, called *lacertuli*, which are again tied together into larger bundles, by a more loose cellular net-work, which contains some fat; and betwixt these we constantly perceive membranous partitions and stripes of the cellular substance removing them farther from each other, till at last a number of them, combined together in a posture either parallel or inclined, are surrounded with a more thin and dense cellular membrane, contiguous with that of their partitions; and this being again surrounded by a thicker plate of the cellular substance, externally parts the whole from the adjacent flesh, and gives it the denomination of a *single* or *entire muscle.* In every one of these threads there appears a lesser series of filaments, which, by oblique extremities, are cemented to others of the same kind, forming together a large fibre.

With regard to the nature of the ultimate moving fibres, there have been many disputes. Some think they are solid; others, that they are hollow, formed of a series of vessels or rhomboidal chains communicating with each other: some have been of opinion, that they are full of a kind of down or woolly substance, &c. It may be asked, Whether they are hollow? whether they are continued with the arteries? or, whether the difference betwixt muscular and tendinous fibres lies in the latter being rendered more dense and put closer together by an expulsion of the fluids? That these are not probable, appears from the minuteness of the fibres, which are found less than the red-blood globules, and from the whiteness of a muscle after the blood is washed out of it; to which we might add other physiological reasons. And, in general, more strength may be expected from a solid fibre.

The structure of the tendons and aponeuroses agrees in some respects with, but differs in others from, that of the muscles. We observe their fibres regularly disposed, and separated by cellular substance and blood-vessels; and without doubt they have lymphatics and nerves: but the tendinous fibres are closer together than those of the muscles, the cellular substance which separates them is finer, their red vessels fewer in number, and the nerves cannot be traced without difficulty into their substance.

It has been doubted whether the fibres of tendons are a continuation of the moving fibres, or of a different nature. Many, both ancients and moderns, have embraced the first opinion, others the second: but on considering that the tendinous fibres are not irritable, have no contraction, that they differ little from those which constitute the ligaments, and that they degenerate sometimes into a substance truly cellular, Dr. Monro is inclined to the latter opinion.

According to Haller, a muscle therefore is endowed at least with a threefold force. First, the dead one, common to it with other animal fibres. Another, which he has called the *vis insita*, and which has different phenomena from the former. See Vis insita. For it is more proper to life, and the first hours after death, and disappears much sooner than the dead one. Again, in most cases, it acts by alternate oscillations; so that, being driven hither and thither, it sometimes contracts the muscle towards the middle: sometimes again it extends the muscle from the middle towards the extremities, and sometimes also it has a reiterated motion. Moreover, it is manifestly quicker, and performs the greatest motions. It is excited both by the pricking of an iron instrument, and in the hollow muscles by inflated air, by water, and every kind of acrimony, but most powerfully of all by a stream of electrical matter. Lastly, it is proper to the muscular fibre, and is found in no other part of the human body with the qualities above mentioned. But a more particular explication of its phenomena will occur under the article Muscular motion, already referred to.

The state of the fibres is indicative of various deviations from a healthy standard. When there is a *lax* fibre, debility is supposed to prevail; and, on the opposite extreme of too great *rigidity*, the body is obnoxious to other maladies from that cause. See Weakness.

FIBRE, MUSCULAR. See Muscular fibre.

FIBROUS, in botany, a term which Linnæus applies to those *roots* that consist entirely of small fibres, or radiculæ.

FIBRINE. The coagulable lymph is so termed by the French chemists.

FI'BULA, *(quasi figulula*, from *figo*, to fasten; so named, probably, because it joins together the tibia and the muscles); a long bone, placed on the outside of the leg, opposite to the external angle of the tibia; its shape being irregularly triangular.

The head of the fibula has a superficial circular cavity formed on its inside, which, in a recent subject, is covered with a cartilage, but so closely connected to the tibia by ligaments, as to allow only a small motion backwards and forwards. This head is protuberant and rough on its outside, where a strong round ligament and the musculus biceps are inserted; and, below the back-part of its internal side, a tubercle may be remarked, that gives rise to the strong tendinous part of the solæus muscle.

The body of this bone is a little crooked inwards and backwards; which figure is owing to the actions of the muscles; but it is still farther increased by nurses, who often hold children carelessly by the legs. The sharpest angle of the fibula is forwards; on each side of which the bone is considerably, but unequally, depressed by the bellies of the several muscles that rise from or act upon it; and in old people, these muscles make distinct sinuosities for themselves. The external surface of the fibula is depressed obliquely, from above downwards and backwards, by the two peronæi. Its internal surface is unequally divided into two narrow longitudinal planes, by an oblique ridge extended from the upper part of the anterior angle, to join with the lower end of the internal angle. To this ridge the ligament stretched between the two bones of the leg is connected. The anterior of the two planes is very narrow above, where the extensor longus digitorum and extensor longus pollicis arise from it; but is broader below, where it has the print of the nonus Vesalii.

The posterior plane is broad and hollow, giving origin to the larger share of the tibialis posticus. The internal angle of this bone has a tendinous membrane fixed to it, from which fibres of the flexor digitorum longus take their rise. The posterior surface of the fibula is the plainest and smoothest; but is made flat above by the solæus, and is hollowed below by the flexor pollicis longus. In the middle of this surface, the canal for the medullary vessels may be seen slanting downwards.

Dr. Monro takes particular notice of the entry and direction of the medullary vessels of the large bones of the extremities; because, in several chirurgical cases, a surgeon who is ignorant of this may do mischief to his patient. Thus, for example, if these vessels are opened very near to their entry into the bone, or while they are in the oblique passage through it, an obstinate hæmorrhagy may ensue: for the arteries being connected to the bony passage, styptics, and other such corrugators, are applied in vain; compressing instruments can do no service, and ligatures cannot be employed. There seems to be a particular contrivance in these canals; those in the os humeri, tibia, and fibula running obliquely downwards from their external entry; whereas in the radius, ulna, and os femoris, they slant upwards, whereby the arteries and nerves which are sent into these three last bones must suffer a considerable reflexion before they come at the cancelli. The reason of this diversity may perhaps be, that the arteries, which are so small within the bones as to have no strong contractile propelling force in their coats, and where they are not assisted by the action of any moving neighbouring organ, should have, at least in their passage through the bone, a favourable descent for their contents: which, it is evident, they have in descending oblique passages formed for them in the first class of bones, to wit, the os humeri, tibia, and fibula, which are generally depending; and they also most frequently acquire the like advantage in the radius, ulna, and os femoris; because the hand, in the most natural posture, is higher than the elbow: and when we sit or lie, the lower end of the thigh-bone comes to be at least raised as high as the upper end. In standing and walking, or when the arms are moved, the blood must indeed ascend as it passes through the bones of the fore-arm and thigh; but the pressure of the muscles, then in action on the vessels, before they enter the bones, is sufficient to compensate the disadvantage of their course. This reasoning seems to be still enforced, by observing, that this passage is always nearer the upper than the lower ends of these bones.

The lower end of the fibula is extended into a spongy oblong head; on the inside of which is a convex, irregular, and frequently a scabrous, surface, that is received by the external hollow of the tibia, and so firmly joined to it by a very thin intermediate cartilage and strong ligaments, that it scarce can move. Below this the fibula is stretched out into a smooth coronoid process, covered with cartilage on its internal side, and is there contiguous to the outside of the first bone of the foot, the astragalus, to secure the articulation. This process, named *malleolus externus*, being situated farther back than the internal malleolus, and in an oblique direction, obliges us naturally to turn the fore-part of the foot outwards. At the lower internal part of this process, a spongy cavity for mucilaginous glands may be remarked; from its point, ligaments are extended to the astragalus, os calcis, and os naviculare, bones of the foot; and from its inside, short strong ones go out to the astragalus. On the back part of it a sinuosity is made by the tendons of the peronæi muscles. When the ligament, extended ever these tendons from the one side of the depression to the other, is broken, stretched too much, or made weak by a sprain, the tendons frequently start forwards to the outside of the fibula.

The conjunction of the upper end of the fibula with the tibia, is by plain surface stipped with cartilage; and at its lower end the cartilage seems to glue the two bones together; not, however, so firmly, in young people, but that the motion at the other end of such a long radius is very observable. In old subjects, Dr. Monro says, he has often seen the two bones of the leg grown together at their lower ends.

The principal use of this bone is to afford origin and insertion to muscles; the direction of which may be a little altered, on proper occasions, by its upper part shuffling backwards and forwards. It likewise helps to make the articulation of the foot more secure and firm. The ends of the tibia and fibula being larger than their middle, a space is here left, which is filled up with such another ligament as we know is extended between the bones of the fore-arm; and which is also discontinued at its upper part, where the tibialis anticus immediately adheres to the solæus and tibialis posticus; but every where else it gives origin to muscular fibres.

Both the ends of the fibula are cartilaginous in a grown child, and assume the form of appendices before they are united to its body.

FI'BULA, the name of a contrivance of the ancients for bringing the lips of wounds together.

FICA'RIA, (from *ficus*, a fig, so called from its resemblance); the herb FIG-WORT.

FI'CI; fleshy excrescences about the anus, each in their flat figure resembling a fig.

FI'CUS CA'RICA; the systematic name ot fhe fig-tree. See CARICA.

FIDICINA'LES MUSCULI. See LUMBRICALIS.

FIE'NUS (Thomas), an ingenious and learned physician, born at Antwerp in 1566, and who studied physic in Italy under Mercurialis and Aldrovandus. He distinguished himself in the university of Louvain, where he was chosen professor of medicine, and afterwards made physician to the duke of Bavaria. He died at Louvain in 1631, aged sixty-four years. He composed several works, among which were the treatises, "*De viribus imaginationis*," and "*De formatione fœtus*."

FIGS. See CARICA.

FIG-WORT. See SCROPHULARIA.

FILAMENT, in anatomy, &c. a term used in the same sense with *fibre*, for those fine threads whereof the flesh, nerves, skin, plants, roots, &c. are composed. See Fibre. Vegetable Filaments form a substance of great use in the arts. Putrefaction destroys the pulpy or fleshy matter, and leaves the tough filaments entire: by curiously macerating the leaf of a plant in water, we obtain the fine flexile fibres, which constituted the basis of the ribs and minute veins, and which now form as it were a skeleton of the leaf. See Botany.

FILE'LLUM, the frenum of the prepuce.

FILE'TUM, the frenum under the tongue.

FILI'CES, (from *filum*, a thread, *quasi filatim incisa)*, ferns; one of the seven tribes or families of the vegetable kingdom, according to Linnæus, by whom it is thus characterized: "having their fructification on the back side of the frondes." They constitute the first order in the class *cryptogamia;* and consist of 16 genera, which are divided into *fructificationes*, *spicatæ*, *frondosæ*, and *radicales.* This order comprehends the entire 16th class of Tournefort, in whose system the filices make only a single genus, in the first section of the abovementioned class. Filices, is also the 55th order of plants in the *Fragmenta methodi naturalis* of Linnæus. The genera are, Acrostichum; Adianthum, *Maiden-hair;* Asplenium, *Spleen-wort*, or *Milt-waste;* Blechnum; Hemionitis, *Mule's-fern;* Isoetes; Lonchitis, *Rough Spleen-wort;* Polypodium, *Polypody;* Pteris, *Brakes*, or *Female Fern;* Trichomanes; Marsilea; Onoclea; Ophioglossum, *Adder's-tongue;* Osmunda, *Osmund-royal*, or *Flowering Fern;* Pilularia, *Pepper-grass.* Most of the ferns have a heavy disagreeable smell.

FILIPE'NDULA, (from *filum*, a thread, and *pendo*, to hang, so named from the numerous bulbs of its root, hanging as it were by small threads), *saxifraga rubra*, or drop-wort. This is the *Spiræa filipendula; foliis pennatis, foliolis uniformibus serratis, caule herbaceo, floribus corymbosis*, Linn. The root possesses astringent, and, it is also said, lithontriptic virtues. It is seldom, however, used in the practice of the present day.

FI'LIX, male polypody, or fern; the *polypodium filix mas*, Linn. The root of this plant has long been celebrated for its effects upon the *tænia osculis superficialibus*, or broad tape-worm; and Madame Noufer acquired great celebrity by employing it as a specific. The mode of exhibiting it is shown under the article Tænia.

FI'LIX FÆMINA; the female fern. The plant which is thus called in the foreign pharmacopœias, is not the *polypodium filix fæmina*, but the *pteris aquilina; frondibus supradecompositis, foliolis pinnatis pinnis lanceolatis, infimis pinnatifidis, superioribus minoribus*, Linn. Of this plant, however, the root is esteemed as an anthelmintic, and is supposed, by some, to be as efficacious in destroying the tape-worm as the root of the male-fern.

FI'LIX MAS. See Filix.

FILM, a thin skin or pellicle. In plants, it is used for that thin, fibrous skin, which separates the seeds in the pods, and keeps them apart.

FILTER, or Filtre, in chemistry, &c. a piece of woollen cloth, linen, paper, or other matter, some of which are in the form of hollow inverted cones, used to filtrate or strain liquors through. The filter has the same use and effect with regard to liquids, that the sieve or searce has on dry substances. Filters are of two sorts. The first are simple pieces of paper or cloth, through which the liquor is passed without farther trouble. The second are twisted up like a skain or wick, and first wetted, then squeezed, and one end put in the vessel that contains the liquor to be filtrated; the other end is left out, and hangs down below the surface of the liquor: by this means the purest part of the liquor distils, drop by drop, out of the vessel, leaving the coarser part behind. This filter acts as a siphon.

FILTRATION, the act of passing any liquor through a filter, called also *colature*, *percolation*, and *transcolation.* See the article Filter.

FI'MBRIÆ, *(quasi finibria*, from *finis*, the extremity); fringes. The extremities of the Fallopian tubes have this name from their appearance. See Tubæ fallopianæ.

FINCKLE, a name for fennel. See Fæniculum.

FINE LEAVED WATER-HEMLOCK. See Fæniculum aquaticum.

FINO'CHIO; the Italian name by which the sweet azonian fennel is called.

FIR-TREE. See Abies.

FIR, BALSAM OF GILEAD. See Balsamea.

FIR, CANADA. See Balsamum Canadense.

FIR, NORWAY SPRUCE. See Pinus abies.

FIR, SCOTCH. See Pinus silvestris.

FIR, SILVER. See Pinus picea.

FIRE, that subtle invisible cause, by which bodies are expanded or enlarged in bulk, and become hot to the touch; fluids are rarefied into vapour; solid bodies become fluid, and in like manner are at last dissipated, or, if incapable of being carried off in vapour, are at length melted into glass. It seems likewise to be the chief agent in nature on which animal and vegetable life have an immediate dependence, and without which it does not appear that nature itself could subsist a single moment.

The disputes concerning fire, which for a long time divided philosophers, have now in a great measure, though not wholly, subsided. The celebrated philosophers of the 17th century, Bacon, Boyle, and Newton, were of opinion, that fire was no distinct substance from other bodies, but that it consisted entirely in the violent motion of the parts of any body. As no motion, however, can be produced without a cause, they were obliged to have recourse to a mechanical force or impulse as the ultimate cause of fire in all cases. Thus Boyle tells us, that when a piece of iron becomes hot by hammering, "there is *nothing* to make it so, except the forcible motion of the hammer impressing a vehement and variously-determined agitation on the small parts of the iron." Bacon defines *heat*, which he makes synonymous with fire, to be "an expansive undulatory motion in the minute particles of a body, whereby they tend with some rapidity from a centre towards a circumference, and at the same time a little upwards." Sir Isaac Newton said nothing positive upon the subject, but conjectured that gross bodies and light might be convertible into one another; and that great bodies of the size of our earth, when violently heated, might continue and increase their heat by the mutual action and re-action of their parts.

But while the mechanical philosophers thus endeavoured to account for the phenomena of fire, upon the same principles which they judged sufficient to explain those of the universe in general, the chemists as strenuously asserted, that fire was a fluid of a certain kind, distinct from all others, and universally present throughout the whole globe. Boerhaave particularly maintained this doctrine; and in support of it brought the following argument: that steel and flint would strike fire, and produce the very same degree of heat in Nova Zembla which they would do under the equator. Other arguments were drawn from the increased weight of metalline oxids, which they supposed to proceed from the fixing of the element of fire in the substance whose weight was thus increased. By these experiments, Mr. Boyle himself seems to have been staggered; as he published a treatise on the possibility of making fire and flame ponderable; though this was directly contrary to his own principles already quoted. For a long time, however, the matter was most violently disputed; and the mechanical philosophers, though their arguments were equally inconclusive with those of their adversaries, at last prevailed through the prejudice in favour of Sir Isaac Newton, who indeed had scarce taken any active part in the contest.

That the cause of fire cannot be any mechanical motion which we can impress, is very evident; because, on mechanical principles, an effect must always be proportionable to the cause. In the case of fire, however, the effect is beyond all calculation greater than the cause, supposing the latter to be only a mechanical percussion, as in the case of hammering iron till it be red hot. By a few strokes of an hammer, the particles of a piece of iron, we shall allow, may be set in a violent motion, and thus produce fire. If, however, we direct the motion of these particles upon another body whose parts are at rest, and in some degree coherent, it is plain that the latter will resist and diminish the motion of the particles already moved, in proportion to their *vis inertiæ*, as well as the cohesion of the parts of the second body, if indeed we can suppose the *vis inertiæ* of matter to be different from the effect of gravitation, cohesion, or some other power acting upon it. By no argumentation whatever, then, can we show, upon mechanical principles, why fire should have such a tendency to increase and multiply itself without end, as we see it has, even abstracting from all consideration of the necessity of air for continuing the action of fire.

The action of the air, in augmenting and continuing the power of fire, seems scarce at all to have been considered by those who first undertook an investigation of the subject. It evidently gave rise to the Hutchinsonian hypothesis, that fire, light, and air, were convertible into one another. This, however, is equally untenable with the mechanical hypothesis: for later discoveries have shown, that our atmosphere is composed of two distinct fluids, only one of which is fit for supporting flame: and if we should suppose this to be the only proper air, it is in like manner demonstrated, that this pure fluid is not homogeneous, but composed of a gravitating and non-gravitating substance; the latter of which only has the properties of fire: so that this element is still as invisible as ever; nor can it be shown, by any experiment, that fire *per se* has ever been changed into a palpable or gravitating substance.

The experiments which first seemed to bring this dispute to a decision were those of Dr. Black, concerning what he called *latent heat;* on which some other names, such as *absolute heat*, *specific fire*, &c. have been bestowed, very little to the advancement of science in general. From these discoveries it appears, that fire may exist in bodies, in such a manner as not to discover itself in any other way than by its action upon the minute parts of the body; but that suddenly this action may be changed in such a manner as no longer to be directed upon the particles of the body itself, but upon external objects: in which case we then perceive its action by our sense of feeling, or discover it by the thermometer, and call it *sensible heat.* This expression, it must be owned, is improper; and the use of the word *heat*, instead of *fire*, has produced some confusion, which it is not now easy to avoid in speaking on these subjects. By the word *heat*, we ought always to understand the effect of fire, or the fluid acting in a certain manner, rather than the mere element itself; which, it is certain, from the experiments just mentioned, may exist in substances actually *cold* to the touch.

From this discovery made by Dr. Black, along with many others in electricity, and recorded at length in various scientific publications, it is now almost universally allowed, that fire is a distinct fluid, capable of being transferred from one body to another. But when this was discovered, another question no less perplexing occurred, viz. what kind of a fluid it was; or whether it bears any analogy to those with which we are better acquainted? Here we find two fluids, viz. the solar light and the electric matter, both of which occasionally act as fire, and which therefore seem likely to be all the same in the end. By the vulgar, indeed, the matter has long ago been determined; and the rays of the sun as well as the electrical fluid have been promiscuously denominated *elementary fire.* Philosophers, indeed, have withheld their assent; though their reasons for so doing are by no means apparent. The most strange suppositions, however, have been made concerning the nature of both these fluids; and on the most slender grounds imaginable, or rather on no grounds at all, they have been supposed to be phlogiston itself, or to contain a large proportion of it. Mr. Scheele went so far in this way as to form an hypothesis, which he endeavoured to support by some experiments, that fire is composed of dephlogisticated air and phlogiston. But it is now ascertained beyond all possibility of dispute, that the result of such a combination is not fire, but carbonic acid: so we need not take any farther notice of this hypothesis than just to observe, that it would have been altogether untenable, even though this discovery had not been made: because, in fact, the oxygen itself is not a simple but a compound substance, as has already been observed; and that in all cases of combustion the one part of the gas is separated from the other.

It was long ago observed by Sir Isaac Newton, that heat was certainly conveyed by a medium more subtle than the common air; because two thermometers, one included in the vacuum of an air-pump, the other placed in the open air, at an equal distance from the fire, would grow equally hot in nearly the same time. The consequence of this, had he pursued the thought, was, that fire itself was equally present in all places, and as active where there was no terrestrial matter as where there was. New improvements in the air-pump have enabled succeeding philosophers to make more perfect vacuums, such as it has been supposed even the electric matter cannot pass through. It is not to be doubted, however, that, even there, the thermometer would be heated by a fire as well as in the open air. Fire, therefore, exists and acts where there is no other matter, and of consequence is a fluid *per se*, independent of every terrestrial substance, without being generated or compounded of any thing we are yet acquainted with. To determine the nature of this fluid, we have only to consider whether any other can be discovered which will pass through the perfect vacuum just mentioned, and act there as fire. Such a fluid we find in the solar light, which is well known to act even *in vacuo* as the most violent fire. The solar light will likewise act in the very same manner in the most intense cold; for M. de Saussure has found, that on the cold mountain top, the sun-beams are equally, nay more, powerful than on the plain below. It appears, therefore, that the solar light will produce heat independent of any other substance whatever; that is, where no other body is present, at least as far as we can judge, except the light itself, and the body to be acted upon. We cannot therefore avoid concluding, that a certain modification of the light of the sun is the cause which produces heat, expansion, vapour, &c. and answers to the rest of the characters given in our definition of fire, and that independent of any other substance whatever.

Some philosophers of the present time have endeavoured to show, that the electric matter is no other than the light of the sun absorbed by the earth, and thus becoming subject to new laws, and assuming many properties apparently different from what it has when it acts as light. Yet even in this case it manifests its identity with fire or light, *viz.* by producing a most intense heat where a large quantity of it passes through a small space. *In vacuo*, indeed, we cannot manage it in such a manner as to make the proof decisive. But though this must be accounted a defect, it never can amount to any positive proof that electricity and fire are different. We see that in some cases they produce the very same effects; and if they do not so in all, we ought rather to account for the difference from the variation of circumstances, and our want of knowledge or abilities to make proper experiments, than to multiply elements without any necessity, when one is evidently capable of answering all the purposes of nature. At any rate, the experiments which have already been made, and the proofs adduced from the phenomena of nature, show such a strong affinity between the elements of fire, light, and electricity, that we may not only assert their identity upon the most probable grounds, but lay it down as a position against which no argument of any weight has an existence at present. For further particulars on this subject, see HEAT, FLAME, FLUIDITY, &c.

FISH, a class of animals from among which many are selected for human sustenance. In his chapter on aliments taken from this class, Dr. Cullen observes, that though the similarity of substance and economy, in quadrupeds, to that of man, admit of little difficulty in supposing that the former might be alimentary with respect to the latter; yet, with respect to fishes, there is no such analogy to direct us. It would be difficult to determine therefore, *a priori*, that the substance of these animals must prove nutritious. They have indeed several properties in common with other animal substances, as that of yielding a volatile alkali in the first part of their distillation, and that of their being putrescent; but these circumstances would hardly be enough to settle the question. The proof therefore rests entirely upon experience, which has shown them to have been, in all times and places, employed successfully as food. In some parts of the world, indeed, there are people who live entirely upon fish; and with many other people it is, as a matter of choice, the chief part of their diet, and in such cases it appears to be perfectly sufficient for all the purposes of human economy.

There is certainly some difference in the firmness of the substance of different fishes; but this is never very considerable; and it is curious to observe, that although they are long-lived animals, yet the difference of firmness in their texture at different ages is seldom remarkable. Dr. Cullen adds, that although the substance of fishes is putrescent, and at length becomes entirely putrid, yet their putrefaction is attended with different phenomena from that of the hot-blooded animals; but he is unable to say, what are the different states of it in its progress, and therefore how far it affects them as an alimentary matter.

There is, however, a case in which certain fishes, independent of the state of their putrescency, give a singular irritation to the system. It is during their digestion in the stomach that certain fishes are apt to occasion a considerable efflorescence upon the skin; sometimes in certain parts of it only, but sometimes over the whole body; sometimes with a considerable febrile disorder, but at other times with very little. It is seldom of long duration, and commonly ceases by the time that the matter is entirely digested and passed out of the stomach. It is, at least, easily to be removed by a vomit, bringing up the contents of the stomach. Dr. Cullen thinks that this phenomenon depends upon an operation upon the stomach, and not upon any matters being mixed with the blood: yet it may be a question, he says, whether it depends on an action upon the nerves of the stomach, which is communicated to the skin, or upon the operation of the substance of fish determined more particularly to the surface of the body? See FISH-POISON.

In the comparison of these with the aliment derived from warm-blooded animals, the circumstance that especially demands our attention, is the quantity of nourishment they severally afford. The common opinion is, that fish afford a weaker nourishment than meat does. The celebrated Haller, who made the experiment, found himself weakened by a fish-diet, and alleges that the same has occurred in persons who have observed Lent from religious motives. The observations of Pechlin also seem to confirm this; but Dr. Cullen attributes much fallacy to these observations, as the weakness alleged may possibly be owing more to the quantity of vegetable aliment employed at the same time, than to that of the fish.

Respecting the different qualities of particular fishes on which writers have grounded some material distinctions, Dr. Cullen finds it difficult to speak clearly, as no experiments within his knowledge have been made to determine the matter. Some difference, he thinks, will arise from the difference of texture, and that the tenderer and more gelatinous kinds, as occurs especially in the cartilaginous fishes, will be more easily digested, and more nourishing, than those of a firmer and drier texture. Fishes, as having less oil in their substance than flesh meats have, are said therefore to be less nourishing; and this is alleged with some probability; but how far it goes, is difficult to determine; for in many fishes, the quantity of oil in their substance is inconsiderable. It may, however, be taken for granted, that the oily fishes, as aliment, are less easily digested, more irritating to the system, but at the same time more nourishing, than the leaner sort. We seem to have examples of this in the eel, salmon, and herring: with regard to the last, it is notorious, that our herring-fishers, who live for some length of time upon this aliment alone, suffer no loss of strength, and seem rather always to be much fattened by it.

With regard to the properties of particular fish, we have the following account in a treatise on Diet by Dr. Nisbet.

1. *Salmon*—This is a very extensive article of food, and is used in three ways, either fresh, cured, or smoked. It is of a tender substance, sufficiently succulent and nourishing, but at the same time somewhat oily, and therefore heavy on the stomach. It differs in its richness and alkalescency according to the particular places in which it is taken. When middle-aged it is in most perfection, and it should neither be eaten too young nor too old.

Salmon-Trout differs chiefly in being soft and gelatinous.

2. *Pike*—This is a fish of prey, and feeds on the smaller species. Hence it is termed the water-wolf. Its flesh is short, compact, and close in its parts. The river pike is the best of this species, and considered as the least heating, though somewhat hard of digestion and lying heavy on the stomach. It differs, however, much in different countries. It is also best in the winter season. This fish has been recorded as very long-lived; a fact, confirmed by the story of the one thrown into a pond by the emperor Frederick the Second, with a brass ring about its neck, which was caught two hundred and sixty-two years afterwards. The truth of this, however, is extremely questionable.

3. *Carp*—The Carp is a fish very long lived, and was first introduced into Britain in 1514. Like the pike, the river carp is the best. It often grows to an amazing size, and has been known to weigh two hundred pounds weight. It is best for food in March, May, and June. It is not so dense as the pike, and therefore easier of digestion. The older it is, it becomes the firmer, better tasted, and more wholesome. From the spawn of this fish is made the caveare, a dish much used by the Jews. This fish can be made to live a considerable time out of water, and will even, by a particular mode of treatment, grow fat.

4. *Perch*—The perch is a food superior to the two former, and is of two sorts, the river and sea perch. It is of a firm texture, but a tender substance, easily soluble, not glutinous, not heating, nor remarkably stimulant. When young its flavour is best, which it loses by age, and becomes rather ill-tasted. The best for use are the middle-aged. They should never be used in the months of March or April, which is the spawning time. They are best caught in clear water, for marshes and muddy places vitiate their flavour.

5. *Whiting*—The whiting is a sea fish, tender, white, and delicate, with little gluten or viscidity, and therefore proper for the most weakly stomachs, conveying little stimulus to the system. The best sort are short, and they are justly valued as an article of food.

6. *Haddock*—Is a sea fish, and resembles the whiting, but is firmer in its texture, and in general much larger in size. It is caught in high perfection in different parts on the coast of Britain, particularly in the month of January.

7. *Cod*—The cod is also a sea fish, of a more dense and glutinous texture than the two former, and its delicate parts are the gelatinous ones about the head, and the sounds. It is used of three kinds—the fresh cod, the green or white cod, and the dried or cured cod—the difference lying in the preparation of the two last; the one being salted and barrelled for use, the other being salted, and dried in the sun, or smoked. The green cod generally comes from Newfoundland; the dry cod is mostly taken on the coasts of Placentia and Scotland. Both these kinds require to have their salt much extracted, by immersion in water, before being used. The pickle of cod is frequently used as an external application of an astringent nature.

8. *Eels*—These have no excercise, are fat and slimy; they contain much nourishment, but are difficultly perspirable; they are well tasted, but, from their viscidity, are apt to lie heavy on the stomach. They are dressed in a variety of ways, but are lightest when roasted, and should be well seasoned with condiments, particularly vinegar and horseradish; for when long re-

tained on the stomach they become heating and oppressive. The best kind are taken in clear water. They are very retentive of life, and have been known to live five or six days out of water. From the skin a mucilage is made, reckoned of sovereign virtue, by the vulgar, in strumous swellings.

9. *Tench*—The tench is a fish of a delicate taste. It feeds generally in muddy places, and is said to be the only fish that the pike spares. When it can be procured from clear water, the flavour is always superior. It was much under-rated by the ancients, but in modern times it is esteemed as equal to carp. Its name it derives from the peculiarity of its colour.

10. *Trout*—Of this fish there is a great variety, but the salmon-trout is the best, being soft and gelatinous, and at the same time somewhat stimulant and alkalescent. All trout, indeed, are a very putrescent food, and therefore easy of digestion. They should be eaten in their fresh state, and taken, if possible, from running water. They are best in summer, for then they are in fine condition, and their flavour delicate.

It is to be presumed, from Dr. Cullen's general remarks on fishes, as an article of food, that the *crustacea*, differ in no material degree from those mentioned above: his observations on this head will, however, be found under the article Shell-fish.

FISH-GLUE. See Ichthyocolla.

FISH-POISON, a deleterious quality residing in fishes, under certain circumstances, not yet clearly ascertained. Some stomachs seem be more susceptible of the action of this poison than others, and feel the effects of it almost immediately; the symptoms in others do not appear until two, three, or four hours after eating the fish, and some escape their violence altogether.

The *symptoms of fish-poison* are thus described by Dr. Thomas, in his paper on that subject published by the Medical Society of London. They are cardialgia, nausea, severe vomiting and purging, tormina, cold sweats, fainting, and, in some, vertigo: the face in the mean time, becomes highly flushed, and the eyes inflamed, attended with a burning heat, and spasmodic twitches, which particularly affect the eyes; the sufferers often complaining that these are ready to start from their sockets. The burning which is felt in the face and eyes is extended to the palms of the hands, the tips of the fingers, and over the whole body; sometimes accompanied, and sometimes succeeded, by miliary eruption, or by an efflorescence resembling the bites of a bug, but more extensive. The pulse, for the most part, is hard and frequent. This ardour of the skin, and a prickling in the hands and nose, when immersed in cold water, are almost invariable symptoms of fish-poison, and enable the practitioner to decide with confidence on the nature of the disease. The neck of the bladder, urethra, and sphincter ani, appear to sympathize with the skin, as the patients often complain of a like ardour in those parts, with a difficulty of making water, strangury, and afflicting tenesmus.

When the violence of the disorder is somewhat abated, the cuticle begins to scale off in various parts of the body. In one patient whom the Dr. attended, a miliary efflorescence accompanied the ardour of the skin, without any evident desquamation.

But the most tedious symptom, which may be rather considered as secondary, is an acute and shooting pain in the articulations of the knee, wrist, and ancles, and sometimes in the cylindrical bones, with more or less swelling. It is distressing, at intervals, for years after every other sign of the disorder has disappeared, and not unfrequently attended with œdema.

This is the ordinary course of the disorder, collected from a variety of cases that came under Dr. Thomas's inspection in the West-Indies. All of these terminated happily: the event, however, is not always so favourable; the health of some who escape its fatal effects, is often so much impaired, that a foundation is laid for a train of other evils, and a visit to a cold climate becomes, at last, necessary to restore vigour to the constitution. The consequences, he says, should always be dreaded, and relief ought to be given immediately, as it is impossible to foresee the event with any degree of certainty. Much, however, may be learned from the different symptoms, although they are liable to great variations, from a greater or less degree of irritability existing in the stomach, from the quantity taken, or from a greater degree of acrimony in the poison; for why else should it attack some only slightly, and prove fatal to others?

The affinity of this disorder to cholera is so great, that it requires a considerable share of practical knowledge to discriminate them. We must be led entirely by *the appearance and sensation of the skin*, as these are the safest guides, where no certain information can be collected of the food of the patient, or of the nature of the fish.

In the cure of this disorder two purposes are clearly pointed out, viz. to procure a discharge of the poison as speedily as possible, and to remove or alleviate the effects that result from it. The *first* can only be effected by medicines whose operation is quick and effective, and of all those Dr. Thomas thinks a preference should be given to the vitriolated zinc, which, if timely administered, is alone sufficient to obviate the dangerous tendency of the poison. But, as it is difficult to ascertain whether the whole of the poison has been removed, he considers it always most prudent to give a solution of the vitriolated natron, or some other purge, after the operation of the emetic, and continue it as long as the different circumstances require. This method is practicable in robust constitutions, where evacuations may be carried almost to any length; but, in weak delicate habits, the vomiting and purging are so severe, and debilitate the patient so much, that it is frequently necessary to prescribe anodynes, before we are certain that the stomach and intestines have been freed from their noxious contents: the interval of ease they procure invigorates the system, and enables the stomach to retain such medicines as are proper to remove the poison.

To effect the *second* intention, no positive rule can be laid down; the nature and violence of the symptoms being our only guides. After the evacuations, if the symptoms of cholera still continue, which frequently happens, they should be checked by anodynes, cordials, and clysters of water-gruel or starch, with or without laudanum. A gentle moisture of the skin may then be promoted by the use of mild diaphoretics; and here none answers better than the pulv. ipecac. comp. the ardour of the skin being powerfully relieved by this medicine. A liberal use of some mucilaginous drink should be recommended as long as the strangury remains. The pains of the articulations are sometimes very obstinate and yield to nothing but time. Relief may nevertheless be procured by decoctions of guaiacum and sarsaparilla, by wrapping the parts in flannel, and sometimes from the warm and sometimes from the cold bath. Beneficial effects resulted from Madeira wine in one instance related, but Dr. Thomas thinks it is rather a dangerous experiment. The oil of the *bignonia* is strongly recommended by some, and frequently administered by negroes to people of their colour.

As it is of the utmost importance to be able to distinguish a wholesome fish from one that is poisonous, it is highly necessary to be advised of the means that have been taken to discover it. When a fish is suspected to be poisonous, it is a common practice to hold a silver spoon for some time in the water in which it is boiling, and if the spoon be taken out unsullied, the fish is reputed safe; but if the colour be in any manner changed, the fish is immediately thrown away as unwholesome. A safer and surer criterion to judge by is, to give the entrails of the fish to a dog or other animal; if, after some time, no inconvenience or apparent disorder arises from it, the fish may then be eaten with safety.

Some say a discoloration of the intestines and blood vessels are positive signs of poison; but Dr. Thomas says, he can neither confirm nor deny this, from the want of opportunities of examining these fish, which are either thrown away after their nature is known, or else eaten before they are suspected to be poisonous. "It is," says he, "by no means a constant sign, and therefore less to be depended upon, as it may have taken place in consequence of some change in their economy, similar to some European fish." What Du Tertre says of the teeth of the barracuta, Dr. Thomas says is erroneous.

An opinion prevails amongst fishermen, that fish without scales are most liable to be imbued with this poison. This seems to be the result of experience, and deserves particular attention from those who mean hereafter to prosecute the enquiry, as the greater part of the fish which have been described are deficient in this respect.

The cause of this deleterious quality in fish, has given rise to various conjectures. Some are inclined to think that there are two distinct varieties of the same fish, such as we observe in the *sprat* and *cavallee;* but the characteristic marks, if they do exist, are so obscure, that the oldest and most experienced fishermen are constantly deceived, and though obvious in the above fish, do not seem to extend to any other. How far a careful and minute examination by some intelligent naturalist might tend to elucidate this matter it is impossible to prejudge. Others impute it to copperas-banks on or near which fish feed; but with what degree of reason, is extremely doubtful, as the reality of such banks in the West Indies has never yet been satisfactorily proved; and though fish of that description are frequently caught near particular parts of some islands, it is no proof in support of this opinion, as they are also taken at a great distance from the land. We should besides be led to suppose, that all kinds of fish, taken on the same banks, would prove equally hurtful, as they are all alike exposed to the same causes. That it arises, however, from their food, Dr. Thomas thinks, is strongly corroborated by several circumstances; but what that food is, remains yet to be discovered. It is a well-known fact, that the land-crab, *cancer terrestris*, when taken near manchineel trees, is found, particularly in dry seasons, at one time safe, at another poisonous, from feeding on the bark or leaves of that tree, in lieu of other nourishment. The mountain-crab is likewise dangerous at particular times of the year from a similar cause. The inhabitants are so sensible of this, that they never eat them unless they have been kept in coops a fortnight or three weeks, and purged with the physic-nut leaves; a convincing proof that amphibia may acquire this noxious quality from their food, without inconvenience or danger to themselves. If the precaution, however, be used, to gut and salt them *immediately*, they seldom or never create any disorder; a fact well worth attending to.

Lastly, the quantity of poisonous fish has been supposed more numerous at some particular periods of the year than at others. This, however, is not confirmed by experience, for some relying too much on this circumstance, have exposed themselves to great danger. A negro fisherman of Dr. Stevens' of St. Kitt's, accustomed to eat the *yellow-bill sprat* when in season (as it is generally termed), and constantly escaping its poisonous effects, at length grew so confident that he imagined himself proof against the effects of any fish-poison, and one day requested from the cook the remainder of the *barracuta* which had poisoned a Mr. Elliot. His request being granted, he ate it, but suffered very severely for his temerity.

Dr. Thomas says this poison does not pervade indiscriminately the different classes of fish found in the West-Indian seas: but observes a regularity, which, he believes, it has never been known to deviate from, however nearly related these fish may be to one another. The following are particularly mentioned:

1. The black-bill sprat *(harenga minor* of Catesby), for instance, is always wholesome, though so nearly allied to the yellow-bill, that it requires a very nice eye to discover the difference. The fish most to be dreaded are, the barracuta, yellow-bill sprat, cavallee, rock-fish, king-fish, smooth bottle-fish, and lobster.

2. The barracuta (*perca major* of Brown), is so often poisonous, that it is seldom touched, although introduced at table, and by some accounted a very delicate fish. It is a very voracious fish, and has been sometimes known to attack people who were bathing in the sea. A less species, called *umbla mi-*

nor, is mentioned by Sloane, who says, that according to its feeding on venomous or not venomous food, it is wholesome or poisonous to those that eat it; also noxious in some seasons of the year and in some places, and innocent in others, very probably, according to its nourishment, by which now and then it acquires so much poison as to kill immediately.

3. The *yellow-bill sprat*, or windward sprat, not noticed by Sloane, Catesby, or Brown, is known from the black-bill, *harenga minor*, by the minuteness of its scales, and by a yellow spot on each side of its head. It is always to be dreaded, and therefore is only purchased by the lower class of inhabitants, or by people of colour.

4. The cavallee *(scambar* of Brown). Three varieties of this fish are brought to market, the bottle-nose, amber, and green-back. The two first frequently prove poisonous, the last is always innocent.

5. The *perca marina* of Catesby, or rock-fish. This fish, Catesby says, has the worst character for its poisonous quality of any other among the Bahama Islands, but it has not been ascertained whether they are eatable from any particular places; many of these poisonous fishes being not so, when caught in some places, of which the inhabitants can give a near guess, but sometimes they are miserably mistaken.

6. The king-fish *(xiphias* of Brown), derives its English name from its superior delicacy, but, notwithstanding its high reputation, it proves now and then poisonous.

7. The smooth bottle-fish *(ostracion glabellum)* found in Kingston harbour, Jamaica, in one instance killed in half an hour, producing general coldness, nausea, supineness, and death. By active vomits, timely administered, some who had eaten it recovered. Dr. Wright attended the patients, and stated the fact to Mr. Home in his weekly return.

8. The sea-lobster *(astacus* of Brown), though classed among insects, may not improperly be mentioned here, as it is at times equally dangerous.

The consequences attending this poison are, in general, very alarming, and in many instances fatal. A negro of Mrs. Deming's, of St. Kitt's, died in the most excruciating agonies from eating the yellow-bill sprat; another negro, on Borryau's estate, whom Dr. Stevens attended, died from the same cause.

The existence of a peculiar poison in fish, though we are unacquainted with its nature, seems evident from the facts which have been brought forward. From these, Dr. Thomas thinks, the following inferences may be clearly drawn: 1. That the poison lies *in the intestinal tube*, is assimilated with their food, and circulates without any detriment to the fish. 2. That its effects are, in general, more deleterious to brutes than to man. 3. Lastly, that the longer the fish remains out of water, the more violent the poison becomes; but whether the process of putrescency, which is rapid in the West Indies, adds a greater degree of acrimony to the poison, or whether it is the consequence of transudation, must be left to be determined by future observations.

In the 7th volume of Medical Facts and Observations, page 289, Doctor Clarke," of Dominica, in a letter to Dr. Simmons, of London, observes, that Capsicum *(Cayenne pepper)* has been known, long ago, to possess the power of preventing or counter-acting the poisonous effects of fish. He adds, "This fish-poison seldom destroys life entirely, except the deadly poison of the *yellow-billed sprat*, as it is called, which kills very speedily; but those who have eaten of the other kinds of poisonous fish, are frequently reduced to the last extremity by vomiting, and life is almost extinguished before stimulants can take effect." Does not the good effect produced by these last rather tend to demonstrate, that there exists a morbid sensibility in the stomach, in cases of fish-poison, rather than any specific quality in the substance applied to it. See Dr. Cullen's observations under the preceding article.

FISSU'RA MAGNA SYLVII, a name given to a deep narrow sulcus which parts the anterior and middle lobes of the cerebrum on each side. It ascends obliquely backwards from the temporal ala of the os sphenoides, approaching to near the middle of the os parietale.

FISSURE, that species of fracture in which the bone is cracked, or slit, without a compleat separation. It occurs most frequently in fractures of the skull, in which the term implies a mere division of one or both the tables of the skull, with or without a wound of the integuments, and unattended with depression. Fractures of this kind are not dangerous as far as affects the skull only; for it frequently happens that extensive fissures heal without producing bad symptoms. But as they are frequently attended with effusions of blood or serum upon the brain or its membranes, or as they may tend to excite inflammation in these, they require particular attention.

When effusions occur, symptoms of compression immediately follow. The remedies best suited to this disease must then be applied; and the trepan is alone to be depended upon. The fissures should be traced through their whole extent, and a perforation made on the most depending part of each of them. If this be unsuccessful, the operation should be repeated along the course of the fissures as long as symptoms of a compressed brain continue; and as the effused matter will commonly be found contiguous to the fissures, they ought to be included in each perforation.

If the fissure be so large as to produce an obvious separation of the two sides of the bone, the nature of the case will be at once rendered evident; but where it is extremely small, there is difficulty in distinguishing it from the natural sutures, or from sutures surrounding small bones, which sometimes occur, and get the name of *ossa triquetra*. But this may be known by the firm adhesion which always exists between the pericranium and sutures; whereas this membrane is always somewhat separated from that part of the bone where a fissure is formed. When the pericranium is separated by the accident for a considerable way from the surface of the bone, various means have been contrived for discovering the nature of the case; as pouring ink upon the part suspected to be fractured, which in case of a fracture cannot be wiped entirely off; or making the patient hold a hair or piece of catgut between his teeth, while the other extremity of it is drawn tense, which, when struck, is said to produce a disagreeable sensation in the fractured part. But such tests are little to be depended on; ink will penetrate the sutures; and the others are ineffectual, unless the fracture be extensive, and the pieces considerably separated from each other. The oozing of the blood from a fissure is a far better mark. The ascertaining of this point, however, appears not very material; for unless alarming symptoms are present, although there should be a fissure, no operation is necessary; and if such symptoms occur, the bone ought to be perforated whether there be a fissure or not.

When a fissure is not attended with symptoms of a compressed brain, the trepan ought not to be applied, especially as the operation itself tends, in some degree, to increase inflammation of the part. The fissure should be treated merely as a cause which may induce inflammation. The patient should be blooded according to his strength: the bowels should be kept lax, and the sore treated with mild, easy dressing; and violent exertion should be avoided as long as there is any danger of inflammation occuring.

It is named a *contra fissura*, or *counter-fissure*, when the blow is received on one side of the head, and the skull is cracked on the other; or, where the internal table being broken, the external remains sound; or, where the stroke is received on one bone, and the *fissure* is in that adjoining. Many authors doubt the existence of *counter-fissures*, and it certainly is difficult to account for them; but the facts are too well attested to be doubted. Hippocrates, Galen, Celsus, Berengarius, Fallopius, and several others, assert their having met with instances of them; and Mr. Justamond, in his "Surgical Tracts," has a memoir on this subject, translated from a French author.

FISTULA, *(quasi fusula*, from *fundo*, to pour out); a term in surgery, applied to a long and sinuous ulcer that has a narrow opening, and sometimes leads to a larger cavity. This may happen in any of the soft parts; but the term *fistula*, in a popular acceptation, usually denotes the *fistula in ano*. This is a sinuous ulcer in the neighbourhood of the rectum. When it opens externally, and has likewise a communication with the gut, it is termed a *complete fistula;* but if it has no communication with the rectum, it is called *incomplete.* When the ulcer communicates with the gut, but has no external opening, it is named an *internal* or *occult fistula.* It is likewise distinguished into simple and compound. The first is where one or more sinuses communicate with the internal ulcer, but where the parts in the neighbourhood are sound. The compound fistula is where the parts through which the sinus runs are hard and swelled, or where the ulcer communicates with the bladder, vagina, os sacrum, or other contiguous parts.

The causes producing this disease may be, whatever tends to excite uneasiness about the anus; such as piles, condylomatous tumors, hardened fæces, or any cause which produces irritation and inflammation, so as to end in suppuration.

As soon as a swelling about the anus appears to terminate in suppuration, every thing ought to be done which can accelerate the evacuation of the matter. A proper degree of heat, warm poultices, fomentations, and the steams of warm water, are the means best suited for this purpose; and as soon as matter is formed, it ought to be discharged by a free incision in the lowest part of the tumor. Much depends upon the proper treatment here; for if the opening be made too small, or if long delayed, the matter gets into the loose cellular substance, and instead of producing one, produces many sinuses, and these sometimes running to a great depth. The parts ought then to be covered with soft lint spread with mild ointment, and an emollient poultice kept constantly over the whole. By this any remaining hardness will be removed, the cavity will fill up like imposthumous tumors in other parts, and a complete cure will in general soon be made.

It more frequently happens, however, that the practitioner is not called in till the abscess has burst of itself, and till matter has insinuated itself into the surrounding cellular substance, and formed one or more real fistulæ.

The first thing to be done then is *to discover the real course of the different sinuses*, and a probe is the best instrument for this purpose. If there be openings in the external surface, there is commonly little difficulty in this. If they run along the perinæum, or the muscles, the probe will generally detect them. If they follow the direction of the gut, the best method is to introduce the fore-finger, oiled, into the rectum, while the probe is entered at the external orifice. If there be a communication between the gut and the sinus, the probe may be made to pass till its point is felt by the finger in the rectum. We discover with certainty if a sinus communicate with the gut, when air or fæces are discharged, or when any mild fluid injected returns by the anus.

After the course of the sinus has been discovered, the method of cure is next to be considered. Astringent or escharotic injections, pressure, and setons, are formidable, on account of the violent pain which they produce. The only method therefore of bringing on a proper degree of inflammation, is a free incision along the whole course of the sinus. The course of the different sinuses having been previously discovered, a laxative ought to be given on the day preceding this operation, and a clyster an hour or two before performing it. The patient is to be placed with his back towards a window, while his body leans upon a bed, table, or chair. The finger of the surgeon is to be rubbed over with oil, and introduced into the rectum. The end of a crooked probe-pointed bistoury is then to be passed into the fistula, and pushed against the finger in the rectum, if the fistula be complete. But in cases of incomplete fistula, the point of the instrument must be made to perforate the gut before it can reach the finger. Some make the perforation with a sharp-pointed bistoury, which can be made to slip along the side of a probe-pointed one. After the bistoury has reached the cavity of the rectum, the point of it is then to be brought out at the anus, and a cut made downwards to lay the sinus completely open. In this operation the sphincter ani muscle is commonly cut, if the sinus be high; but no inconvenience is found to arise from this circumstance. It sometimes, though rarely, happens, that the sinus goes beyond the reach of the finger, and even as high as the upper end of the sacrum. The only thing which can be done in this case is, to cut as high as the finger can go, so as to give a free and easy vent to the matter.

Some practitioners, with a view to prevent troublesome hæmorrhagies, and others to free the patient from the dread of the knife, have proposed to open the sinuses by means of a metallic ligature. By introducing one end of a piece of silver or leaden wire into the sinus, then bringing it out at the anus, and twisting the ends together, the contained parts may be so compressed as to produce a complete division of them. But this is both more painful and tedious than the scalpel, and appears to be by no means preferable.

When the presence of an *occult fistula* is suspected, its existence ought first to be fully ascertained, by examining whether the matter which is passed by stool proceeds from an ulcer in the bowels, or from an abscess at the side of the anus. It is discovered by matter from the bowels being mixed with the fæces, and no pain about the anus. In an occult fistula, a hardness, swelling, and discolouration, are observed upon some spot near the anus, and there is a sensation of considerable pain upon pressure being made upon it. The operation in this is the same with that in the other two varieties of the disorder; only that an opening is previously to be made, by a lancet or scalpel, in that spot where the matter appears to be lodged. By this the sore will be reduced to a complete fistula, and the rest of the operation will be easily performed.

In this manner the different sinuses are to be operated upon, when in a simple state; but in those of a *compound nature*, where the parts in the vicinity of the sores have been separated from each other, by an effusion of matter into the cellular substance, and where all the lower end of the rectum has, in some rare cases, been detached from the surrounding parts, two modes of operating have been recommended; either to remove a portion of the external integuments, so as to give free vent to the matter; or to extirpate all the lower end of the rectum, which is found to be detached from the surrounding parts. But, from the pain and subsequent distress which they occasion, these methods are judiciously laid aside. All that is necessary to be done here, is to lay the detached portion of gut completely open, as in cases of simple fistulæ; but, if this be insufficient for allowing the gut to apply properly to the contiguous parts, another incision should be made on the opposite side. If the neighbouring bones be found sound, and the constitution in other respects be unimpaired, a complete cure will probably be obtained.

The matter sometimes insinuates itself between the skin and muscles of the perinæum, or of the hip. When this is observed, the sac produced by it should be laid open, from one end to the other, by one or more incisions, as circumstances may require. Sometimes, from neglect or improper treatment, the matter collected does not find a proper outlet, and then the parts most contiguous to it inflame, become painful, and gradually acquire such a morbid callosity as to put on a schirrous appearance. In such cases a cure may be effected by giving free vent to the matter, preventing every future collection, and inducing and preserving a suppuration in the substance of the parts chiefly affected. To accomplish this last circumstance, however, it may sometimes be necessary not only to lay the sinuses freely open, but to cut upon the indurated parts.

The different sinuses having been laid open, care must be taken to apply the necessary dressings. Upon this much of the success attending the operation depends. Dry lint, till lately, was much used by practitioners; but it has been found to produce so much irritation, especially when too much crammed in, as to be one of the causes of that diarrhœa which is frequently so troublesome after operations of this kind. Instead, therefore, of this sort of dressing, pledgets of lint, or soft old linen, spread with any simple ointment, are to be prefered. After the sores have been cleared from clotted blood, the pledgets are to be gently insinuated between their edges, but not to such a depth, or with such force, as to give any uneasiness. This being done, and a compress of soft linen with a T bandage being applied over the whole, the patient is to be carried to bed; and the dressings being renewed, either after every stool, or, when these are not frequent, once in the twenty-four hours, the sores will generally fill up from the bottom, and will at last cicatrize in the same manner as wounds in any other part of the body. Sometimes, however, they acquire a soft, flabby, unhealthy aspect, and the matter discharged from them is thin, fœtid, and occasionally mixed with blood. These appearances may sometimes arise from some part of a sinus having been overlooked. In this case advantage may follow from the part being laid completely open. But it more usually proceeds from some affection of the general system; and, till this is eradicated, the sores cannot be expected to heal.

Indigestible substances, acting as nuclei, or stimulating the intestines in passing towards the *anus*, have laid the foundation of various complaints. Authors have recorded many of these cases, but the most singular, perhaps, is that by Dr. Harrison, in the Mem. of the Med. Soc. of London, in which the *core of an apple* became the cause of a *fistula in ano*. When once lodged there, the ordinary inclinations to go to stool produce irritations from the offending substance, which is thrust into the coats of the gut. Inflammation and suppuration are the natural consequences; and when these attack the lower part of the intestine, the injury is commonly followed by sinuous openings about the anus.

That inflammation and suppuration of the intestines may arise from this or any other mechanical stimulus, will be readily admitted; nor shall we find much difficulty in accounting for its acting as a cause of fistula in this case. After being received into the stomach, the foreign body is carried with the other indigestible matters into the intestines, where the peristaltic motion gradually urges it towards the *anus.* During this progress, the *fæces* acquire a greater consistency, and, before expulsion, they often become so hard and firm, as to require no small straining to force them through the ring. Such strong efforts are, therefore, sufficient to impel any hard and rugged body against the rectum, and especially where it is surrounded by the *sphincter ani*, with force enough to bruise and enter the substance of the intestine.

In 1789, *an improved method of treating the Fistula in Ano*, was suggested by Dr. Mudge, of Plymouth. That ingenious writer, solicitous to remove every embarrassment that may attend the operation for the Fistula in Ano, or the laying open, in a masterly manner, and consequently the cure of, sinuous ulcers burrowing in the fat surrounding the rectum, invented a *speculum ani*, by means of which the difficulty of coming fairly at the part is effectually obviated. For an account of it, see Speculum ani.

FI'STULA IN ANO. See Fistula.

FI'STULA LACHRYMALIS. See Lachrymalis, Fistula.

FI'STULA IN PERINÆO. See Perinæum.

FITS, a popular name for convulsions. See Convulsio. According to Dr. Armstrong, *inward fits*, as they are called, are in general the first complaint that appears in children; and, as far as he has observed, most, if not all, infants, during the first month, are more or less liable to them. The symptoms are these: the child appears as if it were asleep, only the eyelids are not quite closed; and if you observe them narrowly, you will see the eyes frequently twinkle, with the white of them turned up. There is a kind of tremulous motion in the muscles of the face and lips, which produces something like a simper or a smile, and sometimes almost the appearance of a laugh. As the disorder increases, the infant's breath seems now and then to stop for a little; the nose becomes pinched; there is a pale circle about the eyes and mouth, which sometimes changes to livid, and comes and goes by turns; the child starts, especially if you go to stir it ever so gently, or if you make any noise near it. Thus disturbed, it sighs, or breaks wind, which gives relief for a little while, but presently it relapses into a doze. Sometimes it struggles hard before it can break wind, and seems as if falling into convulsions; but a violent burst of wind from the stomach, or vomiting, or a loud fit of crying, sets all to rights again. As the child increases in strength, these fits are the most apt to go off spontaneously and by degrees; but in case they do not, and if there is nothing done to remove them, they either degenerate into an almost constant drowsiness (which is succeeded by a fever and the thrush), or else they terminate in vomitings, sour, curdled, or green stools, the watery gripes, and convulsions. The thrush, indeed, very often terminates in these last symptoms. Wherefore, as these complaints naturally run into one another, or succeed one another, they may be considered, in a manner, as only different stages of the same disease, and which derive their origin from the same cause. Thus, the inward fits may be looked upon as the first stage of the disorder; the fever and thrush (when it happens), as the second; the vomitings, sour, curdled, green, or watery stools, as the third; and convulsions, as the last.

As to the cause of these complaints, he observes, that in infants the glandular secretions, which are all more or less glutinous, are much more copious than in adults. During the time of sucking, the glands of the mouth and fauces, being squeezed by the contraction of the muscles, spue out their contents plentifully; which afterwards mixing with the mucus of the gullet and stomach, render the milk of a slimy consistence, by which means it is not so readily absorbed into the lacteals; and as in most infants there is too great an acidity in the stomach, the milk is thereby curdled, which adds to the load: hence sickness and spasms, which, being communicated by sympathy to the nerves of the gullet and fauces, produce the convulsive motions above described, which go commonly by the name of inward fits. The air, likewise, which is drawn in during suction, mixing with the milk, &c. in the stomach, perhaps contributes towards increasing the spasms abovementioned. Dr. Armstrong is the more led to attribute these fits to the causes now assigned, that they always appear immediately after sucking or feeding; especially if the child has been long at the breast, or fed heartily, and has been laid down to sleep without having first broken wind, which ought never to be done. Another reason is, that nothing relieves them so soon as belching or vomiting; and the milk or food they throw up, is generally either curdled, or mixed with a large quantity of heavy phlegm. In case they are not relieved by belching or vomiting, the fits sometimes continue a good while, and gradually abate, according as the contents of the stomach are pushed into the intestines; and as soon as the former is pretty well emptied, the child is waked by hunger, cries, and wants the breast; he sucks, and the same process is repeated. Thus, some children, for the first weeks, are kept almost always in a doze, or seemingly so; especially if the nurses, either through laziness or want of skill, do not take care to rouse them when they perceive it is not a right sleep, and keep them awake at proper intervals. This dozing is reckoned a bad sign amongst experienced nurses, who look upon it as a forerunner of the thrush, as indeed it often is; and therefore, when it happens, we ought to be upon our guard to use the necessary precautions for preventing that complaint.

For these disorders, the only remedy recommended by Dr. Armstrong is vin. antimon. tart. given in a few drops, according to the age of the infant. By this means the superabundant mucus will no doubt be evacuated; but at the same time we must remember, that this evacuation can only palliate, and not cure, the disease. This can only be effected by tonics: and a solution of the extract of bark, made into a syrup, will readily be taken by infants, and may be safely exhibited from the very day they come into the world, or as soon as their bowels are emptied of the meconium, by the mother's milk, or any other means.

When there is imminent danger, those who have the management of infants, should be instructed to plunge them into warm-water, till medical assistance can be obtained.

FIVE-LEAVED GRASS. See PENTAPHYLLUM.

FIXED AIR. See CARBONIC ACID.

FIXED BODIES. The old chemists have given this name to those substances which cannot be caused to pass, by a strong rarefraction, from the liquid state to that of an elastic fluid. This is the case with what are considered *elementary* substances. See ELEMENTS.

FLAG, SWEET. See CALAMUS AROMATICUS.

FLAG, YELLOW WATER. See IRIS PALUSTRIS.

FLAMMULA, (dim. of *flamma*, a fire, named from the burning pungency of its taste); small WATER CROW-FOOT, or spear-wort, a very common plant. It is the *Ranunculus flammula; foliis ovatis-lanceolatis, petiolatis, caule declinato*, of Linnæus. The roots and leaves taste very acrid and hot, and, when taken in a small quantity, produce vomiting, spasms of the stomach, and delirium. Applied externally, they blister the skin. After clearing the stomach, cold-water acidulated with lemon-juice, and then mucilaginous drinks, are the best antidotes.

FLAMMULA JOVIS, (so called from the burning pungency of its taste), upright virgin's bower; *clematis recta; foliis pinnatis, foliolis ovato-lanceolatis integerrimis, caule erecto, floribus pentapetalis tetrapetalisque* of Linnæus. Class, *polyandria.* Order, *polygynia.* More praises have been bestowed upon the virtue which the leaves of this plant are said to possess, when exhibited internally as an antivenereal, by foreign physicians, than its trials in this country can justify. The powdered leaves are sometimes applied externally to ulcers as an escharotic.

FLANNEL, a kind of slight, loose, woollen stuff, composed of a woof and warp, and woven after the manner of baize: as flannel forms a most important article of dress, in which both the preservation and recovery of health are materially concerned, it is necessary to be somewhat particular in our account of it. Dr. Black assigns as a reason why flannel, and other substances of the kind, keep our bodies warm, that they compose a rare and spongy mass, the fibres of which touch each other so slightly, that the heat moves slowly through the interstices, which being filled only with air, and that in a stagnant state, give little assistance in conducting the heat. Count Rumford, however, has enquired farther into the matter, and finds that there is a relation betwixt the power which the substances usually worn as clothing have of absorbing moisture, and that of keeping our bodies warm. Having provided a quantity of each of those substances mentioned below, he exposed them, spread out upon China plates, for the space of 24 hours, to the warm and dry air of a room, which had been heated by a German stove for several months, and during the last six hours had risen the thermomenter to 85° of Fahrenheit; after which he weighed equal quantities of the different substances, with a very acute balance. They were then spread out upon a China plate, and removed into a very large uninhabited room upon the second floor, where they were exposed 48 hours upon a table placed in the middle of the room, the air of which was at 45° of Fahrenheit. At the end of this space they were weighed, and then removed into a damp cellar, and placed on a table in the middle of the vault, where the air was at the temperature of 45°, and which, by the hygrometer, seemed to be fully saturated with moisture. In this situation they were suffered to remain three days and three nights; the vault being all the time hung round with wet linen cloths, to render the air as completely damp as possible. At the end of three days they were weighed, and the weights at the different times, were found as in the following Table:

		Weight after being dried in the hot room.	Weight after coming out of the cold room	Weight after remaining 72 h. in the vault.
Sheep's wool		1000 Parts	1084	1163
Beaver's fur			1072	1125
The fur of a Russian hare			1065	1115
Eider-down			1067	1112
Silk	Raw single thread		1057	1107
	Ravellings of white taffety		1054	1103
Linen	Fine lint		1046	1102
	Ravellings of fine linen		1044	1082
Cotton wool			1043	1089
Ravellings of silver lace			1000	1000

On these experiments our author observes, that though linen, from the apparent ease with which it receives dampness from the atmosphere, seems to have a much greater attraction for water than any other; yet it would appear, from what is related above, that those bodies which receive water in its inelastic form with the greatest ease, or are most easily wet, are not those which, in all cases, attract the moisture of the atmosphere with the greatest avidity. "Perhaps," says he, "the apparent dampness of linen to the touch arises more from the ease with which that substance parts with the water it contains, than from the quantity of water it actually holds: in the same manner as a body appears hot to the touch, in consequence of its parting freely with its heat; while another body, which is really at the same temperature, but which withholds its heat with greater obstinacy, affects the sense of feeling much less violently. It is well known that woollen clothes, such as flannels, &c. worn next the skin, greatly promote insensible perspiration. May not this arise principally from the strong attraction which subsists between wool and the watery vapour which is continually issuing from the human body? That it does not depend entirely on the warmth of that covering, is clear; for the same degree of warmth, produced by wearing more clothing of a different kind, does not produce the same effect. The perspiration of the human body being absorbed by a covering of flannel, it is immediately distributed through the whole thickness of that substance, and by that means exposed, by a very large surface, to be carried off by the atmosphere; and the loss of this watery vapour, which the flannel sustains on the one side by evaporation, being immediately restored from the other, in consequence of the strong attraction between the flannel and this vapour, the pores of the skin are disencumbered, and they are continually surrounded by a dry and salubrious atmosphere."

Our author expresses his surprise, that the custom of wearing flannel next the skin should not have prevailed more universally. He is confident it would prevent a number of diseases; and he thinks there is no greater luxury than the comfortable sensation which arises from wearing it, especially after one is accustomed to it. "It is a mistaken notion," says he, "that it is too warm a clothing for summer. I have worn it in the hottest climates, and at all seasons of the year; and never found the least inconvenience from it. It is the warm bath of a perspiration confined by a linen shirt, wet with sweat, which renders the summer heats of southern climates so insupportable; but flannel promotes perspiration, and favours its evaporation; and evaporation, as is well known, produces positive cold."

Dr. Willich, though a strenuous advocate for the wearing of flannel, says, nevertheless, that there are certain cases in which it cannot, with strict propriety, be used as an under-dress. In order to enable the reader to ascertain whether its constant use be adviseable or not, we shall point out the leading circumstances which may, in this respect, influence his determination: it is a *salutary* dress to all those, in general, who have passed the meridian of life, or the 35th year of their age; though they should not have been accustomed to it from their infancy; to persons of a cold and phlegmatic habit, or leading a sedentary life; to such as are subject to fits of the gout, rheumatism, frequent colds and catarrhs; to individuals very susceptible of impressions connected with the vicissitudes of air, weather, and climate; as well as to nervous patients, and those who have recently recovered from severe chronical diseases. On the contrary, the wearing of flannel next the skin may be *injurious* to constitutions so organized that they are liable to profuse perspiration, on taking even moderate exercise; or to those who are already afflicted with scorbutic or other eruptions of the skin; or, lastly, to all such irritable and whimsical persons as possess neither bodily nor mental vigour sufficient to overcome the first unusual sensations which it occasions. But we are fully warranted to assert, from daily experience, that the habitual use of this beneficent texture, has essentially contributed to the recovery of numberless ricketty children, not less than to the saving of others who were born of feeble and enervated parents. In short, there is every reason to believe, that a *more general* adoption of this salutiferous cloth might prevent many fatal inflammations of the throat, breast, lungs, &c. to which the poorer class of people are remarkably liable; and thus preserve the lives of multitudes who now become a prey to our damp and variable climate.

FLATULENCY, a very common disorder, arising from vapours generated in the stomach and intestines. It occasions distensions, disagreeable sensations, and frequently a considerable degree of pain. Sedentary persons, and those who are of a delicate constitution, especially women, are very liable to attacks of this complaint, which is generally induced by the eating of peas, beans, and other leguminous food. Animal fats, especially those of mutton and veal, if immoderately used, with large draughts of weak liquors immediately after eating them, are apt to turn rancid on the stomach, and to be accompanied with flatulency. The drinking of turbid or feculent liquors, whether new or old, as well as excessive potations of *hot tea*, produce a similar effect. The habit of the patient likewise contributes towards the generation of these vapours; so that in phlegmatic constitutions, where the bowels are of a dry and costive disposition, this complaint is most frequent and painful.

The general method of treating flatulency consists in administering alkaline remedies, such as kali or magnesia; the latter joined with aromatics, which, however, ought to be taken with some caution, as they may irritate rather than relieve. The poorer class, who are subject to flatulency, usually have recourse to drams, remedies which are extremely improper; and, though they afford a temporary relief, eventually impair the appetite and constitution.

Dr. Willich says, the safest mode of treatment is, to keep the bowels gently open by means of *clysters*, prepared of half a pint of mutton-broth, in which half an ounce of carraway seeds has been boiled, adding two spoonfuls of sweet oil, and one of soft sugar; which should be repeated three or four times in twenty-four hours. During the intermediate days, gentle laxatives, consisting of single drachms of vitriolated tartar, dissolved in one ounce of cinnamon water, may be taken every three hours, till they produce the desired effect. See DYSPEPSIA.

FLATUS; wind, or evolved gas, collected in the bowels, or other cavities of the body. See FLATULENCY.

FLAX-LEAVED DAPHNE. See THYMELŒA.

FLAX, PURGING. See LINUM CATHARTICUM.

FLAX, SPURGE. See THYMELŒA.

FLEAM, an instrument for letting blood, formerly used by surgeons, but now confined to veterinary practitioners; its use having been superceded by the lancet.

FLEA-WORT. See PSYLLIUM.

FLEXOR, (from *flecto*, to bend), a name applied to several muscles, whose office it is to draw parts, into which they are inserted, towards their opposite points of attachment.

FLEXOR ACCESSORIUM DIGITORUM PEDIS. See FLEXOR LONGUS DIGITORUM PEDIS.

FLEXOR BREVIS DIGITORUM PEDIS, PERFORATUS, SUBLIMIS; that called *perforatus*, or *sublimis*, by Douglas. It is a flexor muscle of the toes, situated on the foot. It arises by a narrow tendinous and fleshy beginning from the inferior protuberance of the os calcis. It likewise derives many fleshy fibres from the adjacent aponeurosis, and soon forms a thick belly, which divides into four portions. Each of these portions terminates in a flat tendon, the fibres of which decussate, to afford a passage to a tendon of the long flexor, and afterwards re-uniting, are inserted into the second phalanx of each of the four lesser toes. This muscle bends the second joint of the toes.

FLE'XOR BREVIS MINIMI DIGITI PEDIS, the *Parathenar minor* of Winslow; a little muscle situated along the inferior surface and outer edge of the metatarsal bone of the little toe. It arises tendinous from the basis of that bone, and from the ligaments that connect it to the cuboides. It soon becomes fleshy, and adheres almost the whole length of the metatarsal bone, at the anterior extremity of which it forms a small tendon that is inserted into the root of the first joint of the little toe. The use of this muscle is to bend the little toe.

FLE'XOR BREVIS POLLICIS MANUS, the *Flexor secundi internodii* of Douglas, and *Thenar* of Winslow. This muscle divides into two portions, being separated by the tendon of the flexor longus pollicis. The outer portion arises tendinous from the anterior part of the os trapezoides and internal annular ligament. The second or innermost and thickest portion, arises from the same bone, and likewise from the os magnum, and cuneiforme. Both these portions are inserted tendinous into the sesamoid bones, and second bone of the thumb. This muscle bends the second joint of the thumb.

FLE'XOR BREVIS POLLICIS PEDIS; a muscle of the great toe, which it bends at the first joint of the great toe. It is situated on the metatarsal bone of the great toe, arises tendinous from the under and anterior parts of the os calcis, and from the under part of the os cuneiforme externum. It soon becomes fleshy and divisible into two portions, which do not separate from each other till they have reached the anterior extremity of the metatarsal bone of the great toe, where they become tendinous, and then the innermost portion unites with the tendon of the abductor, and the outermost with that of the adductor pollicis. They adhere to the external sesamoid bone, and are lastly inserted into the root of the first joint of the great toe. These two portions, by their separation, form a groove, in which the tendon of the flexor longus pollicis lies.

FLE'XOR CARPI RADIALIS; the *radialis internus* of Albinus and Winslow; a long and thin muscle, situated obliquely at the inner and anterior part of the fore-arm, between the palmaris longus and the pronator teres. It arises tendinous from the inner condyle of the os humeri, and, by many fleshy fibres, from the adjacent tendinous fascia. It descends along the inferior edge of the pronator teres, and terminates in a long, flat, and thin tendon, which afterwards becomes narrower and thicker, and after passing under the internal annular ligament, in a groove distinct from the other tendons of the wrist, it again spreads, and is inserted into the superior fore and upper part of the metacarpal bone which sustains the fore-finger. It bends the hand, and its oblique direction also enables it to assist in its pronation, though in a limited way.

FLE'XOR CARPI ULNARIS, the *Ulnaris internus* of Winslow and Albinus; a muscle, situated on the cubit or fore-arm, that assists the former in bending the arm. It arises tendinous from the inner condyle of the os humeri, and, by a small fleshy origin, from the anterior edge of the olecranon. Between these two portions, we find the ulnar nerve passing to the fore-arm. Some of its fibres arise likewise from the tendinous fascia that covers the muscles of the fore-arm. On descending, it soon becomes tendinous, but its fleshy fibres do not quite disappear, till it has reached the lower extremity of the ulna, where its tendon spreads a little, and, after sending off some fibres to the external and internal and annular ligaments, is inserted in the pisiform bone.

FLE'XOR LONGUS DIGITORUM PEDIS, PROFUNDUS, PERFORANS. This is a flexor muscle of the toes, situated along the posterior part and inner side of the leg. It arises fleshy from the back of the tibia, runs down to the internal ancle, and afterwards, its tendon passes under a kind of annular ligament, and then through a sinuosity at the inside of the os calcis. It soon receives a small tendon from the flexor longus pollicis pedis, and about the middle of the foot it divides into four tendons, which pass through the slits of the flexor brevis digitorum pedis, and are inserted into the upper part of the last bone in all the lesser toes. About the middle of the foot this muscle unites with a fleshy portion, which, from Sylvius, its first describer, has been usually called *massa carnea Jacobi Sylvii:* it is also termed *Flexor accessorius digitorum pedis.* This appendage arises by a thin fleshy origin, from the greatest part of the sinuosity of the os calcis, and likewise by a thin tendinous beginning from the anterior part of the external tubercle of that bone; it soon becomes all fleshy, and unites to the long flexor just before it divides into its four tendons. The use of this muscle is to bend down the last joint of the toes.

FLE'XOR LONGUS POLLICIS MANUS, so named by Winslow and Albinus; the *flexor tertii internodii* of Douglas. This muscle is placed at the side of that last described, and is covered by the extensores carpi radiales. It rises fleshly from the anterior surface of the radius immediately below the insertion of the biceps, and is continued down along the oblique ridge, which serves for the insertion of the supinator brevis, as far as the pronator quadratus. Some of its fibres spring likewise from the neighbouring edge of the interosseous ligament. Its tendon passes under the internal annular ligament of the wrist, runs along the inner surface of the first bone of the thumb, between the two portions of the flexor brevis pollicis, and then goes to be inserted into the last joint of the thumb, being bound down in its way by the ligamentous expansion over the second bone. In some subjects, a tendinous portion arises from the inner condyle of the os humeri; forming a fleshy slip, that commonly terminates near the upper part of the origin of this muscle from the radius. The use of this muscle is to bend the thumb at the last joint.

FLE'XOR LONGUS POLLICIS PEDIS; a muscle situated along the posterior part of the leg. It arises tendinous and fleshy a little below the head of the fibula, and its fibres continue attached to that bone almost to its extremity. Just above the heel it terminates in a round tendon, which, after passing in a groove situated at the posterior edge of the astragalus, and internal and lateral part of the os calcis, where it is secured by an annular ligament, goes to be inserted into the last bone of the great toe. Its use is to bend the great toe.

FLE'XOR OSSIS METACARPI POLLICIS, the *opponens pollicis*, and *flexor primi internodii* of Douglas; a muscle situated under the abductor brevis pollicis, which it resembles in shape. It rises tendinous and fleshy from the os scaphoides and from the anterior and inner part of the internal annular ligament; is inserted tendinous and fleshy into the under and anterior part of the first bone of the thumb; and serves to turn the first bone of the thumb upon its axis, and at the same time to bring it inwards, in opposition to the other fingers.

FLE'XOR PARVUS MINIMI DIGITI MANUS, the *abductor minimi digiti*, and *hypothenar Riolani* of Douglas, a muscle placed along the inner surface of the metacarpal bone of the little finger. It arises tendinous and fleshy from the hook-like process of the unciform bone, and likewise from the anterior surface of the adjacent part of the annular ligament. It terminates in a flat tendon, which is connected with that of the abductor minimi digiti, and inserted into the inner and anterior part of the upper end of the first bone of the little finger. Its office is to bend the little finger, and likewise to assist the abductor muscle.

FLE'XOR PROFUNDUS PERFORANS, the *profundus* of Albinus, and *perforans* of Douglas; a muscle situated on the fore-arm, immediately under the perforatus, which it closely resembles, in shape. It arises fleshy from the external side, and upper part, of the ulna, for some way downwards, and from a large portion of the interosseous ligament. It separates into four tendons a little before it passes under the annular ligament of the wrist, and these pass through the slits in the tendons of the flexor sublimis, to be inserted into the fore and upper part of the third or last bone of all the four fingers, which joints it is their office to bend.

FLE'XOR SUBLIMIS PERFORATUS; which is the *perforatus* of Cowper, Douglas, and Winslow, and, by Albinus and others, named *sublimis*. This muscle got the name of perforatus from its tendons being perforated by those of another flexor muscle of the finger, called the *perforans*. Those anatomists who give it the appellation of *sublimis*, consider its situation with respect to the latter, and which, instead of *perforans*, they name *profundus*. It is a long muscle, situated commonly at the anterior and inner part of the fore-arm, between the palmaris longus and the flexor carpi ulnaris; though, in some subjects, it is placed under the former of these muscles, between the flexor carpi ulnaris and the flexor carpi radialis. This muscle arises, tendinous and fleshy, from the inner condyle of the os humeri, from the inner edge of the coronoid process of the ulna, and from the upper and fore part of the radius, down to near the insertion of the pronator teres. A little below the middle of the fore-arm its belly divides into four portions, which become as many round tendons, that pass all together under the internal annular ligament of the wrist, after which they separate from each other, become thin and flat, and running along the palm of the hand, under the aponeurosis, are inserted into the upper part of the second bone of each finger. Previous to this insertion, however, the fibres of each tendon decussate near the extremity of the first bone, so as to afford a passage to a tendon of the perforans. Of these four, the tendon of the middle-finger is the largest, that of the fore-finger the next in size, and that of the little-finger the smallest. This muscle bends the second joint of the fingers.

FLE'XOR TERTII INTERNODII. See Flexor longus pollicis manus.

FLINT, a quartzose stone, very hard and compact; of a solid structure; always invested with an outward crust; and either transparent or semitransparent. See Silex. When two or three parts of alkaline salt are added to one of vitrifiable earth, and the degree of heat is carried no further than to melt the mixture, without giving time for the alkali to evaporate, the product obtained is a vitriform mass, in which the earth is held in solution; but as the mixture retains a great superabundance of alkali, it preserves almost all the properties of alkaline salt; it powerfully attracts moisture from the air, and deliquesces. In this state it is called *Liquor of flints*

FLO'RES BE'NZOES. See Benzoic acid.

FLO'RES SU'LPHURIS. See Sulphur.

FLO'RES SU'LPHURIS LO'TI, a preparation in which the flowers of sulphur are boiled and washed in water. Thus are formed the *flores sulphuris loti* of the pharmacopœias. Analogous to this preparation is the *sulphur præcipitatum*. None of these possess virtues superior to those of common sulphur; yet, like that remedy, they are administered in constipation of the bowels, where there are piles; colica pictonum, worm cases, and to diminish salivations which supervene accidentally.

FLORESCE'NTIA (from *floresco*, to flourish or bloom), in botany, the act of flowering, which Linnæus and the sexualists compare to the act of generation in animals; as the ripening of the fruit resembles the birth. See Flos.

FLORIBU'NDI (from *floresco*, to blossom), in botany, the name of the seventh class in Linnæus's Method founded on the calyx. It consists of plants having a simple perianthium, into which are inserted the petals and stamina. This class comprehends the *icosandria* of the Sexual Method, and the two natural orders, *Calycanthemæ* and *Calycifloræ*.

FLO'S, a flower, in botany. See Flower. *Fœmineus flos*, is a flower which is furnished with the pointal or female organs of generation, but wants the stamina or male organs. Female flowers may be produced apart from the male, either on the same root or on distinct plants. Birch and mulberry are examples of the first case; willow and poplar of the second. *Masculus flos*, is a male flower. By this name Linnæus and the sexualists distinguish a flower which contains the stamen, reckoned by these botanists the male organ of generation; but not the stigma or female organ. All the plants of the class *diœcia* of Linnæus have male and female flowers upon different roots; those of the class *monœcia* bear flowers of different sexes on the same root. The plants, therefore, of the former are only male and female: those of the latter are androgynous; that is, contain a mixture of both male and female flowers.

FLOSCULO'SI; the name given to the twelfth class in Tournefort's Method. It consists of compound flowers which are composed entirely of florets with hollow funnel-shaped petals. This is exemplified in the following plants: viz. burdock, thistle, artichoke, blue-bottle, and cudweed. To this class Tournefort adds scabious, teasel, and some others, which resemble the compound flowers in being contained within a common calyx. Most of the plants in this class belong to the two first orders in the class *Syngenesia* of Linnæus.

FLO'SCULUS, in botany, a partial or lesser floret of an aggregate flower. See Flower.

FLOUR, the meal of wheat-corn, finely ground and sifted. See Meal. The grain itself is not only subject to be eaten by insects in that state; but, when ground into flour, it gives birth to another race of destroyers, that eat it unmercifully, and increase so fast in it, that it is not long before they wholly destroy the substance. The finest flour is most liable to contain these, especially when stale or ill prepared. They do vast mischief among magazines of it, laid up for armies and other public uses. When they have once taken possession of a parcel of this valuable commodity, it is impossible to drive them out; and they increase so fast, that the only method of preventing the total loss of the parcel is to make it up into bread as soon as can be done. The way to prevent their breeding in the flour, is to preserve it from damp: nothing gets more injury by being put up moist than flour; and yet nothing is more frequently the case. It should be always carefully and thoroughly dried before it is packed up; and the barrels also dried into which it is put; then, if they are placed in a room tolerably warm and dry, they will keep it well. Too dry a place never does flour any hurt, though one too moist and hot almost always spoils it. Flour, when carefully analysed, is found to be composed of three very different substances. The first and most abundant is pure *starch*, or white fecule, insoluble in cold but soluble in hot water, and of the nature of mucous substances. The second is a *gluten*, most of whose properties have been described under the article Bread. The third is of a mild nature, perfectly soluble in cold water, of the nature of *saccharine* extractive mucous matters. It is susceptible of the spirituous fermentation, and is found but in small quantity in the flour of wheat. See Wheat.

FLOWER, in botany. See Corolla. The flower, according to former botanists, as Columna, Jungius, Ray, and Tournefort, meant the petals or coloured leaves of a plant, which generally adhere to the seed-bud, or rudiment of the fruit: but since the introduction of the sexual method of Linnæus, these have lost their importance, and are now only considered as a finer sort of cover, which, though generally present, is not to be deemed essential.

This term then, in modern botany, Dr. Milne says, is as different in meaning from the same term in former writers, as from the vulgar acceptations of the word at this day. The petals, the calyx, nay, the threads or filaments of the stamina may all be wanting; yet it is a flower still, provided the antheræ or male organ, and the stigma or summit of the style, the female organ, can be traced, and that either immediately in the neighbourhood of one another, as in most plants; on different parts of the same plant, as in the class *Monœcia;* or on different plants, raised from the same seed, as in the class *Diœcia.* In this manner is to be understood the general principle with which the Sexual Method sets out, that every vegetable is furnished with flower and fruit. The essence of the flower, as the author immediately subjoins, consists in the *antheræ* and *stigmata*, which constitute a flower, whether the covers, that is, the calyx and petals, are present or not.

The general principle above mentioned is extended to those plants vulgarly called imperfect; viz. the *ferns*, *mosses*, *fungi*, *lichens*, and *sea-weed;* in most of which there is nothing that resembles flower or fruit. As, however, in a few genera, something like stamina and seeds have been discovered; it is probable that they are all furnished with similar parts, although their minuteness, or their situation within the plant, may prevent us from discovering them. The calyx, petals, stamina and pointal are properly parts of the flower; the remaining parts of the fructification pertaining only to the fruit.

In the Linnæan system, complete flowers are divided into simple and aggregate. Simple flowers differ from aggregate in this, that they have not any part of fructification common to many flowers, as is the case with aggregate. Flowers are called aggregate when many flosculi are, by the mediation of some part of the fructification common to them all, so united, that no one of them could be taken out, without destroying the form of the whole, of which it was a part. The common part in aggregate flowers, is either the receptacle or the calyx. A partial flower of the aggregate sort is called *flosculus*, a floret. Aggregate flowers are primarily divisible into seven kinds, which, from different circumstances, are termed by Linnæus the *Aggregate*, properly so called, the *Compound*, the *Umbellate*, the *Cymose*, the *Amentaceous*, the *Glumose*, the *Spadiceous.* A flower is commonly called *double*, when some of the parts of fructification are augmented in number, and others thereby excluded. The luxuriancy is commonly owing to unusual nourishment; the part multiplied is usually the corolla, but sometimes the calyx also; and by this increase of the covers, the essential parts of fructification are destroyed, and they are then accounted, by botanists, *monsters*, though so highly prized by the florist. Luxuriant flowers are divisible into, *Multiplicati*, multiplied; *Pleni*, full, and *Proliferi*, producing young. To these may be added *Mutilate*, maimed, or such as are deficient in some part; which stand opposed to the luxuriant ones. Flowers are farther distinguished into male, female, and hermaphrodite, See BOTANY.

FLOWER-DE-LUCE. See IRIS NOSTRAS.

FLOWERS, in chemistry. By this name are generally understood bodies reduced into very fine parts, either spontaneously or by some operation of art: but the term is chiefly applied to volatile solid substances, reduced into very fine parts, or into a kind of meal, by sublimation. Some flowers are nothing else than the bodies themselves, which are sublimed entire, without suffering any alteration or decomposition; and other flowers are formed only of some of the constituent parts of the body subjected to sublimation. The flowers of benjamin, sulphur, and zinc, furnish examples.

FLOWERS OF BENJAMIN See BENZOIC ACID.

FLOWERS OF ZINC. See ZINC.

FLUATS, salts which are formed by the fluoric acid, combined with different bases: thus, we have the *fluats of alumine*, *ammoniac*, &c.

FLUCTUATION, in surgery, a term often used to express the undulation of a confined fluid. Thus when matter is formed in an abscess, or when water accumulates in the abdomen, if the abscess or abdomen be lightly pressed with the fingers, the motion of fluctuation may be felt very plainly.

FLUELLIN. See ELATINE.

FLUID, that substance, the constituent principles of which so little attract each other, that, when poured out, it drops *guttatim*, and adapts itself, in every respect, to the form of the vessel containing it. See FLUIDITY.

FLUIDITY, that state or affection of bodies which denominates or renders them fluid; or that property by which they yield to the smallest force impressed: in contradistinction to solidity or firmness. Fluidity is to be carefully distinguished from liquidity or humidity, which latter implies wetting or adhering. Thus air, æther, mercury, and other melted metals, and even smoke and flame itself, are fluid bodies, but not liquid ones; whilst water, beer, milk, urine, &c. are both fluids and liquids at the same time.

The nature and causes of fluidity have been variously assigned. The Gassendists, and ancient corpuscularians, require only three conditions as necessary to it, viz. a smallness and smoothness of the particles of the body, vacuities interspersed between them, and a spherical figure. The Cartesians, and after them Dr. Hook, Mr. Boyle, &c. beside these circumstances, require also a certain internal or intestine motion of the particles as chiefly contributing to fluidity Thus Mr. Boyle, in his History of Fluidity, argues from various experiments; for example, a little dry powder of alabaster, or plaster of Paris, finely sifted, being put into a vessel over the fire soon begins to boil like water; exhibiting all the motions and phenomena of a boiling liquor: it will tumble variously in great waves like that; will bear stirring with a stick or ladle like that, without resisting: and, if strongly stirred near the side of the vessel, its waves will apparently dash against it: yet it is all the while a dry parched powder.

The like is observed in sand; a dish of which being set on a drum-head, briskly beaten by the sticks, or on the upper stone of a mill, it in all respects emulates the properties of a fluid body. Thus, a heavy body will immediately sink in it to the bottom, and a light one emerge to the top: each grain of sand has a constant vibratory and dancing motion; and if a hole be made in the side of the dish, the sand will spin out like water.

The Cartesians bring many considerations to prove, that the parts of fluids are in continual motion: as 1*st*, The change of solids into fluids, *e. g.* ice into water, and *vice versa;* the chief difference between the body in those two states consisting in this, that the parts, being fixed and at rest in the one, resist the touch; whereas in the other, being already in motion, they give way to the slightest impulse. 2*dly*, The effects of fluids, which commonly proceed from motion: such are the insinuation of fluids among the pores of bodies; the softening and dissolving hard bodies; the actions of corrosive menstruums, &c. besides that no solid can be brought to a state of fluidity, without the intervention of some moving or moveable body, as fire, air, or water. Air, the same philosophers hold to be the first spring of these causes of fluidity, it being this that gives motion to fire and water, though itself receives its motion and action from the ether, or subtle medium.

But Boerhaave pleads strenuously that fire is the first mover, and the cause of all fluidity in other bodies, as air, water, &c.: without this, he shows that the atmosphere itself would fix into one solid mass. And in like manner, Dr. Black, of Edinburgh, mentions fluidity as an effect of heat. The different degrees of heat which are required to bring different bodies into a state of fluidity, he supposes may depend on some particulars in the mixture and composition of the bodies themselves: which is rendered farther probable, from considering, that the natural state of bodies in this respect is changed by certain mixtures; thus, when two metals are compounded, the mixture is commonly more fusible than either of them separately.

Newton's idea of the cause of fluidity is different: he makes it to be the great principle of attraction. The various intestine motions and agitation among the particles of fluid bodies, he thinks is naturally accounted for, by supposing it a primary law of nature, that as all the particles of matter attract each other when within a certain distance, so at all greater distances they avoid and fly from one another. For then, though their common gravity, together with the pressure of other bodies upon them, may keep them together in a mass, yet their continual endeavour to avoid one another singly, and the adventitious impulses of heat and light, or other external causes, may make the particles of fluids continually move round about one another, and so produce this quality.

As therefore the cause of cohesion of the parts of solid bodies appears to be their mutual attraction: so, on this principle, the chief cause of fluidity seems to be a contrary motion impressed on the particles of fluids; by which they avoid and fly from one another, as soon as they come at, and as long as they keep at, such a distance from each other. It is observed also, in all fluids, that the direction of their pressure against the vessels which contain them, is in lines perpendicular to the sides of such vessels; which property, being the necessary result of the spherical figure of the particles of any fluid, shows that such are the parts of all fluids, or else of a figure very nearly approaching to it.

FLUIDS, a general name for the liquid secretions of the body. See SECRETION. The drying of any part of the human body demonstrates, that much of it consists of fluid. The quantity supposed to exist in a man of one hundred and sixty pounds weight is estimated at one hundred and thirty-five pounds. The fluids of the human body are divided by Dr. Hooper into, 1. *Crude*, or those which have not yet entirely put on the animal nature, as the chyme and chyle; 2. *Sanguineous:* to this is referred the blood, or the cruor of the blood; 3. *Lymphatic*, which are those of the lymphatic vessels, and the nutritious jelly; 4. *Secreted:* to this head are referred all those separated from the blood, which are very numerous; 5. *Excrementitious*, which are eliminated from the body; as the alvine fæces, urine, cutaneous, and pulmonary perspirable matter, &c.

The secreted humours are divided into, 1. *Lacteal*, which are white, as the milk, juice of the prostate and thymus glands; 2. *Aqueous*, as the aqueous humour of the eye; 3. *Mucous*, as the mucus of the nostrils and primæ viæ; 4. *Albuminous*, as the serum of the blood; 5. *Oily*, as the oil of the adipose membrane: 6. *Bilious*, as the bile, and wax of the ears. The fluids of the human body are also divided from their motion into, 1. *Circulating*, which continually circulate in the vessels; 2. *Commorant*, which circulate with a slow motion, as the oil of the adipose membrane and male semen: 3. *Stagnant*, which remain for a certain time in any receptacle, as cystic bile, urine, and the alvine fæces in the intestines.

The most important of the animal fluids is the blood, the quantity of which, contained in a healthy body, is very various, and difficult to be ascertained. Many diseases, however, may arise from its being either too scanty or too abundant. *Too great a quantity of blood* is produced by the use of rich, nourishing diet, strong drink, accompanied with a good digestion: from a lazy, sedentary life, or much sleep, especially in those who have been formerly accustomed to much exercise; with many other causes of the same kind. It renders the person dull, weak, and languid, and sometimes almost totally oppresses him; nor are those organs, destined for moving the blood, sufficient for driving forward such a load. The pulse sinks, and sometimes a syncope, vertigo, or palpitation, takes place. More frequently, however, the vessels are too much distended, and ready to be thrown into violent and irregular motions. Hence a disposition to fevers, inflammations, an unequal distribution of the blood, unusual congestions, rupture of the vessels, and hæmorrhages. Moreover, by reason of the close connection between the sanguiferous and the nervous systems, a fulness of blood produces a disposition to spasm and other diseases of that kind.

Hence we may understand why a *plethora* is sometimes accompanied with a weak, and sometimes with a strong and hard pulse; why it is the cause, as well as a part of, so many distempers; why it is the effect of a high state of health, &c.

The *want of a due quantity of blood* is no less pernicious than too great an abundance of it. It debilitates the person, and renders him unable to perform the proper offices of life; produces a languid circulation, syncope, spasms, and, at last, death itself. In a slighter degree of the disease, the body is emaciated through want of nourishment, and its functions are vitiated in various ways. It may arise from want, bad food, or such as affords little nourishment: from bad digestion, or the chyle being hindered from passing into the blood: from fevers, or other diseases which exhaust the body and hinder nutrition: or lastly, from various evacuations, particularly of blood; and that the more especially if they are sudden, for in slow evacuations the vessels accommodate themselves surprisingly to the quantity left in them. Besides, if the body be slowly exhausted, the excretions are lessened by reason of the deficiency of the vital power; so that the unusual expence is easily compensated by the unusual retention. But if the evacuation happens to be very sudden and great, it may either prove mortal in a short time, or break the constitution to a degree beyond recovery.

By a great and long-continued deficiency of blood, the quality of it also is impaired; because the thin part of it is easily and soon made up; but the glutinous, thick, and red part, not so easily. Hence the blood becomes thin, pale, scarcely capable of coagulation, or of affording a proper support to the body. *Too great thinness of the blood* also proceeds from using much drink, especially of the aqueous kind, slender and little nourishing diet, a bad digestion in the stomach; from diseases of the lungs and those organs which elaborate the red part; or from suppression of the usual evacuations of thin humours, as sweat or urine, induced by cold, a fault of the secreting organs, or by putrescency. But along with this, other disorders of the blood concur.

A too thin and watery blood makes the face pale, the body weak, languid, and torpid; the solid parts become flaccid from want of nourishment, and having too great a quantity of water in their composition. It brings on hydropic effusions of water in all parts of the body, by reason of the increased exhalation of that thin fluid which moistens all the inward parts; partly by reason of the blood itself being in some measure dissolved, so that it passes out of the vessels more easily and plentifully than it ought to do; and partly by reason of the vessels being relaxed beyond their usual pitch, and not making a proper resistance. Besides, in this case, the lymphatics are so far from absorbing more than usual, that, partaking likewise of the general debility, they are scarce sufficient for performing their proper offices.

Nature, however, has taken care, by the most simple means, to provide against so many and so great evils; for neither does the blood so easily become thin as some have imagined, nor when this quality takes place does it want a proper remedy. For almost instantly, if the person be otherwise in health, the excretions of the thinner matters are greatly augmented, and the whole mass of blood, in a short time, becomes as thick as formerly.

The opposite to this, namely, too great a *thickness of the blood*, though often spoken of by physicians, is very rarely if ever observed; and those fevers and inflammations which have been thought to arise from thence, are now found to originate from other causes. The following would seem to be the law of the human constitution. As soon as the blood has attained the due degree of thickness, or gone in the least beyond it, the excretions are either suppressed or diminished, the body attracts more moisture from the air, the person is thirsty, and drinks as much as is necessary for diluting the blood. But if water be wanting, and the person cannot satisfy his thirst, then the blood is so far from being thickened, that, by reason of a putrescency begun or augmented, it is much dissolved, becomes acrid, and is with difficulty contained in the vessels.

The *acrimony of the fluids* has afforded a large field for declamation to the speculative physicians, and upon this slender foundation many perplexed and intricate theories have been built. It is certain, indeed, that the blood in a state of health has some small share of acrimony; and this acrimony, from certain causes, may be a little increased, so as to produce various diseases of a dangerous nature. This we are assured of, from the increase of motion in the heart and arteries, and the similar augmentation of the action of the secretory organs, from acrid substances taken inwardly. The same thing also appears from the unusual acrimony of the secreted fluids in such cases, by which the vessels are sometimes greatly stimulated, and sometimes even quite eroded. Very many acrid substances, however, are daily taken into the stomach; so that these must either be corrected in the *primæ viæ*, or changed by digestion before they pass into the blood; or at least by dilution with much water, or being blunted by an admixture with gluten, oil, or inflammable air, they must deposit much of their acrimony, and at last be thrown out of the body as noxious substances. Thus a vast quantity of salts, acid, alkaline, and neutral, may pass through the body, without in the least affecting the health; though these salts, if taken in very large quantity, undiluted, or not thrown out of the body, will do much hurt. See Acrimony.

FLUMMERY, a wholesome sort of jelly made of oat-meal. The manner of preparing it is as follows: Put three large handfulls of finely-ground oat-meal to steep, for 24 hours, in two quarts of fair water: then pour off the clear water, and put two quarts of fresh water to it: strain it through a fine hair sieve, putting in two spoonfulls of orange-flower water and a spoonful of sugar: boil it till it is as thick as a hasty-pudding, stirring it continually while it is boiling, that it may be very smooth.

FLU'OR, in physics, a fluid; or, more properly, the state of a body that was before hard or solid, but is now reduced, by fusion, or fire, into a state of fluidity.

FLU'OR ALBUS, a kind of vaginal flux in women, popularly called the *whites*. See Leucorrhœa.

FLU'OR SPAR, a stony substance, also called *Vitreous*, *Fusible*, or *Phosphoric Spar*. It is a combination of a peculiar acid, called the *fluoric acid*, with lime; and hence, in the new chemical nomenclature, its name of *Fluate of lime*. It decrepitates on heated coals, like the muriate of soda, or common salt; but when slightly heated, it shines with a beautiful blue colour, that remains even under water, or in acids. The residue of this appearance of combustion is white and opake. From the trials of Mr. Kirwan its specific gravity seems to be, in general, from 3.41 to 3.18.

This kind of spar enters into fusion by a strong heat, and corrodes the crucible: it likewise fuses without effervescence with the mineral alkali, the borate of soda, and the phosphates of urine. It possesses the most lively and various colours; and it is known under the names of *false emerald*, *false amethyst*, or *false topaz*, accordingly as its colour is green, violet, or yellow. From the experiments of different chemists, it would seem, that the blue fluor spars most commonly owe their colour to iron, but sometimes also to cobalt; and that the green fluors are coloured by iron. The most usual form of fluate of lime is the cubic, with all the modifications which accompany this primitive form. When this substance is distilled with its own weight of sulphuric acid, the first product consists of elastic whitish vapours, which fill the receiver, and deposit a crust at the surface of the water, while the water itself becomes acidulous. The residue in the retort is sulphate of lime, as has been shown by Mr. Scheele. The crust which is formed on the water of the receiver is siliceous earth; and the water itself being saturated with the vapour, constitutes the fluoric acid. The most extraordinary property of this acid is that of seizing the siliceous earth, which is a constituent principle of glass, and volatilizing it with itself. In order to have the acid in a state of greater purity, and exempt from every mixture of silex, the operations are performed in retorts of lead; but both Mr. de Puymaurin and Mr. Chaptal are of opinion, that the acid even then is seldom pure, because the most beautiful fluor contains almost always a small quantity of silex, which the acid carries with it. The whitest, the most transparent, and the most regularly crystallized fluor, distilled on the water-bath in a leaden retort, afforded to the latter of these gentlemen an acid contaminated by a small quantity of silex. Mr. Meyer is also of opinion, from having used every possible means to obtain this acid in a state of great purity, that when it does not find silex in the retort, it attacks the sides of the receiver, and becomes changed. This acid may, however, be preserved in bottles whose internal surfaces are coated with wax softened with oil. The fluoric acid has some analogy with the muriatic, and some chemists have even confounded them together: but they differ essentially from each other. The fluoric acid, when combined with potass, presents a gelatinous substance, which, when dry, retains one-fifth of the alkali employed, and forms a true neutral salt; it acts nearly in the same manner with soda; with ammoniac it affords a jelly, which, when dry, exhibits all the appearances of silex; when mixed with lime-water, it regenerates the fluate of lime; and does not attack gold, or dissolve silver; but combines, in preference, with oxids, such as those of lead, iron, copper, tin, cobalt, and even of silver. One part of the fluate of lime, fused with four parts of caustic fixed alkali, forms a salt insoluble in water. The same quantity of fluate of lime, treated in the same manner with the carbonate of potass, or mild vegetable alkali, affords a soluble salt; and at the bottom of the water a calcareous earth is found, which proves that the fluoric acid is not separated but by double affinity.

This stony substance, which hitherto has not been employed but as a flux, or in the fabrication of ornaments, appears to deserve particular attention. Its texture seems to be lamellated like the diamond; and like that stone it is not capable of double refraction, as has been observed by the abbé Rochon. Its phosphorescence has likewise some relation with the combustibility of the diamond, and it has lively and varied colours. All these circumstances establish an analogy between these two substances; and might lead us to suspect, that the constituent principles of the diamond exist in this substance, mixed and combined with an acid and lime, &c. The fluoric acid possesses the very singular property of attacking glass, and of dissolving and carrying off its siliceous part. This property was first observed by Margraff, and has since been happily applied to the art of engraving on glass by Mr. Klaproth and others.

This acid is employed to corrode the glass, in the same manner that *aqua-fortis* is used to engrave upon copper. Some chemists have attempted to prove, that this acid is nothing else but a modification of the acid used in the decomposition of the spar. They seem to found their opinion chiefly on the circumstance, that the acid obtained exceeds, in weight, the spar made use of; but they have neglected the increase of weight which must arise from the erosion, dissolution, and mixture of the glass of the distilling vessels, which were employed in the experiments.

FLUO'RIC ACID; a peculiar acid obtained from the fluate of lime. See FLUOR SPAR.

FLUX, an extraordinary issue or evacuation of some humour. Fluxes are variously denominated, according to circumstances; as the *uterine* flux, *salival* flux, &c. The flux of the belly is of two kinds; the *diarrhœa;* and the *dysentery*, or *bloody-flux.* These are treated of under their several names.

FLUX, a term in metallurgy, that is sometimes used synonymously with *fusion.* For instance, an ore, or other matter, is said to be in liquid flux, when it is completely fused. But the word *flux* is generally used to signify certain saline matters, which facilitate the fusion of ores, and other substances which are difficultly fusible in assays, and in the reduction of ores. Fixed alkalis, nitre, borax, tartar, and common salt, are the saline matters of which common fluxes are generally composed. But the word *flux* is more particularly applied to a mixture of different proportions of only nitre and tartar. These compositions are called by particular names, according to the nature of their ingredients, as *white* flux, *black* flux, *crude* flux, &c.

FLUXION, a term in chemistry, mostly applied to signify the change of metals, or other bodies, from the solid into the fluid state, by the application of heat. See FUSION.

FLY, SPANISH. See CANTHARIDES.

FO'CUS, a point in which any number of rays, after being reflected or refracted, meet. See VISION.

FŒNI'CULUM, *(quasi fœnum oculorum*, the herb good for the sight; because supposed to be good for the eyes*)*; FENNEL.

FŒNI'CULUM AQUA'TICUM, WATER-FENNEL, or fine-leaved water-hemlock. The plant which bears this name in the pharmacopœias, is the *Phellandrium aquaticum; foliorum ramificationibus divaricatis*, Linn. It is narcotic, and possesses vertiginous and poisonous qualities, which are best counteracted by speedily clearing the primæ viæ. The seeds are recommended by some, in conjunction with Peruvian bark, in the cure of phthisis pulmonalis.

FŒNI'CULUM DULCE, common or SWEET FENNEL; the *Anethum fœniculum fructibus ovatis*, Linn. Class, *Pentandria.* Order, *Digynia.* The seeds and roots of this indigenous plant are directed by the colleges of London, Edinburgh, and Dublin. The seeds have an aromatic smell, and a warm sweetish taste, and contain a large proportion of essential oil. They are stomachic and carminative. The root has a sweet taste, but very little aromatic warmth, and is said to possess diuretic properties. From 960 parts, Neumann obtained 20 of volatile oil, 260 watery extract, and afterwards some alcoholic extract, which could not be exsiccated on account of its oiliness. By alcohol first he got 84 resinous extract, 120 fixed oil, and then by water 120 of a bitter extract. The officinal preparations are:—*Aqua distil. semin.* Lond. Dubl. *Oleum volat. semin.* Dubl. *Ol. vol. flor.* Dubl. *Decoct. cham.* Dubl.

FŒNI'CULUM PORCINUM. See PEUCEDANUM.

FŒNI'CULUM VULGARE, common fennel, or *fenkle;* a variety of the *Anethum fœniculum.* See FŒNICULUM DULCE.

FŒ'NUM GRÆCUM, *(fœnum*, hay, and *Græcum*, belonging to Greece, because it grew there, in the meadows, like hay); FENUGREEK. *Trigonella fœnum Græcum leguminibus sessilibus strictis erectiusculis subfalcatis acuminatis, caule erecto*, Linn. Class, *Diadelphia.* Order, *Decandria.* This plant is a native of Montpelier. The seeds are brought to us from the southern parts of France and Germany: they have a strong disagreeable smell, and an unctuous farinaceous taste, accompanied with a slight bitterness. They are supposed to assist the formation of pus in inflammatory tumors; and the meal, with that intention, is made into a poultice with milk. It is however very little used, except by farriers, for cow-drenches.

FŒ'NUM CAMELORUM. See JUNCUS ODORATUS.

FŒ'TOR, stinking or fetid effluvia, arising from the body, or any diseased part.

FŒTUS, the young of all viviparous animals whilst in the womb, and of oviparous animals before being hatched: this name is also applied, by botanists, to the *embryo of a vegetable.* Strictly, however, it is the name of the young animal after it is perfectly formed; till which time it is more properly called EMBRYO. See MIDWIFERY. In the human fœtus there exist several peculiarities not to be found in the adult: 1. The arteries of the navel-string, which are continuations of the hypogastics, are, after the birth, shrivelled up, and form the lower umbilical ligament. 2. The veins of the navel-string are formed by the union of all the venous branches in the placenta, and, passing into the abdomen, become the falciform ligament of the liver. 3. The lungs, before being inflated with air, are compact and heavy; but after one inspiration they become light, and as it were spongy: but it may be noted here, that the notion of the lungs sinking in water before the child breathes, and of their swimming after the reception of air, are no certain proofs that the child had or had not breathed, much less that it was murdered: for the uninflated lungs become superficially lighter than water, as soon as any degree of putrefaction takes place in them; and this soon happens after the death of the child: besides, where the utmost care has been taken to preserve the child, it has breathed once or twice, and then died. 6. The thymus gland is very large in the fœtus, but dwindles away in proportion as years advance. 7. The foramen ovale in the heart of a fœtus is generally closed in an adult.

The circulation in the substance of the placenta, notwithstanding what has been said by different authors, seems to be not yet fully understood; but it is certain, that the blood passes directly from the placenta into the umbilical vein; which, running along the funis, perforates the belly of the fœtus, and enters under the liver, where it divides into two branches, nearly at half a right angle. One of these branches, called the *ductus venosus*, carries part of the blood to the left branch of the vena cava hepatis, and from that to the vena cava. The other carries the rest to the vena portarum; where, after circulating through the liver, it also gets into the vena cava, and so to the heart: but the circulation here is carried on without any necessity for the lungs being dilated: for fœtuses have an oval hole open between the auricles of the heart, and a communicating canal, called *canalis arteriosus*, going between the pulmonary artery and aorta; which two passages allow the rest of this circulating fluid, that returns by the cava superior, to be transmitted to the aorta, without passing through the lungs.

The blood is returned from the fœtus by the *arteriæ umbilicales*, which take their rise sometimes from the trunk of the aorta, but commonly from the iliac arteries of the fœtus; and, running by the external sides of the bladder, ascend to go out at the navel.

The fœtus is commodiously adapted to the cavity of the uterus, and describes an oblong or oval figure; its several parts being collected together in such a manner as to occupy the least possible space. The spine is rounded, the head reclines forward towards the knees, which are drawn up to the belly, while the heels are drawn backwards towards the breech, and the hands and arms are folded round the knees and legs. The head of the child is generally downwards. This does not proceed, as was commonly alleged, from the funis not being exactly in the middle of the child's body, for it is not suspended by the funis: the reason is, because the superior parts are much larger, and heavier in proportion, than the inferior. When other parts present, it seems owing to the motion of the child altering its figure, when the waters are much diminished in quantity, or to circumvolutions of the cord: when the position is once altered, it becomes confined or locked in the uterus, and cannot easily resume its original posture.

As the figure of the fœtus is oval, and the head naturally falls to the most depending part of the uterus, the vertex generally points to the os tincæ, with the ears diagonally in the pelvis. The fœtus is mechanically disposed to assume this position from its peculiar figure and construction, particularly by the bulk of the head and articulation with the neck, by the action of its muscles, and by the shape and construction of the cavity in which it is contained.

FOG, a meteor, consisting of gross vapours, floating near the surface of the earth. According to Lord Bacon, fogs are imperfect condensations of water, consisting of a large proportion of the air, and a small one of the aqueous vapour: and these happen in the winter, about the change of the weather from frost to thaw, or from thaw to frost; but in the summer, and in the spring, from the expansion of the dew. If the vapours, which are raised plentifully from the earth and waters, either by the solar or subterraneous heat, do at their first entrance into the atmosphere meet with cold enough to condense them to a considerable degree, their specific gravity is by that means increased, and so they will be stopped from ascending; and either return back in form of dew or of drizzling rain, or remain suspended some time in the form of a fog. Vapours may be seen on the high grounds as well as the low, and more especially about marshy places; but they are easily dissipated by the wind, and also by the heat of the sun. They continue longest in the lowest grounds, because those places contain most moisture, and are least exposed to the action of the wind. Hence we may easily conceive, that fogs are only low clouds, or clouds in the lowest region of the air; as clouds are no other than fogs raised on high. When fogs stink, then the vapours are mixed with sulphureous and other offensive exhalations, extremely fatal to man. Mr. Boyle observes that, upon the coast of Coromandel, and most marine parts of the East Indies, there are, notwithstanding the heat of the climate, annual fogs, so thick, as to occasion people of other nations who reside there, and even the more tender sort of the natives, to keep their houses close shut up. Fogs are commonly pretty strongly electrified, as appears from Mr. Cavallo's experiments upon them.

FOLI'ATIO, (from *folium*, a leaf), in botany, foliation; exemplified in the curious manner in which the leaves of trees are wrapped or folded up in the buds. This term, in the latter editions of Linnæus's works, is changed for VERNATIO, which see.

FOLI'OLA, in botany, the lesser leaves or lobes, which, together, constitute a compound leaf.

FO'LIUM, in botany, a leaf. The leaves of plants are not merely ornamental; for they serve very useful purposes, and make part of the organs of vegetation.

The greater number of plants have leaves; though in mushrooms, and shrubby horse-tail, they are totally wanting. Ludwig defines leaves to be fibrous and cellular processes of the plant, which are of various figures, but generally extended into a plain, membranaceous, or skinny substance. They are of a deeper green than the foot-stalks on which they stand, and are formed by the expansion of the vessels of the stalk, among which, in several leaves, the proper vessels are distinguished by the particular taste, colour, and smell of the fluids which they contain.

The vessels of the stalk produce several ramifications, which, crossing each other mutually, form a kind of net, the meshes or interstices of which are filled up with a tender cellular substance, called the pulp, or parenchyma. This pulpy substance is frequently consumed by small insects, whilst the membranous texture, remaining untouched, exhibits a skeleton of the leaf.

This last is covered externally with an epidermis, which appears to be a continuation of the scarf-skin of the stalk, and, perhaps, of that of the stem. M. De Saussure, has attempted to prove that this scarf-skin, like that of the petals, is a true bark, composed itself of an epidermis and cortical net: these parts, however, seem to be the organs of perspiration, which dissipate the superfluous juices of the plant.

The cortical net is furnished, principally on the lower surface of the leaf, with a great number of absorbent vessels, which imbibe humidity from the air. The surface turned upwards, serves as a defence to the under one; and this disposition is so essential to the vegetable economy, that, if a branch be placed in such a manner as to destroy the natural direction of the leaves, they will, of themselves, in a very short time, resume their former position.

Leaves then are such useful and necessary organs, that trees perish, when totally divested of them. In general, plants stript of any of their leaves, cannot shoot vigorously; as is evident from those which have undergone the depredations of insects, as well as from the very common practice of stripping off some of the leaves from plants, when we would suspend their growth, or diminish the number of their shoots. This method is sometimes observed with corn and esculent grasses; and, in cold years, is practised on fruit-trees and vines, to ripen the fruit.

When vegetation ceases, the organs of perspiration and inspiration become superfluous. Hence plants are not always adorned with leaves, but produce new ones every year; and every year the greater part are totally divested of them during the winter.

Of leaves, some are primary, others accessary. These last are the *stipulæ* and *bracteæ* of Linnæus; the first of which are a set of scales, generally placed at the origin of the young footstalks for support: the latter accompany the flowers, and differ in figure and colour from the proper leaves of the plant. The external appearance of leaves suggests two things for our consideration, to wit, their *form* and their *determination.* By their *form* is meant their structure, and external configuration; by their *determination*, every thing respecting leaves, which does not pertain to their form, but rather to their disposition on the plant. Leaves, with respect to their form, are divided into *simple* and *compound*, but for their individual distinctions we must refer the reader to the article BOTANY, and to the plates thereto anexed.

FO'LIUM ORIENTA'LE. See SENNA.

FOLLI'CULUS, (dim. of *follis*, a bag), a follicle; that species of gland which consists of simply a hollow vascular membrane and an excretory duct. The tongue, arm-pits, &c. abound with these glands.

FOLLI'CULUS, (from *follis*, a bag), in botany, a species of seed-vessels first mentioned by Linnæus in his *Delineatio Plantæ*, generally consisting of one valve, which opens from bottom to top on one side, and has no suture for fastening or attaching the seeds within it. *Folliculi* also denote small glandular vessels distended with air, which appear on the surface of some plants; as at the root of *water-milfoil*, and on the leaves of *aldrovanda.* In the former, the vessels in question are roundish, and furnished with an appearance like two horns; in the latter, they are pot-shaped, and semicircular.

FOLLICULOSE GLANDS; such as the muciparous glands, the sebaceous, &c. See FOLLICULUS.

FOMENTATION, in surgery, a fluid externally applied, usually as warm as the patient can conveniently bear it, and in the following manner. Two thick flannel cloths are dipped into the heated liquor, one of which is wrung as dry as the necessary speed will admit, then immediately applied to the part affected; it lies on until the heat begins to go off, and the other is in readiness to apply at the instant in which the first is removed: thus these flannels are alternately applied, so as to keep the affected part constantly supplied with them warm. This is continued 15 or 20 minutes, and repeated two or three times a-day. Every intention of relaxing and soothing, by fomentations, may be answered as well by warm water alone, as when the whole tribe of emollients are boiled in it; but when discutients or antiseptics are required, such ingredients must be called in as are adapted to that end. Of these there are various kinds mentioned in the Pharmacopœia Chirurgica. The degree of heat should never exceed that of producing a pleasing sensation: great heat produces effects very opposite to that intended by the use of a fomentation. See EMOLLIENTIA.

FO'MITES, (pl. of *fomes)*, a term used as synonimous with contagion. Dr. Cullen observes that clothes, &c. receive contagious matter from human bodies, and retain it in an active state for some time. The substances thus imbibed, he says, are called by this name. Many think that contagion received from them is more powerful than that arising from human bodies, but this is mere conjecture.

FO'NS PULSA'TILIS. See Fontanella.

FONTANE'LLA, the quadrangular aperture found betwixt the os frontis and ossa sincipitis, in children just born; which also used to be called *fons pulsatilis*, from the pulsation occasioned there by the vessels of the brain. The term *Fontanella* is also used to signify an artificial opening or drain formed in the skin, more generally known by the name of an *issue*. See Issue.

FONTANE'LLA ANTERIOR. See Fontanella.

FONTANE'LLA POSTERIOR. See Fontanella.

FONTI'CULUS, (dim. of *fons*, an issue); an artificial ulcer, formed in any muscular part, and kept discharging by introducing daily a pea, covered with digestive ointment or other stimulating matter. See Issue.

FOOD, in the most extensive signification of the word, implies whatever aliments are taken into the body, whether solid or fluid; but, in common language, it is generally used to signify only the solid part of our aliment. See Aliment.

We are told, that, in the first ages, men lived upon acorns, berries, and such fruits as the earth spontaneously produces: then they proceeded to eat the flesh of wild animals taken in hunting, but the number of these decreasing, and mankind multiplying, necessity taught them the art of cultivating the ground, sowing corn, &c. By and by, they began to assign to each other, by general consent, portions of land to produce them their supply of vegetables: after this, reason suggested the expedient of domesticating certain animals, both to assist them in their labours and supply them with food. Hogs were the first animals of the domestic kind that appeared upon their tables; they held it to be ungrateful to devour the beasts that assisted them in their labours. When they began to make a free use of domestic animals, they roasted them only; boiling was a refinement in cookery, which, for ages, they were strangers to; and fish, living in an element men were unused to, were not eaten till the world became civilized. Menelaus complains, in the Odyssey, that they had been constrained to feed upon them.

The most remarkable distinction of foods, in a medical view, is into those which are already assimilated into the animal nature, and such as are not. Of the first kind are animal substances in general; which, if not entirely similar, are nearly so, to our nature. The second comprehends vegetables, which are much more difficultly assimilated. But as the nourishment of all animals, even those which live on other animals, can be traced originally to the vegetable kingdom, it is plain, that the principle of all nourishment is in vegetables.

Though there is, perhaps, no vegetable which does not afford nourishment to some species of animal or other; yet, with regard to mankind, a very considerable distinction is to be made. Those vegetables, which are of a mild, bland, agreeable taste, are proper nourishment; while those of an acrid, bitter, and nauseous nature, are improper. We use, indeed, several acrid substances as food; but the mild, the bland, and palatable, are in the largest proportion in almost every vegetable. Such as are very acrid, and at the same time of an aromatic nature, are not used as food, but as spices or condiments, which answer the purposes of medicine rather than any thing else. Sometimes, indeed, acrid and bitter vegetables seem to be admitted as food. Thus celery and endive are used in common food, though both are substances of considerable acrimony; but it must be observed, that when we use them they are previously blanched, which almost totally destroys their acrimony. Or, if we employ other acrid substances, we generally, in a great measure, deprive them of their acrimony by boiling. In different countries the same plants grow with different degrees of acrimony. Thus, garlic here seldom enters our food; but in the southern countries, where the plants grow more mild, they are frequently used for that purpose. The plant which furnish cassada, being very acrimonious, and even poisonous in its recent state, affords an instance of the necessity of preparing acrid substances even in the hot countries: and there are other plants, such as arum-root, which are so exceedingly acrimonious in their natural state, that they cannot be swallowed with safety; yet, when deprived of that acrimony, will afford good nourishment.

The most remarkable properties of different vegetable substances as food, are taken notice of under their different names, or under the article Aliment. Here we shall only trace the curious enquiry made by Dr. Cullen into the question. *What proportion of animal and vegetable food ought to be mixed?*

1. *Animal* food certainly gives most strength to the system. It is a known aphorism of Sanctorius, that *pondus addit robur;* which may be explained from the impletion of the blood-vessels, and giving a proper degree of tension for the performance of strong oscillations. Now animal food not only goes a greater way in supplying fluid, but also makes a fluid more dense and elastic. The art of giving the utmost strength to the system is best understood by those who breed fighting-cocks. These people raise the cocks to a certain weight, which must bear a certain proportion to the other parts of the system, and which at the same time is so nicely proportioned, as that, on losing a few ounces of it, their strength is very considerably impaired. Dr. Robinson, of Dublin, has observed, that the force and weight of the system ought to be determined by the largeness of the heart, and its proportion to the system: for a large heart will give large blood-vessels, while at the same time the viscera are less, particularly the liver; which last being increased in size, a greater quantity of fluid is determined into the cellular texture, and less into the sanguineous system. Hence we see how animal food gives strength, by filling the sanguiferous vessels. What pains we now bestow on cocks, the ancients bestowed on the Athletæ, by proper nourishment bringing them to a great degree of strength and agility. It is said that men were at first fed on figs, a proof of which, we have from their nutritious quality: however, in this respect, they were soon found to fall far short of animal food; and thus we see that men, in some measure, will work in proportion to the quality of their food. The English labour more than the Scots; and wherever men are exposed to hard labour, their food should be animal. Animal

food, although it gives strength, yet loads the body; and Hippocrates long ago observed, that the athletic habit, by a small increase, was exposed to the greatest hazards. Hence it is only proper for bodily labours, and entirely improper for mental exercises; for whoever would keep his mind acute and penetrating, will exceed rather on the side of vegetable food. Even the body is oppressed with animal food: a full meal always produces dulness, laziness, and yawning; and hence the feeding of gamesters, whose mind must be ready to take advantage, is always performed by avoiding a large quantity of animal food. Farther, with regard to the strength of the body, animal food in the first stages of life is hardly necessary to give strength: in manhood, when we are exposed to active scenes, it is more allowable; and even in the decline of life, some proportion of it is necessary to keep the body in vigour. There are some diseases, which come on in the decay of life, at least aggravated by it; among these the most remarkable is the gout. This, when it is in the system, and does not appear with inflammation in the extremities, has pernicious effects there, attacking the lungs, stomach, head, &c. Now to determine this to the extremities, a large proportion of animal food is necessary, especially as the person is commonly incapable of much exercise.

Animal food, although it gives strength, is yet of some hazard to the system, as it produces plethora and all its consequences. As a stimulus to the stomach and to the whole system, it excites fever, urges the circulation, and promotes the perspiration. The system, however, by the repetition of these stimuli, is soon worn out; and a man who has early used the athletic diet, is either early carried off by inflammatory diseases, or, if he takes exercise sufficient to render that diet salutary, such an accumulation is made of putrescent fluids, as in his after-life lays a foundation for the most inveterate chronic distempers. Therefore it is to be questioned, whether we should desire this high degree of bodily strength, with all the inconveniences and dangers attending it. Those who are chiefly employed in mental researches, and not exposed to too much bodily labour, should always avoid an excess of animal food. There is a disease which seems to require animal food, viz. the hysteric or hypochondriac; and which appears to be very much a-kin to the gout, affecting the alimentary canal. All people affected with this disease, are much disposed to acescency; which sometimes goes so far, that no other vegetable but bread can be taken in, without occasioning the worst consequences. Here then we are obliged to prescribe an animal diet, even to those of very weak organs; for it generally obviates the symptoms. However, several clear instances of scurvy have been produced by a long-continued use of this diet, which it is always unlucky to be obliged to prescribe; and when it is absolutely necessary to be used, it should be joined with as much of the vegetable as possible, and when a cure is performed we should gradually recur to the latter.

2. Next, with regard to *vegetable* diet, the chief inconvenience of it, is the difficulty of assimilation; which, however, in the vigorous and exercised, will not be liable to occur. In warm climates, the assimilation of vegetable aliment is more easy, so that *there* it may be more used, and, when joined to exercise, gives a pretty tolerable degree of strength and vigour; and though the general rule be in favour of *animal* diet, for giving strength, yet there are many instances of its being remarkably produced from vegetable. Vegetable diet has this advantage, that it whets the appetite, and that we can hardly suffer from a full meal of it. Besides the disorders it is liable to produce in the *primæ viæ*, and its falling short to give strength, there seem to be no bad consequences it can produce in the blood-vessels; for there is no instance where its peculiar acrimony was ever carried there, and it is certainly less putrifiable than animal food; nor, without the utmost indolence, and a sharp appetite, does it cause plethora or any of its consequences: so that we cannot here but conclude, that a large proportion of vegetable food is useful for the generality of mankind.

There is no error in this country more dangerous or more common than the neglect of bread: for it is the safest of vegetable aliment, and the best corrector of animal food; and, by a large proportion of this alone, its bad consequences, when used in a hypochondriac state, have been obviated. The French apparently have as much animal food on their tables as the English; and yet, by a greater use of bread and the dried acid fruits, its bad effects are prevented; and therefore bread should be particularly used by the latter, as they are so voracious of animal food. Vegetable food is not only necessary to secure health, but long life; and, as we have said, in infancy and youth, we should be confined to it mostly: in manhood and decay of life, animal food is better: and, near the end, vegetable again.

There is another question discussed by Dr. Cullen: viz. What are the effects of *variety* in food? Is it necessary and allowable, or universally hurtful? Variety of a certain kind seems necessary; as vegetable and animal foods have their mutual advantages, tending to correct each other. Another variety, which is very proper, is that of liquid and solid food, which should be so managed as to temper each other: for liquid food, especially of the vegetable kind, is too ready to pass off before it is properly assimilated, while solid food makes a long stay. But this does not properly belong to the question, whether variety of the same kind is necessary or proper, as in animal foods, beef, fish, fowl, &c. It does not appear that there is any inconvenience arising from this mixture or difficulty of assimilation, provided a moderate quantity be taken. When any inconvenience does arise, it probably proceeds from this, that one of the particular substances in the mixture, when taken by itself, would produce the *same effects*; and indeed it would appear that this effect is not *heightened* by the mixture, but properly *obviated* by it. There are few exceptions to this, if any. If we take a large proportion of acescent substances with milk, the coldness, the acidity, flatulency, &c. may appear; and it is possible that the coagulum, from the acescency of the vegetables, being formed somewhat stronger, may give occasion to too long retention in the stomach, and to acidity in too great degree. Again, the mixture of fish and milk often occasions inconvenience. The theory of this is difficult, though, from universal consent, it must certainly be just. Can we suppose that fish gives occasion to such a coagulum as runnet? If it does so, it may thus produce bad effects. Besides, fishes approach somewhat to vegetables, in giving little stimulus; and are accused of the same bad effects as these, viz. bringing on the cold fit of fever.

Thus much may be said for variety. But it also has its disadvantages, provoking to gluttony; this and the art of cookery making men take in more than they properly can digest; and hence, perhaps very justly, physicians have universally almost preferred simplicity of diet; for, in spite of rules, man's eating will only be measured by his appetite, and satiety is sooner produced by *one* than by *many* substances. But this is so far from being an argument against variety, that it is one for it; as the only way of avoiding a full meal of animal food, and its bad effects, is by introducing a quantity of vegetables. Another means of preventing the bad effects of animal food, is to take a large proportion of liquid; and hence the bad effects of animal food are less felt in Scotland, on account of their drinking much with it, and using broths, which are at once excellent as nourishment, and preventive of gluttony.

FOOT, that part of the human body, which, in walking, is applied flat to the ground. Like the hand it is divided into three parts, viz. *tarsus*, *metatarsus*, and *toes*. See BONES, also the articles TARSUS, METATARSUS, &c.

FOOT, CLUB, a very common species of distortion, the varieties of which may be said to include almost all the circumstances of unnatural form, and improper combination of bones; but, in order to convey clear ideas of this disease, and the probability of treating it with success, it will be necessary to consider its varieties in different patients, and its variations in the same patient, but at different periods.

The club-foot may be occasioned by dislocation, or other accidents, at various periods of life; but, as these are anomalous cases, it is necessary to limit our attention to that which frequently occurs in *new-born children*. Mr. T. Sheldrake supposes it is occasioned by some disproportion between the uterus and its contents, or some peculiar position of the fœtus in utero. In various cases, the distortion seems to take place at different periods before the birth, since in some, although the child has no power to hold the foot in its natural form and position, it may be immediately restored by the hand of the practitioner; in others, the distortion is too great to admit of this, although the foot is still capable of some motion: in others again, it is perfectly rigid.

If a foot, wholly clubbed at the birth, be compared with one in the natural state, it will be found to vary from it nearly in the following circumstances: the sole is turned upwards and inwards, so that the upper part of the toes will be visible, the outer and upper part downwards: so that, if the child could stand, it would be upon the side, and some portion of the superior part, of the foot, instead of the sole. See Plate II. fig. 1, 2, 3.

Mr. Cheselden mentions, with approbation, a method of curing the club-foot, by placing it in its natural position, and binding it with strips of cloth, dipped in white of eggs, to confine it there; repeating this operation until the defect be cured.

Another method of treating this disease has been by fixing leg-irons of various constructions upon the limb, and binding the foot upon them, with a view to reduce it into its natural state, by compression from the bandage. A third method has been, by placing the foot in boxes of tin, lead, or copper, of a convenient form, and binding them so that the compression of these boxes shall reduce it to its natural state. It has been proposed to effect the same purpose by binding the feet in strong boots of leather, &c. Some advise that the feet should be bound as flat as possible upon two metal soles, and these inserted into two shoes, connected together by an iron fixed in each heel: this iron contains a joint, with a ratchet-wheel; when the feet are confined in the shoes, the toes are turned outwards by degrees; the ratchet wheel is to confine them in their newly-acquired situation, and, by a repetition of this process, the feet are to be turned into their natural situation.

It is obvious, that Mr. Cheselden's method can only be useful in that particular state of the disease in which the foot can be immediately placed in its natural position: some such cases have been cured upon this principle, by keeping the feet bound up with strips of adhesive plaster, until they had acquired the proper habit; but where it is intended to produce an alteration in the form of the foot, this method is generally insufficient. The other methods that have been mentioned, are founded upon an idea that the disease is caused by malformation of the bones of the foot or leg, perhaps of both; but Mr. Sheldrake contends, that this is not the fact. He even undertakes to show, that if it really were a disease of the bones, these methods are not calculated to remove it.

When it was thought advisable to apply mechanical inventions for curing the distorted legs and feet of children, the mechanism used in the treatment of fractures naturally suggested a principle upon which such instruments might be made; but though there is some analogy between the principles upon which fractures and distortions of the extremities should be treated, so far as mechanical application is concerned, the difference between the two diseases is so great, that what may be justly considered as perfection in the treatment of the one, would be very inadequate if relied upon as a remedy for the other. In fractures, the intention is fully answered by keeping the limb steady in one position until a cure is effected, and the mechanical assistance necessary to effect this is perfectly in the surgeon's power; but, in order to cure distortions in the limbs of children, the action of the instruments to be used should be permanently exerted, and capable of being constantly increased; for the moment the progress of that action is discontinued, all progress towards a cure is at an end.

As the joints are too frequently the parts most affected by those distortions, and as the time requisite to effect a cure is supposed to be very great, the machinery used should be so adapted as to admit of *loco-motion:* this is commonly done by making joints in the irons correspondent to those in the limbs, and leaving the bandage so loose as to admit of the necessary motion, which, it is evident, renders them almost useless, supposing they were in themselves an adequate remedy for the disease.

The principle upon which all these instruments are constructed is to place a strait support on one side of the distorted limb, and, by means of bandages, bind it to that support till it becomes straight.

As there is an indispensable necessity for making joints in these instruments, and leaving the bandages so loose as to allow of necessary motion in the limb, and as simple bandage, to which principle this apparatus is reducible, can only act by compression, it is evident that in practice they cannot produce the effect, of which, in theory, they may be thought capable. In order to apply them, they are usually fixed to shoes, and therefore their connection with the limb they are intended to act upon is not sufficiently intimate to keep it in its natural direction; and as removing them from one shoe to another is extremely troublesome, a common practice is to make them as strong as possible, in order to make this removal less frequently necessary: hence it frequently happens, that in addition to all other imperfections of this mode of treatment, a child, naturally perhaps delicate, and rendered more infirm by imperfections in its limbs, is incumbered with an unnecessary weight of iron and shoe, and that weight so applied as to act upon mechanical principles in the most disadvantageous manner, as an impediment to his loco-motive power, and all this under the mistaken idea of assisting his motion, and curing his deformity.

Mr. Sheldrake describes a method of treating these diseases, by which, he says, they may be more speedily and effectually cured. His proposal is to substitute a spring, so adapted to the nature of the distortion, that when bound upon the limb, its action will *draw the deformed parts into their natural situation;* for when it is necessary to allow of motion in the limb, that motion, by increasing the re-action of the spring, accelerates the cure.

Upon a slight inspection of the disease in question, one might perhaps be excused for saying so much deformity could only be occasioned by malformation of some bones in the foot; but when the natural progress of ossification is considered, it will be difficult to find an excuse for saying those bones are unnaturally shaped, when they are so near the cartilaginous state, that they can hardly be said to have become bones at all: in fact, there is great reason to believe, that at this period the bones are not the seat of the disease; of course, all attempts to relieve it, by operating upon them, will always prove futile and ineffectual.

From circumstances already mentioned, the club-foot is evidently occasioned by some compression prior to the birth; and if the position of the fœtus in utero be considered, it will be evident, that this compression will deprive the exterior muscles of the foot, of all power of moving, and, in consequence, of much of their power of contracting themselves, on which much of their capacity for motion depends, the contractile power of the flexor muscles is proportionably increased; and, in consequence, the foot is incapable of resuming its natural situation after the compression is removed.

Voluntary muscular motion, at least so much of it as relates to loco-motion, seems to depend upon this principle; every set of muscles which act upon any part in a peculiar manner are equal in power to their antagonists, and every action is performed by connecting volition with the muscles proper to produce it; the first action is counteracted by transferring volition to the antagonists in their turn, and, so long as it can be thus equally transferred from one to another, the natural form of the parts will be preserved, and their actions properly performed: but if, by any accident, the peculiar action of any muscle is impeded, the corresponding action of its antagonist is increased, and this inequality of action will continue to increase till the impediment is removed: upon due consideration it will therefore appear, that this effect is produced by the compression of the fœtus in utero, and the child is born with his feet distorted by contraction of all the flexor muscles of the foot.

A child, from the time of its birth, has inclination to move, though it possesses but very imperfectly the power of directing its motions; this is acquired by efforts continually repeated until it begins to walk: if the parts are naturally formed, and no accident intervenes to impede their motion, it then acquires the power of using its feet in the natural way; but if there is any impediment to their natural motion, it acquires the habit of moving as near to the natural as that impediment will admit: hence it is evident, that the cure will be more difficult in proportion as the attempt is deferred after the birth, because, in a patient of five or six months old, it will be necessary to counteract the diseased habitual action of the parts, as well as the original impediment.

If a child that has feet of this kind be suffered to walk before a cure is attempted, it is evident that he must place his feet in a position that will not bear him, without undergoing further alteration by sustaining his weight: this must produce additional deformity, by still further deviating from the natural relative position of the bones: though this circumstance may not render a cure impossible in all cases, it certainly will make it more complex, tedious, and uncertain, as in every one it may not be easy to determine whether the position in which they are placed by it may not be such as will render a cure absolutely impracticable.

If no attempt is made towards a cure before the bones of the foot are completely ossified, it is certain that they will acquire some deformity, and so much of the disease as depends on deformity of the bones is, from that moment, irremediable: but circumstances certainly do exist in many cases at this period, which may be alleviated so far as to render the feet more useful than they would be if entirely neglected. If the disease is neglected until the bones are completely ossified, and the patient so far advanced in life as to have acquired fixed habits of using his feet, all attempts towards a cure must be considered as extremely absurd, although he must still have recourse to assistance from art, in order to enable him to move with any facility.

If this theory of the disease should be just, it will appear that the cure must be effected by extending the contracted muscles, by increasing the power of those which have been diminished, and thus restoring that equilibrium which always exists between the flexor and extensor muscles in the natural state. This cannot be done by bending, twisting, or binding the feet in any particular position, which is all that has been attempted by the various methods that have as yet been recommended with a view to effect a cure: it can only be effected by applying, externally, an elastic power so adapted to the existing state of the parts as to render the extensor muscles of the foot, with such assistance, something more powerful than the flexors, without producing absolute permanent extension. By proceeding in this manner, the feet will be stimulated to action; that action will increase the effect of the elastic bandage applied, and accelerate the restoration of the parts to their natural state.

Mr. Sheldrake contends, that if these ideas of the disease are just, and the proposed method of treating it practicable, he is authorised to draw the following conclusions à priori, viz. 1. That species of club-foot with which children are frequently born may be perfectly cured, provided the cure is undertaken before the child begins to walk; though the difficulties to be overcome will always be increased in proportion as the attempt is deferred after the birth. 2. It is not impossible that many cases may be perfectly cured, if undertaken after the patient has walked, though this must depend upon circumstances, in particular cases, which cannot be foreseen, and therefore is not advanced as a general fact. It is certain, however, that in every case of this description, the deformity may be greatly diminished, and the feet rendered more useful than if totally abandoned to their fate. 3. If the cure is not attempted till the bones are completely ossified, it cannot be effected, and, in many cases, the deformity cannot even be alleviated, though the exertions of art may be necessary, to prevent it from being increased.

Several facts seem to justify the preceding conclusions; particularly a case exemplified in Plate III. where there are given three views (fig. 1, 2, 3) of one of the feet of a child in the month. These were drawn December 17th, 1793, before the use of any bandage; fig. 4, 5, 6, are three views drawn from the same foot, March 17th, 1794. Upon comparing them, an accurate estimate may be formed of the effect that may be produced, by elastic bandages early applied in such cases, even in a moderate length of time.

FORA'MEN, (from *foro*, to pierce); a little opening, or aperture, of a regular shape.

FORA'MEN GRÆCUM; the name of a single opening in the basis of the cranium, between the ethmoid and the frontal bones, that gives passage to a small vein.

FORA'MEN OVA'LE, the oval-shaped aperture between the two auricles of the heart in the fœtus. On examining the heart of a fœtus, we find this hole. It is seated under the tuberculum Loweri, and goes through the septum auricularum, directly opposed to the vena cava inferior. After the child is born, and a little grown up, this hole closes up; though, in some instances, it remains a little open, even through life. See also INNOMINATUM OS.

FORA'MINA LA'CERA IN BA'SI CRA'NII; two foramina, in the basis of the cranium, through which the internal jugular veins and the eighth pair of accessory nerves pass.

FORCE, in physics, denotes the cause of the change in the state of a body, when, being at rest, it begins to move, or has a motion which is either not uniform or not direct. While a body remains in the same state, either of rest or of uniform and rectilinear motion, the cause of its remaining in such a state is in the nature of the body, and it cannot be said that any extrinsic force has acted on it. This internal cause or principle is called *inertia*.

Mechanical forces may be reduced to two sorts; one of a body at *rest*, the other of a body in *motion*. The force of a body at rest, is that which we conceive to be in a body lying still on a table, or hanging by a rope, or supported by a spring, &c. and this is called by the names of *pressure*, *tension*, *force*, or *vis mortua*, *solicitatio*, *conatus movendi*, *conamen*, &c. To this class also of forces we must refer centripetal and centrifugal forces, though they reside in a body in motion; because these forces are homogeneous to weights, pressures, or tensions of any kind.

The force of a body in motion, is a power residing in that body so long as it continues in motion; by means of which it is able to remove obstacles lying in its way; to lessen, destroy, or overcome the force of any other moving body, which meets it in an opposite direction; or to surmount any dead pressure or resistance, as tension, gravity, friction, &c. for some time; but which will be lessened or destroyed by such resistance as lessens or destroys the motion of the body. This is called *moving force*, *vis motrix*, and by some late writers *vis viva*, to distinguish it from the *vis mortua* spoken of before; and by these appellations, however different, the same thing is understood by all mathematicians; namely, that power of displacing, of withstanding opposite moving forces, or of overcoming any dead resistance, which resides in a moving body, and which, in whole or in part, continues to accompany it, so long as the body moves.

FO'RCEPS, (*quasi ferriceps*, as being the iron with which we seize any thing hot, from *ferrum*, iron, and *capio*, to take), a surgical instrument with which extraneous bodies or substances are extracted. Also an instrument used occasionally by men-midwives to bring the head of the fœtus through the pelvis. See FORCEPS, MIDWIFERY.

FO'RCEPS, MIDWIFERY, an instrument, consisting of two blades, intended to lay hold of the head of the child in laborious births, and to extract it as it presents. This instrument, as now improved, in the hands of a prudent and cautious operator, may be employed without doing the least injury either to the mother or child. See Plate III. In every obstetrical case, wherein manual assistance becomes necessary, the contents of the rectum and bladder should, if possible, be previously emptied. The membranes also should be broken, the soft parts completely dilated, and the head of the child, as far as possible, advanced, previous to the use of any instrument.

The form and structure of the parts of the woman, the situation and progress of the presenting part of the child, must at this time be carefully considered. The concavity of the sacrum, for instance, will determine the progress of the labour. The touch of the vertex, fontanella, lamboidal, or sagittal suture; the fore or back part of the ear, or some part of the face, will ascertain the true presentation of the child. The lower the head is advanced in the pelvis, our success with the forceps is the more to be depended on. For when it has proceeded as far as the inferior aperture, by means of this instrument, it may be readily relieved: but when the head of the child is confined at the brim, both the application of instruments, and the extraction by this means, are exceedingly difficult and dangerous.

The head may be so firmly wedged in the pelvis, that the forceps can neither be introduced nor fixed, without bruising or tearing the parts of the woman: whenever, therefore, insurmountable difficulties occur, either in applying or extracting with the forceps, the life of the mother must not be endangered by fruitless efforts: the head of the child must immediately be opened, and the delivery accomplished without further delay.

In laborious births, the proper forceps-cases may be reduced to two, which include, however, a considerable variety. These are,

First, The smooth part of the cranium,

Secondly, The face, presenting.

The head may present, 1. Naturally, when low advanced in the pelvis, with the vertex to the pubes, and the forehead or face in the hollow of the sacrum. Or, 2. When higher in the pelvis, the vextex may present with the face laterally, the ears to the pubes and sacrum. Or, 3. The fontanel may present, with the face to the pubes and vertex to the sacrum; or with the vertex to the pubes, and face to the sacrum.

1. *When the head presents naturally.* The woman, in this case, must be placed on her back across the bed, properly supported; the accoucheur, seated before, or in a kneeling posture, after gradually lubricating the perinæum and vagina, must proceed gently to stretch the parts, by passing the hand in a conical manner through the os externum vaginæ, pushing it forwards by the side of the child's head, till it advances as far as an ear, if possible: along this hand he is to guide a blade of the forceps, which, with the other hand, he introduces in the direction of the line of the pelvis, holding the handle backwards towards the perinæum, and keeping the clam closely applied to the child's head. This must be insinuated very gradually, by a kind of wriggling motion, pushing it on till the blade is applied along the side of the head over the ear: he must then gently withdraw the first hand from the pelvis, with which he must secure the handle of the blade of the forceps already introduced, till the other blade be passed along the other hand, in the same slow cautious manner: the handles must then be brought opposite to each other, carefully locked, and, lest they slip in extracting, properly secured by tying a fillet or garter round them; but this must be loosed during the remission of pulling, to prevent the brain from being injured by the pressure. The extraction must be made by very slow and gentle degrees, and with one hand only, while the other is employed to guard the perinæum. The motion in pulling should be from blade to blade: the accoucheur must rest from time to time, and, if the pains are not gone, should always in his efforts only co-operate with those of nature. The child and mother will suffer less by going on in this gradual manner than by precipitating the birth, which can never be done but at the risk of destroying both. If, in making the extraction, the forceps slip, they must be cautiously withdrawn, blade by blade, and again introduced in the same manner. When the tumor of the perinæum forms, and the vertex begins to protrude at the os externum, the accoucheur must rise from his seat, raise the handle gently upwards, and, by a half-round turn, bring the hind-head from under the symphysis or arch of the pubes; remembering carefully to guard the perinæum from laceration, and its consequences, to which it is now so greatly exposed.

In attempting the introduction of either blade, if it meets with any interruption, it must be as often withdrawn, and pushed up again in a proper direction, till every difficulty be surmounted; and if, from the smallness or constriction of the parts, the introduction of the second blade shall seem impracticable, the former one must be withdrawn, and the latter must be first introduced.

2. The vertex may present with *the face laterally in the pelvis.* It is always difficult to apply the forceps till the bulky part of the head has passed the brim; and here it is not only difficult to the operator, but extremely hazardous to the patient, to introduce this instrument till the ear of the child has got under the pubes. When the ears thus present to the pubes and sacrum, the woman should be placed on her side or knees; the most difficult blade of the forceps should be first applied, which is the one under the pubes: when both are passed, and properly secured, the patient should again be turned to her back, before the operator attempts to extract; and the head in this case (as the quarter-turn can seldom be made with safety) should be delivered in the manner wherein it presents; because, when confined any time in the passage, its figure is altered by the overlapping of the bones, in such a manner that it passes along, in general, with far less difficulty, than to attempt to push up and make the mechanical turns; a work often altogether impracticable, by which contusion or laceration of the parts of the woman, and the most fatal consequences, may be occasioned. The handles of the forceps must here particularly be well pressed back-

ward towards the perinæum, that the clams may humour the curvature and intrusion of the sacrum, and accommodate themselves to the form of the child's head.

This is a case wherein the forceps often fail; if so, they will sometimes succeed by varying the mode of application, and fixing them over the forehead and occiput. If this method fail also, the size of the head must be diminished, and the extraction made with the blunt-hook or crotchet. See Crotchet.

3. The *fontanella* may present *with the face to the pubes.* This is the most common of the fontanel cases; though sometimes the face is lateral in the pelvis, sometimes diagonal, and sometimes it is turned to the sacrum. The true position is ascertained by the direction of the fontanel, and that of the ear. Here, as in other laborious births, nature should be trusted as long as we dare. The head does not always descend mechanically through the capacity of the pelvis, as some practitioners have supposed; nor will the deviation from its ordinary mode of descent always, of itself, influence the delivery, at least very rarely in such a manner as to require extraordinary assistance. In whatever manner the head presents, when it is situated high in the pelvis, the delivery cannot be effected without difficulty or hazard; in such circumstances, the application of the forceps will frequently baffle the utmost efforts of the accoucheur, and the consequences of such attempts may prove fatal to mother and child.

When extreme weakness in the mother, floodings, convulsions, or other urgent symptoms, render it necessary to force the delivery, whether the face be to pubes or sacrum, the forceps may be applied along the ears, in the same manner as is done in a natural labour; and the head, for the reasons already given, should be brought along in the manner it presents: the extraction should be made with great deliberation, that the parts of the woman may have time to stretch; the perinæum must be carefully supported; the forceps must be gently released, when the head is delivered; and the rest of the delivery conducted as in a natural labour.

In this case, when situated high in the pelvis, the fontanel presenting, and the face either to pubes or sacrum, the long axis of the head intersects the short diameter of the pelvis, and very often, though the forceps be applied, and a firm hold of the head be obtained, it is not possible to bring it along with all the force we dare exert. If this method therefore fails, the common forceps should be cautiously withdrawn, and the long ones applied, if possible, over the forehead and occiput, when the size of the head, by the compression it suffers in passing along, being perhaps somewhat diminished, the extraction will be successfully performed. This method also failing, previous to the operation of embryotomy, Dr. Leake's forceps, with the third blade, may be had recourse to. But of this little can be said with confidence, as this instrument has not been very generally employed. From the difficulty of succeeding in the application of the common forceps, it may, *à priori*, be concluded, that the introduction of a third blade, even in the hands of an expert practitioner, however ingenious the invention, is an expedient not easily to be put in practice. Neither is Roonhuysen's lever, or a blade of the forceps passed up between the pubes and forehead or hindhead of the child, in order to procure the delivery of the head, to be recommended in such cases: however some have boasted of its success, it is an instrument that may do much mischief; and few practitioners can use it with safety. The vectis of Dr. Denman may, perhaps, be more successful. See Vectis.

Of laborious births, *face-cases*, as we have already observed, are the most difficult and the most dangerous. From its length, roughness, and inequality, the face must occasion greater pain; and from the solidity of the bones, it must yield to the propelling force with much more difficulty, than the smooth moveable body of the cranium. Face-cases are the most troublesome that occur in the practice of midwifery, and in which the most expert practitioners may be foiled in their attempts; and these attempts, if too early exerted, will be followed, in many instances, with fatal consequences. In whatever way the face presents, it should be allowed to advance as low as possible in the pelvis; by which means the access will be more easy, and the position, for the application of instruments, more favourable. In this awkward situation, much mischief may be done by rashness; whereas, if time be allowed, and the patient be properly supported, the delivery will generally end well.

The face may present with,

1. The chin to the pubes;
2. to the sacrum;
3. laterally.

From the difficulty of applying instruments in these cases, some authors recommend, as an universal practice, to turn the child, and deliver by the feet. But this in general is a dangerous practice, and seldom or never adviseable, except when the membranes remain entire, till the os uteri is completely dilated, and the head continues loose about the brim of the pelvis; and even then the propriety of the practice is doubtful; because, if the head is small, or the pelvis be well proportioned, the face will descend without much difficulty; and if otherwise, besides the risk in attempting to turn, the child may be lost from the pressure of the chord, or the difficulty of extracting the head after the delivery of the body.

When assistance becomes necessary, the best practice, in face-cases, is the following: Having placed the patient in a convenient posture, let the accoucheur in the gentlest manner pass his hand within the pelvis; and, during the remission of pain only, endeavour to raise the head of the child, so that he may push up the shoulders entirely above the brim of the pelvis, and thus change the position of the face: by this means, if successful, he will be able to reduce the first of these cases, so as to make the fontanel present with the face to the pubes; he will reduce the second so as to bring down the vertex, with the face to the sacrum; and the third he will reduce to a vertex case, with the face lateral. The delivery may be afterwards trusted to nature; which failing, there is easier access for the application of instruments to make the extraction, as already directed. The success, however, of the accoucheur, in altering the position of the head, by pushing it up, will entirely depend on the time he is called; for, should the head be firmly wedged in the pelvis, no force he dares employ will be sufficient to alter the posture.

If therefore every attempt to reduce the face, and make the vertex or fontanel present, shall prove unsuccessful, and symptoms are urgent, the forceps must be applied over the ears of the child, and the extraction performed in the best manner the operator is able. And, these failing, immediate recourse must be had to the crotchet.

1. In the first case, previous to the introduction of the forceps, the chin, if possible, should be advanced below the pubes.

2. In the second, the chin should be advanced to the inferior part of the sacrum. And,

3. In the third, the chin should be as low as the hinder part of the tuber ischii: and although in general the head is to be extracted as it presents, if the operator meets with considerable resistance, it must be gently pushed up and turned with the chin, either laterally, below the pubes, or into the hollow of the sacrum, according to the particular circumstances of the case, and in a direction best accommodated to the form and diameter of the pelvis.

FORE-ARM, the inferior half of the upper extremity in the human skeleton. It consists of two long bones, the *ulna* and *radius;* whose situation, in respect of each other, is oblique in the least straining or most natural posture: that is, the ulna is not directly behind, nor on the outside of the radius, but in a middle situation between these two, and the radius crosses it. The situation of these bones, and of all the other bones of the arm is frequently altered; Dr. Monro, therefore, understands by the term *posterior*, that part which is in the same direction with the back of the hand; by *anterior*, that answering to the palm; by *internal*, that on the side with the thumb; by *external*, the side nearest to the little finger; supposing the hand always to be in a middle position between its pronation and supination. To render verbal descriptions of this part intelligible, it becomes necessary to attend to these particulars. See Bones; also the articles Ulna, Radius, &c.

FORE-SKIN, a name for the prepuce. See Præputium.

FO'RFEX, the name of an old instrument to draw teeth with.

FORFI'CULA, the ear-wig, a genus of insects belonging to the order of *coleoptera.* This genus of insects is one of the best known, the forceps at the extremity of the abdomen forming a very distinctive character. It is this seeming weapon that has occasioned these insects to be called *forficulæ* in Latin, as the formidable name of *ear-wigs* has been given them in English, from a notion that the insect frequently introduces itself into the ears, causing great pain, and even death. Mr. Burbut, however, assures us, that the forceps which the ear-wig carries at his tail, and with which he seems provided for his defence, is not so formidable as it at first appears, being destitute of strength sufficient to produce the least sensible impression. But were the case otherwise, it is a vulgar error to suppose that these insects have a predilection for the cavity of the ear, a situation which is moist, and abounding with a secretion that would entangle them. When, by mere accident, this, or indeed any other insect, falls into the ear, its struggles will naturally give pain and alarm. In this case, a little oil poured into the ear is an immediate and certain remedy. It destroys the insect, which may afterwards be picked out of the ear, or discharged by a jet of warm water from a common syringe.

FORM, in physics, denotes the manner of being peculiar to each body; or that which constitutes it such a particular body, and distinguishes it from every other. Mr. Harris uses the term *form* likewise in another sense, as an efficient animating principle; to which he supposes Ovid to refer in the first lines of his Metamorphosis, "*In nova fert animus mutatas dicere* formas *Corpora.*"——These animating forms are of themselves no objects either of the ear or the eye; but their nature or character is understood in this, that were they never to exert their proper energies on their proper subjects, the marble on which the sculptor exercises his art would remain for ever shapeless, and the harp from which the harper calls forth sounds, would remain for ever silent.

Thus also the animating form of a natural body is neither its organization nor its figure, nor any other of those inferior forms which make up the system of its visible qualities; but it is the power, which is yet able to produce, preserve, and employ these. It is the power, which first moves, and then conducts that latent process, by which the acorn becomes an oak, and the embryo a man; by which digestion is performed in plants and animals, and, which departing, the body ceases to live, and its members putrefy; and by which every being produces another like itself, and every species is continued. In animals, it is that higher faculty, which, by employing the organs of sense peculiar to them as animals, distinguishes them as sensitive beings from vegetables; and it is also that more noble faculty, which, by its own divine vigour, unasisted perhaps with organs, makes and denominates him a being intellective and rational. So that Mr. Harris reckons two sorts of forms; those which are passive elements, and those which are efficient causes. And all of them agree in this, that they give to every being its peculiar and distinctive character: and on the whole he concludes, that form appears in part to be an element, and in part an efficient cause, *i. e.* a cause which associates the constituent elements of natural substance, and which employs them, when associated, according to their various and peculiar characters.

The philosophers generally allow two principles of bodies: *matter*, as the common basis or substratum of all; and *form*, as that which specifies and distinguishes each; and which, added to a quantity of common matter, determines or denominates it this or that; wood, or fire, or ashes, &c.

Substantial forms seem to have been first broached by the followers of Aristotle, who thought matter, under different modes or modifications, not sufficient to constitute different bodies; but that something substantial was necessary to set them at a greater distance: and thus introduced substantial forms, on the footing of souls, which specify and distinguish animals. What led to this erroneous notion was the circumstances of life and death: for, observing that as soon as the soul was departed out of a man, all motion, respiration, nutrition, &c. immediately ceased, they concluded that all these functions depended on the soul, and consequently that the soul was the form of the animal body, or that which constituted it such: that the soul was a substance, independent of matter, nobody doubted; and hence the forms of other bodies were concluded equally substantial. But to this it is answered, that though the soul be that by which a man is man, and consequently is the form of the human body, as human; yet it does not follow, that it is properly the form of this body of ours, as it is a body; nor of the several parts thereof, considered as distinct from each other: for those several parts have their proper forms so closely connected with their matter, that it remains inseparable therefrom long after the soul has quitted the body: thus flesh has the form of flesh, bone of bone, &c. long after the soul is removed as well as before. The truth is, the body does not become incapable of performing its accustomed functions because the soul has deserted it; but the soul takes its leave, because the body is not in a condition to perform its functions.

The ancient and modern corpuscular philosophers, therefore, with the Cartesians, exclude the notion of substantial forms; and show, by many arguments, that the form is only the modus or manner of the body it is inherent in. And as there are only three primary modes of matter, viz. figure, rest, or motion, with two others arising therefrom, viz. magnitude and situation, the form of all bodies they hold to consist therein: and suppose the variations these modes are capable of, sufficient to present all the variety observable in bodies.

Forms are usually distinguished into *essential* and *accidental*. 1. *Essential*. Though all the five modes abovementioned, generally taken, be adventitious; yet to this or that body, *e. g.* to fire or water, they are essential: thus, it is *accidental* to iron, to have this or that magnitude, figure, or situation, since it might exist in different ones; yet to a knife or hammer, the figure, magnitude, and position of parts, which constitute it a hammer or knife, are essential; and they cannot exist or be conceived without them. Hence it is inferred, that though there be no substantial, there are essential forms, whereby the several species of bodies become what they are, and are distinguished from all others. 2. *Accidental* forms are those really inherent in bodies, but in such manner as that the body may exist in all its perfection without them. Such is whiteness in a wall, heat in water, a figure of a man in wax, &c.

FO'RMIATES, salts formed by the combination of the formic acid, (see Formic acid) with the different alkaline, earthy, and metallic bases. There are twenty-four species enumerated in M. Fourcroy's Elements of Natural History and Chemistry; amongst which are the *formiate of alumine*, *formiate of ammonia*, &c.

FORMI'CA, (*quod ferat micas*, because of its diligence in storing small particles of provision together); the ant or *pismire*, an industrious little insect, the *formica rufa*, Linn. It contains an acid juice and a gross oil, which were formerly supposed to possess aphrodisiac virtues. The crysalides of this animal are said to be diuretic and carminative, and in some countries still recommended in the cure of the dropsy. See Formic acid.

FORMI'CA, the name of a sort of black wart, with a broad base and cleft superficies. Also the name of a varicose tumor on the anus and glans penis; and little tumors, which resemble the biting of ants, are thus named.

FORMI'CA, or formica miliaris, a species of *Herpes*.

FORMIC ACID, a peculiar acid, obtained from the ant, or common pismire, *formica rufa*, of Linnæus. See Formica. This acid is so far in a disengaged state, that the transpiration of these animals, and their simple contact without any alteration, prove its existence. Mr. Fisher seems to have been the first who discovered the acid of ants, in a course of experiments for the analyses of animal substances by distillation. He even tried its action on lead and iron; and his observations were communicated to the Royal Society, and inserted in their Transactions, in the year 1670. It was, however, the celebrated Margraff who more particularly examined the properties of this acid in 1749. He combined it with many substances, and concluded that it greatly resembled the acetous acid. In 1777 this subject was resumed by Ardvidsson and Oerhn; and treated in a manner which leaves little to be desired. The ant which affords the greatest quantity of acid, is the large red ant which is found in dry and elevated places. The summer months are most favourable for the extraction of this acid: they are then so penetrated with it, that their simply passing over blue paper is sufficient to turn it red. Two methods may be used to obtain this acid, viz. distillation, and lixiviation. In order to extract the acid by distillation, the ants are first dried by a gentle heat, and put into a retort, to which a receiver is adapted, and the fire is raised by degrees. When all the acid is come over, it is found in the receiver mixed with a small quantity of empyreumatic oil, which floats upon it, and may be separated by a funnel. Ardvidsson and Oerhn obtained, in this manner, from each pound of ants, seven ounces and a half of an acid whose specific gravity, at the temperature of 66 degrees of Fahrenheit's thermometer, was to that of water as 1.0075 to 10000.

But in the process by lixiviation, the ants are washed in cold water; and boiling water is afterwards poured over them, which is filtered when cold. More boiling water is poured over the residue, and likewise filtered when cold. By this means one pound of ants affords a pint of acid as strong as vinegar, and of a greater specific gravity. The chemists mentioned above are of opinion, that this acid might be substituted instead of vinegar for domestic uses. The acid obtained by these processes is, however, never pure; but it may be purified by repeated distillations, which disengage the ponderous and volatile oil, and render the acid as clear as water. Formic acid, when rectified by this process, was found, by these chemists, to have a specific gravity of 1.0011 to 1. The acid of ants may likewise be obtained by placing linen cloths, impregnated with alkali, in an ant-hill. From these the formiate of pot-ash, of soda, and ammoniac, may be obtained by lixiviation. The formic acid has some resemblance to the acetous acid; but the identity of these two acids has not yet been proved. Mr. Thouvenel found more analogy between it and the phosphoric acid; but this stands in need of further proof. The formic acid retains water with so much force, that it cannot be entirely deprived of it by distillation. When it is exceedingly pure, its specific gravity is to that of water as 1.0453 to 1. It affects the nose and the eyes in a peculiar manner, which is not very disagreeable. Its taste is penetrating and burning when pure, but agreeable when diluted with water. It possesses all the characters of acids; and, when boiled with the sulphuric acid, it turns black as soon as the mixture is heated. White penetrating vapours arise; and, when it boils, a gas is emitted, which unites difficultly with distilled water, or with lime-water, but the formic acid is decomposed in this operation, for it is obtained in less quantity. The nitric acid distilled from it, destroys it completely, and a gas arises which renders lime-water turbid, and is difficultly and sparingly soluble in water. The muriatic acid only mixes with it, but the oxigenated muriatic acid decomposes it. The two chemists we have just noticed have determined the affinities of this acid with various bases to be in the following order: barytes, pot-ash, soda, lime, magnesia, ammoniac, zinc, manganese, iron, lead, tin, cobalt, copper, nickel, bismuth, silver, alumine, essential oils, water.

The formic acid mixes perfectly with spirit of wine, but it unites difficultly with the fixed oils, and with the volatile oils, by the assistance of heat. It attacks soot; assumes a fawn colour; and lets fall a brown sediment as it cools, which by distillation affords a liquor of a yellowish colour, and a disagreeable smell, accompanied with very elastic vapours. The formic acid has not yet been applied to any medical purpose.

FORMI'CANS PULSUS. An exceedingly small and unequal pulse, being no more than a less degree of the vermicular, is thus named by Galen.

FO'RMULA, (dim. of *forma*, a form); a little form of prescription, such as physicians direct in extemporaneous practice, in distinction from the greater forms in pharmacopœias, &c. See Prescription.

FORNICA'TUS, in botany. *Fornicated petals*, are such flower-leaves as are arched after the manner of the upper lip of clary or sage flowers.

FO'RNIX, a part of the corpus callosum, in the brain. The septum lucidum is united, by its lower part to the anterior portion of that particular medullary body, called improperly, by some anatomists, *the fornix with three pillars*, because of a resemblance it is thought to bear to the arches of ancient vaults. It is, in reality, nothing but the corpus callosum; the lower side of which is like a hollow ceiling with three angles, one anterior, and two posterior; and three edges, two lateral, and one posterior. The lateral edges are each terminated by a large semicylindrical border, like two arches, which uniting at the anterior angle, form by their union what is called *the anterior pillar of the fornix;* and, as they run backward separately toward the two posterior angles, they have then the name of the *posterior pillars.*

The anterior pillar being double, is larger than either of the posterior; and the marks of this duplicity always remain. Immediately below the basis of this pillar, we observe a large, white, short, medullary rope, stretched transversely between the two hemispheres, and commonly called *the anterior commissure of the cerebrum.* It is to this pillar that the septum lucidum adheres. The posterior pillars are bent downward, and continued through the lower portions of the ventricles all the way to their extremities, resembling a ram's horn, which is a name that has been given to them. They gradually diminish in thickness during this course; and at their outsides they have each a small, thin, flat, collateral border, to which the name of *corpora fimbriata* is applied.

The posterior pillars of the crura of the fornix unite with the two medullary protuberances, called *pedes hippocampi.* The inferior surface of the triangular ceiling, which lies between these arches, is full of transverse, prominent medullary lines; for which reason the ancients called it *psalloides* and *lyra*, comparing it to a stringed instrument, something like what was formerly called a *dulcimer.*

FO'RTIS, AQUA, a popular name for the nitrous acid, given because of its dissolving power. In the manufactory of soap, the *caustic alkaline lixivium* is also called the *strong water.* See Acids.

FO'SSA, (from *fodio*, to dig), also named FOVEA; a little depression or sinus.

FO'SSA OVA'LIS; that depression in the right auricle of the human heart, which, in the fœtus, opened into the other auricle, forming the foramen ovale.

FO'SSA MAGNA, or NAVICULARIS, is an oblong cavity, forming the inside of the *pudendum muliebre*, and which presents itself upon opening the labia; and in the middle whereof are the *carunculæ myrtiformes.*

FOSSIL, a term applied generally to every thing dug out of the earth, whether its *native* productions, as metals, stones, crystals, earths, and other minerals; or *extraneous*, but deposited in the bowels of the earth by some extraordinary means, as earthquakes, the deluge, &c. See Metal, Stone, &c.

1. *Native* fossils, according to Dr. Hill, are substances found either buried in the earth, or lying on its surface, of a plain simple structure, and showing no signs of containing vessels or circulating juices. These are sub-divided, by the same author, 1. Into fossils naturally and essentially simple. Of these some are neither inflammable nor soluble in water; as simple earths, talcs, fibrariæ, gypsum, selenitæ, crystal, and spars: others, though uninflammable, are soluble in water; as all the simple salts: and others, on the contrary, are inflammable, but not soluble in water; as

sulphur, auripigmentum, zarnich, amber, ambergrise, agates, asphaltum, ampelites, lithanthrax, naphtha, and pissisphalta. 2. The second general sub-division of fossils comprehends all such as are naturally compound, but unmetallic. Of these some are neither inflammable nor soluble in water; as compound earths, stones, septariæ, siderochita, semipellucid gems, &c.: others are soluble in water, but not inflammable; as all the metallic salts: and, lastly, some are inflammable, but not soluble in water; as the marcasites, pyritæ, and phlogonia. 3. The third and last general division of fossils comprehends all the metallic ores; which are bodies naturally hard, remarkably heavy, and fusible in fire. Of these some are perfectly metallic, as being malleable when pure; such are gold, silver, copper, iron, and tin: others are imperfectly metallic, as not being malleable even in their purest state; such are antimony, bismuth, cobalt, zinc, and quicksilver or mercury. Of all these substances, see a particular description under their respective heads.

3. *Extraneous* fossils are bodies of the vegetable or animal kingdoms accidentally buried in the earth. Of the vegetable kingdom there are principally three kinds, trees or parts of them, herbaceous plants, and corals; and of the animal kingdom there are four kinds, sea-shells, the teeth or bony palates and bones of fishes, complete fishes, and the bones of land animals. See Bones, Trees, Wood, Plants, Shell, &c. These adventitious or *extraneous* fossils, thus found buried in great abundance in various parts of the earth, have employed the curiosity of several of our latest naturalists, who have each a different system to account for the surprising appearances of petrified sea-fishes, in places far remote from the sea, and on the tops of mountains; shells in the middle of quarries of stone; and of elephants' teeth, and bones of various animals, peculiar to the southern climates, and plants only growing in the east, found fossil in our northern and western parts.

Some will have these shells, &c. to be real stones, and stone plants, formed after the usual manner of other figured stones; of which opinion is Dr. Lister. Another opinion is, that these fossil shells, with all their foreign bodies found within the earth, as bones, trees, plants, &c. were buried therein at the time of the universal deluge; and that, having been penetrated either by the bituminous matter abounding chiefly in watery places, or by the salts of the earth, they have been preserved entire, and sometimes petrified. Others think, that those shells, found at the tops of the highest mountains, could never have been carried thither by the waters, even of the deluge; inasmuch as most of these aquatic animals, on account of the weight of their shells, always remain at the bottom of the water, and never move but close along the ground. They imagine, that a year's continuance of the waters of the deluge, intermixed with the salt waters of the sea, upon the surface of the earth, might well give occasion to the production of shells of various kinds, in different climates; and that the universal saltness of the water was the real cause of their resemblance to the sea-shells, as the lakes formed daily by the retention of rain or spring water produce different kinds. Others think, that the waters of the sea and the rivers, with those which fell from heaven, turned the whole surface of the earth upside down; after the same manner as the waters of the Loire, and other rivers, which roll in a sandy bottom, overturn all their sands, and even the earth itself, in their swellings and inundations; and that in this general subversion, the shells came to be interred here, fishes there, trees in another place, &c.

Dr. Woodward, in his Natural History of the Earth, pursuing and improving the hypothesis of Dr. Burnet, maintains the whole mass of earth, with every thing belonging to it, to have been so broken and dissolved at the time of the deluge, that a new earth was then formed on the bosom of the water, consisting of different strata, or beds of terrestrial matter, ranged over each other usually according to the order of their specific gravities. By this means plants, animals, and especially fishes and shells, not yet dissolved among the rest, remained mixed and blended among the mineral and fossil matters; which preserved them, or at least assumed and retained their figures and impressions either indentedly, or in relievo.

FO′TUS, (from *foveo*, to cherish); a fomentation. See Fomentation.

FO′VEA, (from *fodio*, to dig), in anatomy, a little depression. Thus *fovea*, is a name for the sinus of the pudendum muliebre; and *fovea cordis*, is the hollow of the heart. In the bath rooms it is used to signify a sudatory, for receiving one or both legs, in order to produce sweating.

FOWL, a term which denotes the larger sorts of birds, whether domestic or wild: such as geese, pheasants, partridges, turkies, ducks, &c. Tame fowl make a necessary part of the stock of a country farm, and are commonly called *poultry*. Fowls are again distinguished into two kinds, viz. *land* and *water* fowl, these last being so called from their living much in and about water: also into those which are accounted *game*, and those which are not. This class of animals forms a considerable article of human sustenance: their several properties as aliment, are therefore considered under the article Birds.

FOX-GLOVE. See Digitalis.

FOX-GLOVE, EASTERN; *sesamum Orientale*, Linn. The seeds are in great esteem in South Carolina, where they are called *oily grain*. They are made into soups and puddings, after the manner of rice with us. Being first toasted over the fire, they are mixed with other ingredients, and stewed into a delicious food. The fresh seed affords a considerable quantity of a warm pungent oil, otherwise not unpalatable. After a year or two, the pungency leaves it, and then the oil is used with sallads, &c. The seeds of the *sesamum Indicum* are used in the same manner as the *Orientale*.

FRACASTOR (Jerome), more usually called Fracastorius, an eminent Italian poet and physician, was born at Verona in the year 1481. Two singularities are related of him in his infancy: one is, that his lips adhered so closely to each other, when he came into the world, that a surgeon was obliged to divide them with his incision knife; the other, that his mother was killed with lightning, while he, though in her arms at the very moment, escaped unhurt. Fracastor was of parts so exquisite, and made so wonderful a progress in every thing he undertook, that he became eminently skilled not only in the belles lettres, but in all arts and sciences. He was a poet, a philosopher, a physician, an astronomer, and a mathematician. He was a man of much consequence in his time; as appears from Pope Paul's making use of his authority to remove the council of Trent to Boulogne, under the pretext of a contagious distemper, which, as Fracastor deposed, made it no longer safe to continue at Trent. He was intimately acquainted with cardinal Bembus, Julius Scaliger, and all the great men of his time. He died of an apoplexy at Casi, near Verona, in 1553: and in 1559 the town of Verona erected a statue in honour of him.

He was the author of many works, both as a poet and as a physician; yet, owing to an extraordinary disinterestedness and indifference, as to what became of his performances, many were lost. What we have now of his, are the three books of "*Siphilis, or of the French disease*;" a book of Miscellaneous Poems; and two books of his poem intitled "*Joseph*," which he began at the latter end of his life, but did not live to finish. But, besides many other admirable productions of the same sort, he composed a poem called *Alcon, sive de cura canum venaticorum.* All his works are in Latin. His medical pieces are, *De Sympathia & Antipathia—De contagione & contagiosis morbis—De causis criticorum dierum—De vini temperatura*, &c. His works have been printed separately and collectively. The best edition of them is that of Padua 1735, in 2 vols. 4to.

FRACTURE, (*fractura*, from *frango*, to break); a separation of a bone into two or more fragments. Dr. Cullen places this genus of disease in the class *locales*, and order *dialyses;* and defines it, part of a bone having its cohesion destroyed by violence, and separated into large fragments. A *simple* fracture is, when the bone only is divided. A *compound* fracture is, a division of the bone, with a laceration of the integuments, the bone mostly protruding. Fractures ase also termed *transverse*, *oblique*, &c. according to their direction.

The general symptoms of fracture are pain, swelling, and tension of the contiguous parts. A grating noise when the part is handled, distortion, and a certain degree of loss of power in the injured part, accompany almost every fracture, except when it runs longitudinally, and the divided parts are not completely separated from each other. When there is only a single bone in a limb, a fracture is easily detected; but where only one of two bones of a limb has suffered, it is often difficult to judge with certainty, especially if the contiguous soft parts be tense and painful before the practitioner is called. In that case, the opinion must be regulated, not only by the attendant symptoms, but, 1st. By the age and habit of the patient; for bones are more easily fractured in old than in young persons. Different diseases, too, induce brittleness of the bones, as the lues venerea and sea-scurvy. 2dly. By the situation of the part; for bones are more apt to be fractured in the solid parts of their bodies than towards their extremities, where they are more soft and pliant. 3dly. By the posture of the limb; for a weight may fracture a bone lying on an unequal surface, which it would have sustained without injury if equally supported. Fractures are sometimes attended with a great degree of ecchymosis, occasioned by the ends of the fractured bones wounding some of the contiguous blood-vessels.

The treatment of fracture consists of three particulars; replacement, retention, and the means used for obviating bad symptoms.

(1.) When bones are fractured directly across the parts, they are often very little moved from their natural situation; but when the fracture is oblique, they are apt to pass over each other, and to produce much uneasiness and deformity; the contiguous muscles are severely injured, and the pain is aggravated by the slightest motion. The surgeon should put the limb into the best posture for relaxing all the muscles connected with it, according to the practice first introduced by Mr. Pott. If it be properly attended to, the ends of the bone will in general be easily replaced. When any difficulty occurs, a small degree of extension may be made, taking care to keep the muscles as relaxed as possible. Much attention should be paid to replacing the bones properly, otherwise the limb will remain for ever after distorted.

(2.) After the bones are replaced, the limb should be laid in the easiest posture, and the bones afterwards retained in their situation by proper compresses and bandages, not applied too tightly, till the cure be completed. The time necessary for this purpose depends on the size of the bone, the age and habit of the patient, the steadiness with which the limb has been retained in its place, and the violence of the attending symptoms. In middle-aged persons, and under favourable circumstances, a fracture of the thigh-bone, or of the bones of the leg, may be cured in two months; of the arm-bone, or bones of the fore-arm, in six weeks; of the ribs, clavicles, and bones of the hand, in three weeks. In infancy the cure will take a shorter, and in old age a longer, time than this.

(3.) In simple fractures, the inflammatory symptoms generally subside in a few days. When they become worse, which is sometimes the case, astringent applications should be employed. If these fail, blood ought to be drawn from the parts affected. This is of so much advantage, that it ought never to be omitted, where the surrounding soft parts are much injured. Friction with emollient oils, warm bathing, the use of fomentations and other similar means, are also of much service. The limb sometimes puts on a clumsy appearance, from an overgrowth of callus. When this tendency appears, pressure on the part by a thin plate of lead, fixed by a bandage, may be advantageous. Many instances occur, however, where no remedy will prove successful: the patient ought, therefore, to be acquainted beforehand with the probable event, to prevent unpleasant reflections afterwards.

Sometimes the fractured ends of a bone will remain loose long after they might have been united. This may be owing to some constitutional disease, to the bones not being kept steadily in contact, to some of the soft parts getting in between them, or to the bone being broken in different places, and the intermediate fractures being too small to adhere. Pregnancy has also been mentioned as a cause. By removing these obstructions, a perfect union may, in a recent case, be accomplished. But where the case is of long standing, the callus of bones becomes so hard and smooth as to move with the ease of a joint, so that no advantage can be derived from laying them together. In that case, an incision should be made through the soft parts, and a small portion of the ends of the bone removed with a saw. If this be properly performed, nature will supply the deficiency. When small pieces of bone remain long loose, they should be extracted, by making an opening. The intervention of muscles, or other soft parts, is known by the very severe pain and tension, and by particular motions of the limb causing great pain and twitching of the muscles which move it. The limb should be put into all the variety of situations; and if this does not succeed, an opening must be made, and the soft parts removed. Sometimes in fractures, blood-vessels are ruptured by the sharp spiculæ of the bone: this happens most commonly in compound fractures. When the effusion of blood is great, the part swells so much that it is necessary to lay it open, and to secure the divided vessels by a ligature. When the swelling is not great, the absorption of the blood is trusted to nature. When the blood remains long in contact with the fractured bone, it sometimes prevents the formation of callus; the periosteum separates from a considerable portion of the bone, and a thin fetid sanies is discharged at the wound. When this happens, no cure can be expected till the parts of the bone, deprived of periosteum, have exfoliated, or have been separated by a saw.

With regard to the fractures which happen to particular bones, a circumstance on which the degree of danger to the patient chiefly depends, the most formidable of all others is the fracture of the skull. We have, therefore, assigned this a distinct place, under the article Skull, and here speak, in their order, of fractures of other parts, and the management of them.

1. *Of the bones of the face.*—A fracture of *the nose* may impede respiration, affect the speech and sense of smelling, give rise to polypi and tedious ulcers, and may besides be dangerous from its vicinity to the brain. When any part of the bones of the nose has been raised above the rest, it is to be pressed into its place with the fingers; if it has been pushed into the nostril, it is to be raised with the end of a spatula or other similar instrument. If any portion be almost entirely separated from the rest, it should be removed; but if it adhere with considerable firmness, it is to be replaced. If the bones, after being replaced, do not remain in their proper situation, they are to be retained either by tubes introduced into the nostrils, or by a double-headed roller, with proper compresses, as the case may require. Inflammation should be prevented by the proper remedies.

Much care is necessary in replacing the fractured bones of the face, and in dressing them, in order to prevent deformity. The dressings may be retained by adhesive plasters. Inflammation, by which the eyes, nose, or antrum maxillare, is apt to be injured, should be prevented. When matter collects in the antrum, it is to be removed by the methods formerly described.

For replacing fractures of the *lower jaw*, the patient should be seated in a proper light, with his head firmly secured. The surgeon should press with one hand on the inside of the bone, while with the other he guards against inequalities on the outside. If a tooth come in the way, it should be extracted: when any of the others are forced out of their sockets, they should be replaced, and tied to the neighbouring teeth till they become firm. The fractured parts being kept firm by an assistant, a thick compress of linen or cotton should be laid over the chin, and made to extend from ear to ear over it; a four-headed roller should be applied firm enough to keep the fractured parts in contact. The patient should be kept quiet during the cure, and fed upon spoon-meat. The dressings should be removed as seldom as possible. When the fracture is accompanied with an external wound, the parts should be supported by an assistant during the dressing of it.

2. *Clavicle*, *ribs*, *sternum*, *and spine.*—A fracture of *the clavicle* is easily discovered, by the grating noise in the fractured bone, upon moving the arm freely, by the ends of the bone yielding to pressure, and by the motion of the humerus being impeded. All that can be done is to raise the arm, and support it at a proper height, either by a sling, or, which is better, by the leather case recommended in case of luxation of this bone. By this the fractured parts will be brought together, so far at least as to prevent deformity, and render the bone sufficiently strong.

Fractures of *the ribs* are discovered by pressure with the fingers. The symptoms are commonly moderate, and the patient soon gets well. In some cases, however, the pain is severe, the breathing becomes difficult, attended with cough, and perhaps with spitting of blood, and the pulse is quick, full, and sometimes oppressed. These symptoms arise from the ribs being beaten in upon the lungs.

In the treatment, it is proper in every case to discharge some blood. If one end of the rib rise, it ought to be repressed by moderate pressure; and to prevent its rising again, a broad leather belt should be applied pretty tight, and continued for some weeks. When a portion of the rib is forced inwards, an opening should be made over it with a scalpel, and then it should be elevated with the fingers or a forceps. When distressing symptoms proceed from air or blood collected in the cavity of the chest, these fluids ought to be discharged by an operation.

The symptoms of a fractured *sternum* are nearly the same with those of the ribs. It requires great attention, from the vicinity of the heart and large blood-vessels. The patient ought to lose a quantity of blood, and be kept on an antiphlogistic regimen. If the pain, cough, and oppressed breathing, do not yield to these remedies, an incision should be made on the injured part, and the depressed piece raised with a levator. Should this be insufficient, it may be effected by means of the trepan: this, indeed, requires the greatest caution; but it may certainly be attended with advantage when the patient's life is in danger.

Fractures of *the vertebræ* generally end fatally. We judge of the existence of fracture there by examining the parts, by the severity of the pain, and by palsy occurring in the parts situated below the injured part. When any parts of the vertebræ near the integuments are loose, they may be replaced with the fingers, and retained by proper bandages. When this is impossible, some of the latest authors think it adviseable to make an incision, and raise any portions of the bone which may be depressed.

3. *Superior extremities.*—The *scapula* is seldom fractured; when it is, the fracture is easily discovered by the pain, the immobility of the arm, and by the touch. The parts may be replaced with greater ease if the muscles connected with them be relaxed: but they are retained with difficulty. A long roller should be employed for this purpose, with which the head and shoulders are also to be supported. The arm should also be suspended, to relax the muscles as much as possible, and inflammation particularly guarded against by local bleeding.

Fractures of *the humerus* are easily discovered by the pain, the immobility of the arm, and a grating noise on handling the parts. In reducing the fracture, the muscles should be completely relaxed, by bending the arm, and raising it to a horizontal posture. Extension, if necessary, may be made by one assistant grasping the arm between the fracture and the shoulder, and another between the fracture and the elbow. After the reduction, one splint, covered with flannel, should be laid along the whole outside, and another along the whole inside of the arm; and then a flannel roller applied sufficiently tight to support the parts without interrupting the circulation. The arm may either be supported in a sling, or Mr. Park's leathern case (Pl. IV. fig. 1.). The bandages should not be removed for several days, unless some urgent symptoms render it necessary. In about a week, however, the arm should be examined, to see whether the bones have been properly reduced.

When both the bones of *the fore-arm* are broken, the fracture is easily discovered; but when only one bone is fractured, especially if it be the radius, the firmness of the other renders the discovery more difficult: the grating noise, however, on moving the bone in different directions, will generally be a sufficient evidence that a fracture has taken place. When the fracture happens near the wrist, particular attention is necessary in order to prevent a stiff joint. In order to replace the parts, the muscles are to be relaxed, by bending the joints of the elbow and wrist, and the limb extended a little above and below the fracture. After reduction, a splint, reaching from the elbow to the ends of the fingers, is to be applied along the radius, and another along the ulna; and both are to be secured with a roller, or twelve-tailed bandage. When the splints are applied, the palms should be turned towards the breast, as the most convenient posture. The arm should be hung in a sling. A partial dislocation of the bones of the wrist sometimes attends a fracture of the radius, by which a stiff joint, under the best practice, is apt to ensue, or permanent painful swellings of the fore-arm. In such cases, the patient ought to be warned of the danger, that no blame may be afterwards incurred.

When *the olecranon* is fractured, the arm must be kept in an extended state during the cure, by applying a splint opposite to the joint of the elbow, reaching from the middle of the humerus to the point of the fingers. The arm should be hung by the patient's side, to which it should be fixed by means of straps. To prevent the consequences of a stiff joint, the dressings should be removed about the eighth or tenth day, the fore-arm, for some time, slowly moved backwards and forwards, and the joint rubbed with an emollient oil. By a repetition of this, at proper intervals, a stiff joint may be prevented.

Anchylosis, or stiffness of the joint, commonly succeeds fractures of the bones of *the wrist*, owing to the great inflammation which ensues, and to their not readily re-uniting from their smallness. To prevent this as much as possible, after replacing the bones, the injured parts should be leeched freely, and in proportion to the violence of the symptoms. Splints should be applied exactly as in fractures of the fore-arm, and the arm supported by a sling.

In fractures of *the metacarpal bones*, a firm splint should be applied over the whole palm and inside of the arm, from the points of the fingers to the elbow, in order to prevent the action of the flexors of the fingers. The best splint for a fractured finger is a piece of firm pasteboard, properly fitted and softened in water, till it can be readily moulded into the form of the part. This should be applied along the whole length of the finger, and secured with a narrow roller. At the same time, a large roller should be applied over the inside of the hand, to prevent the parts from being moved. To prevent stiffness, the dressings should be removed about the end of the second week, and the joint cautiously bent; and this should be repeated daily till the cure be completed.

4. *Inferior extremities.*—Fractures of the body of *the thigh-bone* are readily discovered by the grating noise, when the ends of the bone are forcibly rubbed together; by the shortness of the limb if the fracture be oblique, and by the limb being unable to sustain the body. But fractures of the neck of the bone are often not easily distinguished from dislocation of the joint. In general, they may be distinguished by the circumstances mentioned in treating of luxations of this bone. In forming a prognosis, we ought to consider that no fractures are more apt to disappoint our expectations than those of the thigh, especially when the neck of the bone is broken, owing to the difficulty of discovering the place of the fracture, and of retaining the bones even after they have been replaced. In order to reduce a fracture of the thigh, the muscles are to be relaxed, by moderately bending the joints

of the thigh and knee: when this is done, unless there be much pain and tension, the bones are easily replaced by one assistant holding the upper part of the thigh, while another supports and gently pulls down its lower extremity, while the surgeon is employed in adjusting the fractured pieces. It is more difficult to reduce fractures of the neck of the bone, on account of the great strength and various directions of the surrounding muscles. In general, however, we may succeed by moderate extension, if we take care previously to relax all the muscles as much as possible: if we do not succeed, we must have recourse to machinery.

The greatest difficulty is, to retain the bones in their situation after they are replaced. The limb must be firmly secured by splints, made of thin slips of wood glued to leather, or of thick pasteboard. One splint, broad enough to cover half of the thigh, should reach from the top of the hip joint to a little below the knee, and another, covering about a third part of the thigh, from the groin to a little below the knee. The splints should be lined with flannel. They are to be secured by a twelve-tailed bandage, and, over all, a thin pillow should be put, nearly as long as the thigh. The splints and bandages may be put on in the following manner: the patient being placed on a firm hair mattress, with his knee moderately bent, the long splint bandage and pillow are to be applied to the outside of the thigh, and the patient should be turned somewhat towards the affected side, with the knee and leg raised a little higher than the body: the short splint should then be applied along the inside of the thigh, and the bandage already placed without the other splint, applied so tight as to make an equal moderate pressure over the whole: (see Pl. IV. fig. 2.) To make the part still more secure, it is proper to insert a long firm splint of wood under the middle of the pillow, and to fix it by two broad straps to the upper part of the limb. To prevent the limb from being affected by involuntary startings, the pillow should be fixed to the bed by straps: to keep off the weight of the bed-clothes, a cradle with hoops should be placed over the thigh. The parts should be examined after some time, to see that the bones be not displaced. When there is pain, swelling, and inflammation, leeches and other remedies should be applied. To render the situation of the patient as easy as possible during the cure, he may be allowed, after the second week, to turn a little more towards his back, and at the same time to extend the joint of the knee in a small degree. After this time a little flexion and extension of the limb may be daily repeated, to preserve the use of the joint.

The method here described generally succeeds. Sometimes, however, notwithstanding all our care, the ends of the bone slip over each other. To prevent the deformity which this occasions, it has been attempted to make extension and counter-extension by machines: but the pain and irritation have always been so great, that little advantage has yet been derived from such means. The invention of the late Mr. Gooch, of Norwich (see Plate IV. fig. 3.), improved by the late Dr. Aitken, of Edinburgh, has been recommended as one of the best machines for oblique fractures of the thigh. After endeavouring to remove the pain, swelling, and inflammation, which are sometimes so great as to preclude the application of the simplest bandage, this machine may be tried. But if it be found impracticable to use it, the cure must be conducted in the usual way, with the chance of the fractured pieces overlapping one another, and of course the limb being somewhat shortened.

The patella is most frequently fractured transversely, sometimes lengthwise, and sometimes into several pieces. Fractures of this bone have been said commonly to end in a stiff joint; but this is perhaps most frequently owing to the limb being kept too long in an extended posture. In the treatment of fractures of this bone, the leg should be extended, to relax as much as possible the soft parts connected with the bone. The patient should be placed on a firm mattress, and a splint be placed under the limb, long enough to reach from the top of the thigh to the under part of the leg, to which the limb should be fixed by a number of straps to keep it in a state of extension. The fractured bones are then to be brought together, and such a number of leeches applied to the joint as will remove as much blood as the patient can bear; and as long as much pain and tension continue, saturnine and other astringents are to be used for removing them. When this is accomplished, and the parts properly adjusted, a large pledget of Goulard's cerate should be laid over the joint, and a hooped frame employed to keep off the bed-clothes. In a longitudinal fracture, the parts are easily kept together by a common uniting bandage or adhesive plaster: but in transverse fractures more force is necessary. Various bandages have been employed for drawing the pieces together in such fractures: one of the best of these is that represented in the Plate at fig. 4. We need not be anxious, however, about bringing the pieces very close together, as a cure may be made though they remain at a considerable distance. The bandages, unless particular symptoms occur, should not be removed till the end of the second week; after which the joint should be cautiously bent, every second day, to prevent stiffness.

The leg is commonly fractured near the lower end, this being the weakest part of the bones. In the treatment of a fractured leg the same rules apply which were given for a fractured thigh-bone. The muscles should be relaxed by bending the knee; but little advantage can be derived from bending the foot, for in proportion as the muscles behind are relaxed, those before are put on stretch: the patient may be therefore allowed to keep the foot in the easiest posture. The bones are commonly replaced by the gentle extension of the upper part of the limb by an assistant, while another supports it at the ankle. The bones being replaced, and the limb laid on its outside with the knee bent, two splints (fig. 5.) are to be applied, long enough to reach from the upper part of the knee to the edge of the sole, so as to prevent the motion both of the knee and ankle. The splints are to be retained by a twelve-tailed bandage, as in the case of a fractured thigh-bone. See fig. 2.

If the patient be either very restless or troubled with spasmodic affections of the muscles of the leg, an additional splint, shaped to the form of the leg, should be applied along the outside of it, and fixed by a strap at the upper, and another at the under, part of the leg. When the patient cannot rest when lying on either side, he may be placed on his back, and the curved state of the knee still preserved by raising the leg a little above the level of the body on a frame made for the purpose. This variety of posture may likewise be used in fractures of the thigh. The patient may from the first be laid in this posture, or he may alternately change from the one to the other. No change of posture, however, should be allowed for the first ten or twelve days. When the fibula only is fractured, it is apt to be considered as a sprain of some of the muscles; but this ought to be particularly attended to, as the mistake may be followed by bad consequences. When both the bones of the leg are broken, the portion next the foot is commonly drawn towards the back part of the leg, so that a prominence is produced by the fractured part of the upper portion of the bone; and this is improperly termed the rising end of the fractured bone. The appearance is entirely produced by the inferior portion falling back. Hence no advantage is derived from pressure being made on the upper end of the bone: the inferior portion should be raised, so as to bring the parts into contact, and then by proper bandages they ought to be supported till they are perfectly united.

Fractures of the bones of *the foot and toes* are treated nearly in the same manner as fractures of the hand and fingers. Besides the splint which may be necessary for the particular part, a large one should be applied over the sole; nor should any motion be allowed for a considerable time either in the foot or ankle, otherwise the bones may be displaced, and a proper cure prevented.

FRACTURE, COMPOUND. By compound fracture is now generally meant a fracture of a bone communicating with an external wound in the integuments. They are much more dangerous than simple fractures. The generality of authors have considered amputation as indispensable in cases of compound fracture; while a few, particularly Mr. Bilguer, surgeon-general to the armies of the late king of Prussia, affirm that it is scarcely ever necessary. Both seem to have carried matters too far. Some of the latest and best surgeons have recommended never to amputate immediately in private practice, unless when the bones are so much shattered that they cannot reunite, or the texture of the soft parts is completely destroyed; because, even if amputation be at last necessary, the patient will have a greater chance of recovering than if it had been performed immediately after the accident: for the state of weakness to which he is generally reduced, renders the attendant symptoms less violent. On the other hand, it has been considered as no bad rule in the army or navy, where patients cannot be kept in a proper situation, and where sufficient attention cannot be given, to amputate immediately in cases of compound fracture of the large bones of the extremities. When amputation is not performed immediately, it is not, for several days at least, admissible. It may afterwards be rendered necessary by hæmorrhages, which cannot be stopped but by means more dangerous than amputation itself; by extensive mortification; or by the ends of the fractured bones remaining long disunited, while a great discharge of matter endangers the patient's life.

In *treating compound fractures*, all extraneous bodies should be removed, as also all those small pieces of bone which will probably not unite with the rest. For this purpose the opening, if necessary, should be enlarged with a scalpel. The next step is to replace the bones by relaxing the muscles as in simple fractures. Sometimes part of a bone projects so far through the integuments, that it cannot be replaced without either sawing off the end of it, or enlarging the wound. If the fractured bone be long, sharp, and projecting much, it is best to saw it off; for though it were reduced, it would not readily reunite, and it would be apt to excite much pain and inflammation. But if it be broad at the base, and of no great length, it ought certainly to be sawed, even though it cannot be reduced without enlarging the wound. For the most part, it is only the skin which it is necessary to cut; but even the muscles ought to be divided, though as much as possible in the direction of their fibres, when the bone cannot otherwise be replaced. After the reduction, a pledget of some emollient kind is next to be laid over the wound, and the limb placed on a firm splint, and still kept in a relaxed posture. In dressing the wound, the limb ought not to be moved: the many-tailed bandage, therefore, should be used rather than a roller. Various contrivances have been fallen upon to allow the limb to be at rest while the surgeon is dressing it. The *fracture-box*, invented by the late Mr. Rae, surgeon in Edinburgh, is one of the best. When the leg is laid on this, it may be dressed with tolerable facility without moving it. Another machine has since been invented by Mr. James, a surgeon of Hoddesden, Herts, which will yet more effectually relax the muscles, and retain the bones in their natural situation, without pain to the patient, or inconvenience to the operator. See fig. 6, Plate IV.

It is of the greatest importance to prevent inflammation, which is apt either to produce mortification, or to give rise to extensive abscesses. The dressings should be removed once or twice daily, according to the quantity of matter. The common application of warm poultices, on account of their inconvenience, may be deferred till they become necessary by the approach of inflammation, which they are to be considered as the surest means of preventing by exciting a discharge of matter. Whenever the inflammation subsides, and a free discharge of pus is produced, the poultices ought to be laid aside, lest they do harm by relaxing the parts too much, and exciting too copious a discharge. The sore ought then to be dressed with mild astringents, and the patient kept on a nourishing diet, with tonic medicines. A free passage should be given to the matter, by putting the limb in a favourable posture, and by making a counter opening, if necessary, in the most depending part. But this may be frequently avoided by covering the sore with soft lint or sponge to absorb the matter. If the discharge become excessive, and cannot be lessened by the means abovementioned, it will be found to proceed from a portion of loose bone which has not been earlier noticed: by the removal of this it may be stopt. If instead of producing matter, the inflammation terminate in gangrene, the danger is still greater, than under the most extensive abscesses. For the treatment of this, the reader is referred to the articles GANGRENE and MORTIFICATION.

FRÆ'NUM, a *bridle*, in anatomy, a name given to certain fleshy ligaments, from their office of retaining and curbing the motions of the parts they are fitted to.

FRÆ'NUM LI'NGUÆ, or *bridle of the tongue;* a membranous ligament, which connects the tongue with the muscles about the fauces, and lower parts of the mouth. In some subjects the *frænum* runs the whole length of the tongue to the very tip; in which cases, if it were not cut, it has been erroneously supposed, that there would be no possibility of speech. See TONGUE-TIED.

FRÆ'NUM PE'NIS, a slender ligament, whereby the prepuce is tied to the lower part of the glans of the penis. Nature varies in the make of this part; it being so short in some, that unless divided it would not admit of perfect erection. There is also a kind of *frænum*, fastened to the lower part of the clitoris in women.

FRA'GA, (from *fragro*, to smell sweet); the STRAWBERRY. See FRAGARIA.

FRAGA'RIA, (from *fragro*, to smell sweet), or FRAGA; the strawberry; *Fragaria vesca, fragellis reptantibus*, Linn. Strawberries are universally esteemed a most delicious fruit. They are grateful, cooling, subacid, and juicy; and though taken in large quantities, they seldom disagree. They promote perspiration, impart a violet smell to the urine, and tend to dissolve the tartareous incrustations on the teeth. People afflicted with the gout or stone have found relief by using them very largely; and Hoffman says, he has known consumptive people cured by them. The bark of the root is astringent. See FRUCTUS.

FRAGA'RIA VE'SCA; the systematic name of the strawberry. See FRAGARIA.

FRAMBŒ'SIA, (from *framboise*, French for a raspberry), the YAWS; a genus of disease, arranged by Cullen in the class *cachexiæ*, and order *impetigines*. It is somewhat similar in its nature to the lues venerea, and is endemial to the Antilla islands. The description which is given of the nature of this disease by the anonymous author of a paper in the Edinburgh Medical Essays, Vol. VI. differs, in some circumstances, from one that Sauvages received from M. Virgile, an eminent surgeon of Montpellier, who practised twelve years in the island of St. Domingo; and, therefore, he distinguishes the *Frambœsia* into two species, viz. *Guineensis* and *Americana*.

The *frambœsia Guineensis* is said, by the first-mentioned writer, to be so common on the coast of Guinea and other parts of Africa, that it seldom fails to attack each individual of both sexes, one time or other, in the course of their lives; but most commonly during childhood or youth. "It makes its appearance in little spots on the cuticle, level with the skin, at first no larger than a pin's head, which increase daily, and become protuberant like pimples: soon after the cuticle frets off, and then, instead of finding pus or ichor in this small tumor, only white sloughs or sordes appear, under which is a small red fungus, growing out of the cutis, increasing gradually to very different magnitudes, some less than the smallest wood strawberry, some as big as a raspberry, and others exceeding in size even the largest mulberries; which berries they very much resemble, being knobbed as they are." These protuberances, which give the name to the disease, appear on all parts of the body: but the greatest numbers, and the largest sized, are generally found in the groins, and about the pudenda or anus, in the armpits, and on the face. When the yaws are very large, they are few in number; and when remarkably numerous, they are less in size. The patients, in all other respects, enjoy good health, do not lose their appetite, and seem to have little other uneasiness, than what the sores occasion.

M. Virgile describes the species of yaws that is common among the negroes of St. Domingo, and which Sauvages has termed *frambœsia Americana*, as beginning from an ulcer that breaks out indiscriminately in different parts of the body, though most commonly on the legs; at first superficial, and not different from a common ulcer in any other circumstance, save its not healing by the usual applications. Sooner or later, numerous fungous excrescences break out on the surface of the body, as before described, like little berries, moist, with a reddish mucus. Besides these, the soles of the feet and palms of the hands become raw, the skin fretting off, so as to leave the muscles bare; these excoriations are sometimes moist with ichor, and sometimes dry, but always painful, and consequently very distressing. These are mentioned also by the author of the article in the Medical Essays; and both he and M. Virgile observe, that there is always one excrescence, or yaw, of an uncommon size, longer in falling off than the others, and which is considered as the *master-yaw*, and so termed. An ingenious inaugural dissertation on the subject of the yaws was also published at Edinburgh by Dr. Jonathan Anderson Ludford, now a physician in Jamaica. The author of that dissertation considers Dr. Cullen as improperly referring *frambœsia* to the class of *cachexiæ*. He thinks that this disease ought rather to be referred to the exanthemata; for, like the small-pox, he tells us it has its accession, height, and decline. It begins with some degree of fever, either more or less violent; it may be propagated by inoculation: and it attacks the same individual only once in the course of a lifetime, those who once recover from the disease being never afterwards affected with it. These particulars respecting frambœsia are rested not merely on the authority of Dr. Ludford, but are supported also by the testimony of Dr. William Wright, a physician of distinguished eminence; who, while he resided in Jamaica, had, in the course of an extensive practice, many opportunities of observing this disease, and to whom Dr. Ludford acknowledges great obligations for having communicated to him many important facts respecting it.

Dr. Ludford considers the yaws as being in every instance the consequence of contagion, and as depending on a matter *sui generis*. He considers no peculiar predisposition from diet, colour, or other circumstances, as being in any degree necessary. He views the disease as chiefly arising from contact with the matter, in consequence of sleeping in the same bed, washing in the same vessel with the infected, or the like. In short, the yaws may be communicated by any kind of contact; nay, it is even believed that flies often convey the infection, when, after having gorged themselves with the virulent matter by sucking the ulcers of those who are diseased, they make punctures in the skin of such as are sound, and thus inoculate them; in consequence of which the disorder will soon appear, provided the *morbific disposition* of the body be present.

The yaws are not considered as dangerous, if the cure be skilfully managed at a proper time: but if the patient has been prematurely salivated, or has taken any quantity of mercury, and his skin been suddenly cleared thereby, the cure will be very difficult, if not impracticable.

In attempting the cure of this extraordinary disease, the four following indications are chiefly to be held in view: 1. To support the strength of the patient. 2. To promote excretion by the skin. 3. To correct the vitiated fluids. 4. To remove and counteract the injuries done either to the constitution in general, or to particular parts by the disease.

With the first of these intentions, a liberal diet, consisting of a considerable quantity of animal food, with a considerable proportion of wine, and gentle exercise, are to be employed: but the cure is principally to be effected by mercurial salivation, after the virulent matter has been completely thrown out to the surface of the body by sudorifics. The following are the particular directions given on this head by the author of the article in the Medical Essays. The yaws being an infectious disease, as soon as they begin to appear on a negro, he must be removed to a house by himself; or, if it is not certain whether the eruption be the yaws or not, shut him up seven days, and examine him again, as the Jews were commanded to do with their lepers, and in that time you may be commonly certain.

As soon as you are convinced that it is the yaws, give a bolus of flowers of sulphur, with camphor and opium. Repeat this bolus every night for a fortnight or three weeks, or till the yaws come to the height; that is, when they neither increase in size, nor number: then throw the patient into a gentle salivation with calomel given in small doses, without further preparation: five grains repeated once, twice, or thrice a-day, is sufficient, as the patient can bear it. If he spits a quart in twenty-four hours, it is enough. Generally, when the salivation is at its height, all the yaws are covered with a dry scaly crust or scab; which, if numerous, look terribly. These fall off daily in small white scales; and in ten or twelve days leave the skin smooth and clean. Then the calomel may be omitted, and the salivation permitted to go off of itself. A drachm of hydrarg. muriat. dissolved in an ounce of rum or brandy, and the solution brushed on the yaws, will, it is said, in some cases, clear the skin in two days' time.

After the salivation, sweat the patient twice or thrice, in a frame, or chair, with spirits of wine; and give an alterative electuary of antimonial æthiops and gum guaiacum. He may likewise use the decoction of guaiacum and sassafras, fermented with melasses, for his constant drink, while the electuary is taking, and a week or a fortnight after the electuary is finished.

The master-yaw must be consumed an eighth or a tenth part of an inch below the skin, with

℞ Hydrarg. nitrat. rub.
Alumin. ust. sing. ʒj.
Misce fiat Pulvis.

To digest the wound:
℞ Hydrarg. nitrat. rub. (opt. lævig.) ʒj.
Unguent. resinæ flavæ ℥j. Misce.

It should be cicatrized with lint pressed out of a weak solution of vitriolated copper.

After the yaws are cured, some patients are afflicted with carbuncles in their feet; which sometimes render them incapable of walking, unless with pain. The method of cure is, by bathing and paring, to destroy the cuticle, and then proceed as in the master-yaw. The gentle escharotics are to be preferred, especially here; and all imaginable care is to be taken to avoid the tendons and periosteum.

To children under six or seven years old, at the proper time of salivating, when the yaws are come to their full growth, give a grain or two of calomel in white sugar, once a-day, once in two days, or once in three days, so as only to keep their mouths a little sore till the yaws dry, and, falling off in white scales, leave the skin clean. This succeeds always, but requires a longer time than in adults.

In St. Domingo they salivated by unction: but it does not appear that success always followed this practice. It is also usual in that island to give the solution of hydrargus muriatus along with a decoction of sarsaparilla. Twelve ounces of this root, and twelve pounds of the coarsest sugar, macerated for fifteen days in twelve quarts of water, is mentioned as a specific, and said to be the prescription of an English physician. The dose is four ounces every sixth hour.

FRANKINCENSE. See Thus.

FRA'NGULA, (from *frango* to break, so called because of the brittleness of its branches), BLACK ALDER; the *Rhamnus frangula; inermis floribus monogyniis hermaphroditis, foliis integerrimis*, Linn. The berries and bark of this tree are sometimes used medicinally as a strong purgative. The former are often substituted for those of the buckthorn; the latter, viz. the internal bark, of a yellow colour, is mostly employed by the common people in dropsical and other disorders of that nature.

FRAXINE'LLA, (from *fraxinus*, the ash, so called because its leaves resemble those of the ash). See Dictamnus albus. It is remarkable of this odorous plant, that, when in full blossom, the air which surrounds it, in a still night, may be inflamed by the approach of a lighted candle. Dr. Watson doubts whether this inflammability proceeds from an inflammable air which is exhaled by the plant, or from some of the finer parts of the essential oil of the plant being dissolved in the surrounding atmospherical air. The latter is the most probable supposition; for were it the pure inflammable air, as Mr. Cavallo observes, it would, on account of its small specific gravity, leave the plant as soon as it was produced. Common air acquires the property of becoming inflammable, by being transmitted through some of the essential oils.

FRAXINE'LLA, WHITE. See Dictamnus albus.

FRA'XINUS, (*a fragore*, from the noise its seeds make when shaken by the wind; or from *φραξις*, *a hedge*, because of its use in constructing hedges), the ash; *Fraxinus excelsior ; foliis serratis floribus apetalis*, Linn. The bark of this tree, when fresh, has a moderately strong bitter taste. It possesses resolvent and diuretic qualities, and has formerly been exhibited in the cure of intermittents. The seeds are occasionally exhibited medicinally as diuretics. In warm climates, a species of manna exudes from this species of fraxinus. Our pharmacopœias, however, supply us with many more powerful remedies for these purposes.

FRA'XINUS EXCE'LSIOR; the systematic name of the ash tree. See Fraxinus.

FRA'XINUS ORNUS; the systematic name of the tree from which manna is obtained. See Manna.

FRA'XINUS ROTUNDIFO'LIA; the systematic name of a tree which also yields manna. See Manna.

FRECKLES, *lentigines;* spots of a yellowish colour, of the bigness of a lentile-seed, scattered over the face, neck, and hands. Freckles are either natural, or proceeding accidentally from the action of the sun upon the part. Heat, or a sudden change of the weather, will often cause the skin to appear of a darker colour than natural; and thereby produce what is called *tan*, *sunburn*, or *morphew*, which seem to differ only in degree, and usually disappear in winter. Persons of a pale complexion, and such whose hair is red, are the most subject to freckles, especially in those parts most exposed to the sun. To remove freckles, some employ the juice of lemons. Homberg proposes bullock's-gall mixed with alum, as one of the best remedies known.

FREIND (John), a most learned English physician and writer in the 17th century, was born at Croton, Northamptonshire, in 1675. In 1696 he published, in conjunction with Mr. P. Foulks, an edition of two Greek orations, one of Æschines against Ctesiphon, and the other of Demosthenes *De Corona*, with a new Latin version. In 1699 he wrote a letter to Dr. Sloane concerning an *Hydrocephalus*, publishedin the Philosophical Transactions; and another in Latin to the same gentleman, *De spasmis rarior. historia*, printed in the same Transactions. In 1703 his *Emmenalogia* appeared, which gained him great reputation. In 1704 he was chosen professor of chemistry in the university of Oxford. In 1705 he attended the earl of Peterborough to Spain, as physician to the army there; and, upon his return in 1707, published an account of the earl's expedition and conduct. In 1709 he published his Chemical Lectures. In 1712 he attended the duke of Ormond in Flanders, as his physician. In 1716 he was admitted a fellow of the college of physicians in London. This year he published the first and third books of Hippocrates *De morbis popularibus*, with a Commentary on Fevers, written by himself. He sat as member for the borough of Launceston in Cornwall, in 1722, where he distinguished himself by his opposition to the administration. March 1722 he was committed to the tower on a charge of high-treason: and, while he was under confinement, he wrote a Latin epistle to Dr. Mead, *De quibusdam variolarum generibus ;* and began his History of Physic, the first part of which was published in 1725, and the second in 1726. Upon the accession of George II. to the throne, he was appointed physician in ordinary to the queen, who showed great regard and esteem for him. He died at London in 1728. His works were published together in Latin, London, 1733, in folio, and dedicated to the queen.

FRIABLE, a quality of bodies by which they are rendered tender and brittle, easily crumbled or reduced to powder between the fingers: their force of cohesion being such as easily exposes them to such solution. Such are pumice, and all calcined stones, burnt alum, &c. It is supposed that friability arises from hence: that the body consists wholly of dry parts irregularly combined, and which are readily separated, as having nothing unctuous or glutinous to bind them together.

FRICTION, the act of rubbing a diseased part with oils, unguents, and other matters, in order to relieve it. Friction may be performed with a flesh-brush, a linen-cloth, or with flannel; which last is the most eligible. Dr. Willich says, it is a kind of exercise that remarkably contributes to the health of sedentary persons; for it excites and kindles the natural warmth; diverts defluxions; promotes perspiration; opens the pores; and tends to dissipate stagnant humours. This operation is particularly beneficial to the nervous, debilitated, and studious; being an useful substitute for other exercise.

One of the most important purposes to which *friction* may be rendered subservient in the animal economy, is that of the *medicated* kind, for the introduction of the most active medicines into the human system. Its use in the introduction of mercury, (see Mercury) is universally known; and some physicians, instead of giving medicines by the mouth, contend, that rubbing them in properly on the surface, might be attended with the most happy effects, especially in chronic diseases. "Common sense", says Dr. Willich, "appears to have long since pointed out this excellent method of administering medicines, even to the Indian savages, though it is little practised in enlightened Europe, where the *stomach* is doomed to be the field of battle, for deciding commotions and irregularities in our complicated frame. But who is hardy enough to maintain that the digestive organ was by nature destined to be the *exclusive* vehicle of drugs, and to serve as their common laboratory?"

A convenient mode of applying friction to the feet is suggested under the article Brush.

FRIGHT, a sudden and violent degree of fear. See Terror.

FRIGIDUS, frigid, in a general sense, denotes the quality of being cold. It is frequently applied to signify a want of force or vigour.

FRIGIDA'RIUM, (from *frigus*, cold); a term given by the ancients to a vessel holding cold water, used in their bathing: but now it is no otherwise used than sometimes to express the same as a *refrigeratory*, in the common way of distillation.

FRIGIDITY, the same with Impotence.

FRIGORIFIC, in physiology, small particles of matter, which, according to Gassendus and others, being actually and essentially cold, and penetrating other bodies, produce in them that quality which we call *cold.* Certain mixtures producing an extraordinary degree of cold by their chemical combination, as in the case of Glauber's salt and nitrous acid, are called *frigorific mixtures.*

FROG; the *rana*, Linn. a genus of amphibious reptiles, consisting of 17 species. The *rana esculenta*, or eatable frog, is used in some countries, especially in France and Germany, as an article of food, and is even deemed a first-rate luxury. It differs chiefly from the common species, in having an high protuberance in the middle of the back, which forms an acute angle. Its colours likewise are more vivid, and its marks more distinct; the ground colour being a pale or yellowish green, marked with rows of black spots from the head to the rump. Both this and the *rana temporaria*, or common frog, are said, by Mr. Pennant, to be used as food, though *rarely* in *this* country. See Reptiles.

FRONDESCE'NTIA, (from *frons*, a leaf); in botany, the precise time of the year and month in which each species of plant unfolds its first leaves. All plants produce new leaves every year; but all do not renew them at the same time. Among woody plants, the elder, and most of the honey-suckles; among perennial herbs, crocus and tulip, are the first that push or expand their leaves. The time of sowing the seeds decides it with respect to annuals. The oak and ash are constantly the latest in pushing their leaves: the greater number unfold them in spring; the mosses and firs in winter. These striking differences, with respect to so material a circumstance in plants as that of unfolding their leaves, seem to indicate that each species of plants has a temperature proper or peculiar to itself, and requires a certain degree of heat to extricate the leaves from their buds, and produce the appearance in question. This temperature, however, is not so fixed and constant as it may appear to a superficial observer. Among plants of the same species, there are some more early than others; whether that circumstance depends, as it most commonly does, on the nature of the plants, or is owing to differences in heat, exposure, and soil. In general, it may be affirmed, that small and young trees are always earlier than larger or old ones. The pushing of the leaves is likewise accelerated or retarded according to the temperature of the season; that is, according as the sun is sooner or later in dispensing that certain degree of heat which is suitable to each species.

FRO'NS, (from the Greek φϱονειν, *to think*, or *perceive*; of φϱην, *mens*, the mind, or thought); the front or forehead; that part of the face above the eye-brows. Martinius, to make out the above etymology, observes, that from the forehead of a person we perceive what he is, what he is capable of, and what he thinks of. See Frontis, Os.

FRONTAL SINUS. See Frontis, Os.

FRONTA'LIS. See Occipito-frontalis.

FRONTA'LIS VE'RUS. See Corrugator supercilii.

FRO'NTIS, OS; a bone in the human skeleton, which has its name from its being the only one of that part of the face we call the *forehead*, though it reaches a good deal farther. It has some resemblance in shape to the shell of the *cockle:* for the greatest part of it is convex externally, and concave internally, with a serrated circular edge; while the smaller part has processes, and depressions, which make it of an irregular figure.

The external surface of the os frontis is smooth at its upper convex part; but several processes and cavities are observable below: for at each angle of each orbit, the bone juts out to form four processes, two internal, and as many external; which, from this situation, may well enough be named *angular.* Between the internal and external angular processes on each side, an arched ridge is extended, on which the eye-brows are placed. Very little above the internal end of each of these superciliary ridges a protuberance may be remarked, in most skulls, where are the large *sinuses*, within the bone. Between the internal angular processes a small one rises, which forms a small part of the nose, and thence is named *nasal.* Some observe a protuberant part on the edge of the bone, behind each external angular process, which they call *temporal* processes; but these are inconsiderable. From the under part of the superciliary ridges, the frontal bone runs a great way backwards: these parts may justly enough be called *orbitar* processes, which, contrary to the rest of this bone, are concave externally, for receiving the globes of the eyes, with their muscles, fat, &c.

In each of the orbitar processes, behind the middle of the superciliary ridges, a considerable sinuosity is observed, where the *glandula lachrymalis* is lodged. Behind each internal angular process, a small pit may be remarked, where the cartilaginous pully of the *musculus obliquus major* of the eye is fixed. Between the two orbitar processes, there is a large discontinuation of the bone, in which the cribriform part of the os ethmoides is incased. The os frontis has frequently little caverns formed in it where it is joined to the ethmoid bone. Behind each external angular process, the surface of the frontal bone is considerably depressed where part of the temporal muscle is placed.

The internal surface of the os frontis is concave, except at the orbitar processes, which are convex, to support the anterior lobes of the brain. This surface is not so smooth as the external; for the larger branches of the arteries of the dura mater make some furrows in its sides and back parts. The sinuosities from the luxuriant risings of the brain, which occur when describing the general structure of the cranium, are often very observable on its upper part; and its lower and fore parts are marked with the contortions of the anterior lobes of the brain. Through the middle of this internal surface, where, always in children, and sometimes in old people, the bone is divided, either a ridge stands out, to which the upper edge of the falx is fastened, or a furrow runs, in which the upper side of the superior longitudinal sinus is lodged: on both these accounts, chirurgical writers justly forbid the application of the trepan here. The reason of this difference in skulls is alleged by some authors to be this: That in thin skulls the ridge strengthens the bones, and in thick ones there is no occasion for it. To this way of accounting for the phenomenon, it may be justly objected, that, generally, very thick skulls have a large spine here, and frequently thin ones have only a furrow. Dr. Monro suggests, that this variety may possibly be owing to the different times of complete ossification of those parts in different subjects: for if the two sides of this bone meet before they arrive at their utmost extent of growth, they unite very firmly, and all their fibres endeavour to stretch themselves out where there is the least resistance, that is, between the hemispheres of the brain. To support this reasoning, we may remark, that those adults whose frontal bone is divided by the sagittal suture, never have a ridge in this place.

The os frontis is composed of two tables, and an intermediate diploë, as the other bones of the cranium are. It is of a mean thickness, between the os occipitis and the parietal bones; and is nearly equally dense throughout, except at the orbitar processes, where, by the action of the eye on one side, and pressure of the lobes of the brain on the other, it is made extremely thin and diaphanous, and the meditullium is entirely obliterated. In this place there is so weak a defence for the brain, that fencers esteem a push in the eye mortal.

The diploë is also exhausted in that part above the eye-brows, where the two tables of the bone separate, by the external being protruded outwards, to form the two *sinus frontales*. These are divided by a middle perpendicular bony partition. Their capacities in the same subject are seldom equal: in some the right, in others the left, is largest. And in different bones their size is as inconstant: nay, Dr. Monro found some where they were entirely wanting; which happens oftener in such as have a flat forehead, and whose sagittal suture is continued down to the nose. In some skulls, besides the large perpendicular *septum*, several bony pillars, or short partitions, are found in each sinus; in others these are wanting. For the most part, the *septum* is entire; at other times, it is discontinued, and the two *sinuses* communicate. When the sinuses are seen in such skulls as have the frontal bone divided by the sagittal suture, the partition dividing these cavities is evidently composed of two plates, which easily separate. Each sinus commonly opens by a roundish small hole, at the inner and lower part of the internal angular processes, into a sinus formed in the nose, at the upper and back part of the os unguis; near to which there are also some other small sinuses of this bone, the greater part of which open separately near the septum narium, and often terminate in the same common canal with the large ones.

In a natural state, these cavities are of considerable advantage; for the organ of smelling being thus enlarged, the effluvia of odorous bodies more difficultly escape it; and their impressions being more numerous, are therefore stronger, and affect the organ more. That odorous particles may be applied to the membrane of the sinuses, is evident from the pain felt in this part of the forehead, when the effluvia of volatile spirits, or of strong aromatics, are drawn up into the nose by a quick inspiration. These, and the other cavities which open into the nose, increase the sound of the voice, and render it more melodious, by serving as so many vaults to resound the notes. Hence people labouring under a coryza, have such a disagreeable harshness of voice. The liquor separated in the membrane of these sinuses keeps the membrane of the nose moist.

From the description of these sinuses, it is evident, how useless, nay, how pernicious, it must be to apply a trepan on this part of the skull: for this instrument, instead of piercing into the cavity of the cranium, would reach no further than the sinuses; or, if the inner table was perforated, any extravasated blood that happened to be within the skull, would not be discharged outwardly, but would fall into the sinuses, and there injure the sensible membranes; from which also there would be such a constant flow of glairy mucus, as would make the sore perhaps degenerate into an incurable fistula, and might otherwise bring on bad consequences. The membrane lining these sinuses is so sensible, that inflammation, or any thing which irritates it, must create violent uneasiness.

The upper circular part of the os frontis is joined to the ossa parietalia, from one temple to the other, by the coronal suture. From the termination of the coronal suture to the external angular processes, this bone is connected to the sphenoid by the sphenoidal suture. At the external canthi of the eyes, its angular processes are joined by the transverse suture to the ossa malarum, to which it adheres one-third down the outside of the orbits; whence to the bottom of these cavities, and a little upon their internal sides, these orbitar processes are connected to the sphenoidal bone by that same suture. In some few skulls, however, a discontinuation of these two bones appears at the upper part of the long slit, near the bottom of the orbit. On the inside of each orbit, the orbitar process is indented between the cribriform part of the ethmoid bone and the os planum and unguis. The transverse suture afterwards joins the frontal bone to the superior nasal processes of the ossa maxillaria superiora, and to the nasal bones. And, lastly, its nasal process is connected to the nasal lamella of the ethmoid bone.

The os frontis serves to defend and support the anterior lobes of the brain. It forms a considerable part of the cavities that contain the eye-balls, helps to make up the septum narium, organ of smelling, &c. From the description of the several parts, the other uses of this bone are evident. In a perfect child, it is divided through the middle; the superciliary holes are not formed; often a small round piece of each orbitar process, behind the superciliary ridge, is not ossified; and there is no sinus to be seen within its substance.

The dangerous consequences attending a fracture of this and other bones composing the head, are considered under the article Skull.

FROST, that state of the atmosphere, which causes water and other liquids to congeal, or freeze. Its effects vary, according to the existing degree of cold. In northern countries, the frost frequently proves fatal to mankind, not only producing mortification, but even death itself. The hands of those unfortunate persons, who die in consequence of intense cold, are first seized, till they lose the sense of feeling; next a drowsiness pervades the whole body, which, if indulged in, is attended with imperceptible dissolution. Persons locally affected by frost are said to be *frost-bitten*, or *frost-nipped.*

If animation be suspended from severe frost, the following will be the external symptoms: rigidity of the whole body; and inflexibility of the limbs, which continue in the same posture as the frozen person had adopted during the unfortunate accident; the teeth are closed; froth sometimes issues from the mouth; there is a total insensibility to all stimulants, and the extremities are partly mortified, and, in some instances, spontaneously separate. Dr. Willich says, that notwithstanding these unfavourable appearances, every exertion ought to be instantly made to restore life, if possible, by strictly adhering to the following directions; because there is a greater probability of recovering such persons, than those deprived of life, in consequence of drowning or suspension by the cord.

No external warmth of any kind must be applied to frozen persons, till the internal or vital heat be excited, when the former also should be carefully and very gradually adapted to the manifest degree of the latter. See Living Principle. Hence the whole process should be performed either in the open air, or in a cold room; the body cautiously carried in a posture somewhat erect, to the nearest dwelling; the head turned gently towards the right side; and the clothes carefully taken off, without injuring the skin, or bending the limbs. These precautions are necessary, as a rough treatment may easily occasion dislocations of the joints, or fractures of the bones. Next, the whole naked frame, excepting the face, should be covered with a bed of snow from 12 to 18 inches in thickness; or, if this cannot be procured, very cold water may be substituted, and cloths successively dipped in it may be spread over the whole body, especially the head and breast. After continuing these affusions, gentle frictions with flannel or soft brushes, likewise immersed into cold fluids, should be commenced; alternately making use of the shower-bath, and persevering in these attempts for an hour at least, when the body ought to be left undisturbed for some minutes. If no signs of life appear, clysters of cold water, with oil and vinegar, or six ounces of brandy, are to be given, and the former process again and again repeated; so that five or six hours sometimes elapse, before any symptoms of animation are perceptible. As soon, however, as there is the least prospect of recovery, *warm* fomentations must be resorted to: the degree of friction cautiously increased; or the patient placed in bed between two robust persons; emollient clysters prepared; and when he is able to swallow, a cup of tea with a little wine, or brandy, may be allowed. In some desperate instances, it will perhaps be required to introduce air into the lungs by means of common bellows, or those used in cases of drowning; or to have recourse to the electrifying machine, &c. (see Resuscitation) but such cases must be guided by existing circumstances.

The popular notion that frosty weather contributes to health, is palpably contradicted, by a comparison of the bills of mortality in mild winters and in severe ones; and those who labour under this prejudice will do well to consult a paper on the subject, by Dr. Haygarth, published in the Phil. Trans. Dr. Willich observes, that many old and debilitated persons, whose vital heat is insufficient to excite into action their vessels, already too unsusceptible of irritation, die in consequence of long frosts, during severe winters. Birds, and other wild animals, as well as tender vegetables, perish benumbed from the same cause. It deserves, however, to be remarked, that a sharp dry frost does not affect the human skin with that sensation of chilly and piercing cold which we experience, when the air is loaded with moisture, the temperature of which is near the freezing point. This remarkable difference arises from the intense degree of cold produced by the evaporation of fluids, which continually takes place on the surface of living bodies; where it naturally produces a more perceptible effect, than the simple contact of *dry* air would occasion, when it is but a few degrees below freezing. To the young and robust, therefore, frost is more pleasing than moist air; as, in the former, they are able to keep themselves warm by increased exercise; which, in the latter, only tends to promote and render the evaporation more severely felt on the skin. For the same reason, Dr. Darwin observes, that severe and continued frosts "destroy the children of the poor, who want both food, fire, and clothing in this harsh climate."

An intense degree of cold is also attended with some singular effects on liquors. Thus, *aromatic spirits* possess a weaker flavour when newly distilled, than after they have been kept six or seven months, especially during the winter season. Experience has evinced, that this favourable change was produced only by the influence of *cold;* and M. Baumé found, that by immersing quart-bottles filled with liquors, into a mixture of pounded ice and sea-salt, for six or eight hours, the spirit proves as grateful to the palate as that which has been kept for several years. Geoffroy remarks, that simple waters also acquire a more agreeable flavour, after having been for some time exposed to the effects of cold.

Some remarkable instances of frost in Europe, and chiefly in England, are the following:—In 220, a frost in Britain lasted 5 months. 250, The Thames frozen 9 weeks. 291, Most rivers in Britain frozen 6 weeks. 359, Severe frost in Scotland for 14 weeks. 508, The rivers in Britain frozen for 2 months. 558, The Danube quite frozen over. 695, Thames frozen 6 weeks, and booths built on it. 759, Frost from Oct. 1 till Feb. 26, 760. 827, Frost in England for 9 weeks. 859, Carriages used on the Adriatic sea. 908, Most rivers in England frozen 2 months. 923, The Thames frozen 13 weeks. 987, Frost lasted 120 days: began Dec. 22. 998, The Thames frozen 5 weeks. 1035, Severe frost on June 24: the corn and fruits destroyed. 1063, The Thames frozen 14 weeks. 1076, Frost in England from Nov. till April. 1114, Several wooden bridges carried away by ice. 1205, Frost from Jan. 15 till March 22. 1407, Frost that lasted 15 weeks. 1434, From Nov. 24 till Feb. 10. Thames frozen down to Gravesend. 1683, Frost for 13 weeks. 170$\frac{8}{9}$, Severe frost for many weeks. 1715, The same for many weeks. 1739, One for 9 weeks; began Dec. 24. 1742, Severe frost for many weeks. 1747, Severe frost in Russia. 1754, Severe one in England. 1760, The same in Germany. 1776, The same in England. 1788, The Thames frozen below bridge; and booths erected on it.

FROTH, a white light substance, formed on the surface of fluids by vehement agitation; consisting of a multitude of little spherules or globules.

FRUCTESCE'NTIA, (from *fructus*, fruit), in botany, a term which comprehends the precise time in which, after the fall of the flowers, the fruits arrive at maturity, and disperse their seeds. In general, plants which flower in spring ripen their fruits in summer, as rye; those which flower in summer have their fruits ripe in autumn, as the vine; the fruit of autumnal flowers ripens in winter, or the following spring, if kept in a stove, or otherwise defended from excessive frosts. These frosts, says M. Adanson, are frequently so pernicious and violent as to destroy the greatest part of the perennial plants of Virginia and Mississippi that are cultivated in France, even before they have exhibited their fruit. The plants which flower during our winter, such as those of the Cape of Good Hope, ripen their fruits in spring in our stoves.

FRUCTIFICATION, in botany. This term as applied to plants, is defined by Linnæus to be the temporary part of a vegetable appropriated to generation, terminating the old vegetable, and beginning the new. It consists of the following seven parts; *viz.* the calyx, corolla, stamen, pistillum, pericarpium, semen or seed, and receptaculum. See BOTANY.

FRUCTI'STÆ, fructists; that set of authors who have attempted the establishing the classes and distinctions of plants upon the fruit, seed, or receptacle of these in plants. Of this list is Cæsalpinus, Morrison, Ray, Boerhaave, &c.

FRU'CTUS, (from *fruor*, to enjoy), in botany, fruit, that part of a plant wherein the seed is contained: called by the Latins *fructus;* and by the Greeks *καρπος*. The fruit in the Linnæan system is one of the parts of fructification, and is distinguished into three parts, viz. the pericarpium, seed, and receptacle or *receptaculum seminum*. See BOTANY.

FRU'CTUS RECE'NTES, recent or fresh fruits; or those taken immediately from the parent tree in a ripe state. They are also named *fructus acido-dulces*, or *Summer-Fruits.*

Dr. Cullen says, all of these are useful in quenching thirst, which they do partly by their cooling quality and partly by their stimulating the mucous excretories of the mouth and fauces. Taken into the stomach, they have the same effect there; and sometimes further, by correcting putrescency, they remove a powerful cause of thirst. In the latter case these fruits also excite appetite; at the same time that they prove refrigerant, and diminish the action of the sanguiferous system. This effect is, from the stomach, communicated to the rest of the system; and this, joined with their antiseptic power, renders them of the greatest utility in every kind of febrile disorder. Their power in this respect has been very generally taken notice of. Van Swieten speaks of the effects of a large quantity of cherries in the cure of a maniac; and makes some observations of the like effects of a large quantity of fruits, in certain melancholic cases. These effects, Dr. Cullen says, may be imputed to the constant diarrhœa which such large quantities of fresh fruits produce; nevertheless he is at the same time well persuaded of their general refrigerant and sedative power. To this last he ascribes their effects in the cases mentioned; and in this opinion he thinks we are no less strongly confirmed, by their mischievous property of producing dyspepsia and atonic gout. The same consideration also favours the supposition, that, in many cases, they may occasion the coming on, or return of, intermittent fevers, as Galen has alleged.

The effects here mentioned depend especially upon the acid present in the composition of fruits, and which acid enters, in a certain proportion, into the composition of the animal fluid. See ALIMENT. But though necessary in the stomach, it may be found there in excess, may increase the acescent fermentation within, and may thereby give occasion to the production of more acid than the other fluids of the stomach can properly involve. In this manner, therefore, they may give occasion to all the disorders of an excess of acidity in the stomach.

Acidity, whether artificially or naturally produced, is carried into the intestines, and there mixed with the bile, by which it is more entirely involved: and as we know that acid united with the bile takes off its bitterness, it is probable that acid fruits taken in, are often useful in obviating the disorders that might arise from a redundancy of bile, and perhaps from its acrid quality. On the other hand, however, if the acids are in greater quantity than can be corrected by the bile present, they seem, by some union with that fluid, to acquire a purgative quality, that produces a diarrhœa, and even colic pains.

Acids, entering into the composition of the proper animal fluid, thereby render it less putrescent than it would otherwise be. Hence the instinct of man leads him to the use of the *fructus acido-dulces* in warm climates and seasons, and in other circumstances that are known to increase a tendency to putrefaction. The remarkable effects of vegetable acids and acescents in the cure of the scurvy, do not allow us to doubt either of their manner of operating, or of the nature of that disease. But the acidity of these fruits is almost always accompanied with more or less of sugar; and thence more readily runs into a fermentation, by which acidity, and all its effects, are greatly increased. Hence also an unusual quantity of air is extricated, and occasions that flatulency of the stomach and intestines, with which the use of those fruits is so commonly accompanied. We find, however, that our saccharine fruits are nutritive in proportion to the quantity of sugar they contain. In what manner sugar enters into the composition of the animal fluid, or how it acquires the qualities it puts on in that case, Dr. Cullen does not venture to explain; but he has no doubt that it does so in fact; and he is well persuaded that the saccharine matter, as well as the acid, has a share not only in obviating the putrescency of the animal fluid, but also of correcting it when it has gone too far.

"The qualities we have taken notice of in fruits," says the Dr. "have their effects chiefly in the first passages: even the changes they can produce in the mass of blood are all of them, if I mistake not, begun in the same first passages; and how far they have peculiar effects in the course of the circulation, I cannot well determine. They probably have a tendency to increase the saline state of the blood; and therefore it is very possible that, when they are taken in larger proportion than usual, they may evince diuretic powers; but we judge that such appear only when fruits carry along with them a large proportion of water, as in the case of the *water-melon.*"

In the progress of their growth and maturation, most of the fruits discover, upon their first advance towards succulency, more or less acerbity; but upon their succulency being advanced still farther, there is more acidity evolved, and less acerbity is perceived. In those capable of acquiring sweetness, this property appears more and more, while the acerbity and acidity are constantly diminishing, and sometimes in their state of perfect maturity, a full and almost unmixed degree of sweetness prevails.

With these changes in the quality of their juices, fruits suffer a change in their texture. At first they are firm and dense; but as their succulency advances, they become more soft and tender; and with their maturity they acquire the most succulent and tender state they are capable of. In most fruits, we can distinguish between the softer pulp and firmer cortical part; and in the progress of their maturation, we find their pulp, in the innermost parts, constantly increasing, while the firmer and external cortical part is constantly diminishing. After fruits have, in these respects of their juices and texture, acquired their maturity, they suffer some further changes, to a farinaceous or to a putrid state, not easy to explain; nor is it material, as these changes give them no important qualities, either in diet or medicine.

The peculiarities that take place in the several genera and species, Dr. Cullen thinks may be readily distinguished. Thus some fruits remain constantly in an acerb state, while others advance to a more pure acidity, hardly acquiring any sweetness. A third kind advances to a sweet state, still retaining more or less of their acidity; while others, retaining little or none at all of this, acquire a full sweetness. Upon these circumstances, as they take place in particular fruits, both the dietetic and medicinal qualities of each may be ascertained. As the full evolution of their saccharine matter is the most perfect state of alimentary fruits; so whatever contributes to this, contributes to bring them to their utmost perfection: and therefore, in climates where fruits cannot remain long enough to ripen on the trees, their due maturity may be supplied afterwards by long keeping, in the course of which they acquire a greater tenderness of texture; and this is sometimes, though not always, promoted by applying external heat.

These fruits are rendered more suitable for the purposes of diet, by boiling, baking, or roasting. In this way, acerb and unripe fruits have their saccharine matter much more evolved, and the effects of their unripe state very much prevented; particularly as, by these practices, a great deal of their air is dissipated, and they are consequently less disposed to an acescent fermentation. Some persons eat unripe fruits in considerable quantity; and thereby expose themselves to much danger. The firmer the texture of unripe fruits, with the more difficulty are they dissolved. Remaining long in the stomach unmixed with the other fluids, they are therefore liable to acquire a greater degree of acidity, and to occasion all the disorders that may be expected to arise from that excess. There are indeed stomachs whose gastric liquor may obviate all this; but certainly in many cases it may fail; and therefore the taking in of unripe fruits, or even of too large a quantity of the ripest, is always hazardous, and may be very hurtful.

For an account of the particular kinds of summer-fruits, we must refer the reader to their particular names, and to the articles POMACEÆ, and JUICES. The qualities of these, Dr. Cullen says, will depend on the acerb, acid, or saccharine matter, in their constitution, whether that depends upon their specific nature or upon their state of maturation; and in all cases to be readily ascertained by the taste. The *Drupaceæ*, or stone-fruits, have commonly a larger proportion of acid with respect to their sugar than some other fruits; and therefore in their recent state they enter more readily into a noxious fermentation, and produce colic, and diarrhœa, which we have mentioned above. This is especially the case with the cherry and plum kind, and Dr. Cullen also thinks with peaches; but he is disposed to judge favourably of the apricot as the safest of the drupaceous tribe.

The *fructus recentes* may be considered as constantly laxative; but as alimentary matters they are frequently taken in without showing any laxative effects; and though, in costive habits, they may be employed more largely as aliments, they are hardly ever to be prescribed as medicines; because the large quantity, in that case to be prescribed, will always be of uncertain effect, and may as readily produce a diarrhœa as prove a suitable cure of costiveness.

The mischiefs that arise from the custom which many people have, of swallowing the stones of plums and other fruit, are very great. The Philosophical Transactions give an account of a woman who suffered violent pains in her bowels for 30 years, returning once in a month or less. At length, a strong purge being given her, the occasion of all these complaints was driven down from the bowels to the anus; where it gave a sensation of distension and stoppage, producing a continual desire of going to stool, but without voiding any thing. On the assistance of a careful hand in this case, there was taken out, with a forceps, a ball of an oval figure, of about ten drachms in weight, and measuring five inches in circumference. This had caused all the violent fits of pain which she had suffered for so many years; and, after voiding it, she became perfectly well. The ball extracted looked like a stone, and felt hard, but it swam in water. On cutting it through with a knife, there was found in the centre of it a plum-stone; round which, several coats of this hard and tough matter had gathered. Another instance, given in the same work, is of a man, who, dying of an incurable colic which had tormented him many years, and baffled the effects of medicine, was opened after death; and in his bowels was found a ball similar to that abovementioned, but somewhat larger, being six inches in circumference, and weighing an ounce and an half. In the centre of this, as the other, there was found the stone of a common plum; and the coats were of the same nature with those of the former. These and several other instances, mentioned in the same place, sufficiently show the folly of that vulgar opinion, that the stones of fruits are *wholesome.* Foreign bodies, pressing against the rectum, have been known to produce fistula in ano (See FISTULA); and cherry-stones, swallowed in great quantities, have also in many instances occasioned death.

FRU'CTUS SICCA'TÆ, dried fruits; recent fruits dried in the sun, or by the fire, with other ingredients sometimes added to them for their preservation. These are imported chiefly from abroad, and sold by the grocers. Such are raisins, currants, figs, capers, olives, cloves, nutmegs, pepper, and other spices; which see under their respective articles. Under the denomination of *dry fruits* are also frequently included apples and pears, whose moist particles have been in part dissipated by the application of heat; also almonds, filberds, &c. Dr. Cullen says, the *fructus siccatæ* are certainly laxative, though not so much so as the *recentes.* They are employed, however, with more safety, as being deprived of their air. They are also, for the most part, less acescent, and therefore less liable to have their acidity in excess; but at the same time it is to be observed, that the fruits which have more acid in their composition are more laxative than those more purely sweet; and it is on this account that dried prunes are constantly preferred to raisins for medical purposes. With regard to all the dried fruits, Dr. Cullen remarks, that they are more powerful when they have been boiled, or otherwise exposed to a considerable heat, than when taken in their raw state; probably for this reason, that being heated, much of their air is exhaled, so that they are less liable to any excess of fermentation.

Much of the same nature and qualities with the dried fruits are the *Cassia Fistularis*, and *Tamarindus* (see those articles). The former is now indeed hardly ever employed by itself, and almost only as entering into some officinal compositions, in which, however, its peculiar utility is not evident. Dr. Cullen particularly tried it with manna; but never found the effects of it to be such as Valisnieri alleges. He says, the pulp of prunes may be employed in the place of this more expensive and precarious article.

FRU'CTUS UMBILICA'TUS, in botany, umbilicated fruit. It is that which had the other parts of the flower growing on its top, when it was an ovary. They usually exhibit a cavity, which is known by the name of the *umbilicus*, or navel, as in the medlar, apple, &c.

FRUITS, in a general sense, denote whatever vegetable substances the earth produces for the nourishment and support of animals; expressed by the Latins under the name of *fruges.* More particularly, however, by fruits, are denoted the last productions of a tree or plant, designed for the propagation or multiplication of its kind. In this sense, fruit includes all kinds of seeds, with their furniture, &c.

FRUMENTACEOUS, in botany, a term applied to all such plants as have a conformity with wheat, either with respect to their fruit, leaves, or ears.

FRUME'NTUM, wheat. See TRITICUM.

FRU'TEX, in botany, a SHRUB. Shrubs, according to Linnæus, make a branch of the seventh family in the vegetable kingdom; and are distinguished from trees, in that they come up without buds. But this distinction is not universal, though it be generally just with regard to those of Europe. Nature has made no absolute distinction between trees and shrubs. *Frutex*, in its general acceptation, is a plant whose trunk is perennial, gemmiparous, woody, dividing and subdividing into a great number of branches. In short, it is the epitome of a tree, exemplified in the rose-bush.

FRUTICO'SUS, in botany, fruticose: such are plants which are of a hard woody substance.

FUCOI'DES, a species of plant which grows in water. It is of a middle nature, betwixt *Converva* and *Corallina*, and *Fucus.* It is often finely divided, and of a more tender substance than the *fucus*, and not distinguished by nodes and joints, like the *converva* and *corallina.*

FU'CUS ESCULE'NTUS, eatable fucus, or BLADDER-LOCKS, commonly called *tangle* in Scotland, is likewise a native of the British shores. It is commonly about four feet long, and seven or eight inches wide; but is sometimes found three yards or more in length, and a foot in width. Small specimens are not above a cubit long, and two inches broad. The substance is thin, membranaceous, and pellucid; the colour green or olive. The root consists of tough cartilaginous fibres. The stalk is about six inches long and half an inch wide, nearly square, and pinnated in the middle between the root and origin of the leaf, with ten or a dozen pairs of thick, cartilaginous, oval-obtuse, foliaceous ligaments, each about two inches long, and crowded together. The leaf is of an oval-lanceolate, or long elliptic form, simple and undivided, waved on the edges, and widely ribbed in the middle from bottom to top, the stalk running through its whole length, and standing out on both sides of the leaf. This fucus is eaten, in the north, both by men and cattle. Its proper season is in the month of September, when it is in greatest perfection. The membranous part is rejected, and the stalk only is eaten. It is recommended in the disorder called *pica*, to strengthen the stomach and restore the appetite. See Pica.

FU'CUS VESICULO'SUS, bladder-fucus, common sea-wrack, or sea-ware; a marine plant, growing in great abundance on the rocks about low-water mark. It is the *Fucus vesiculosus ; fronde plana dichotoma costata integerrima, vesiculis axillaribus geminis, terminalibus tuberculatis*, Linn. It produces its fructifications in July and August. It has the same habit, colour, and substance, as the *fucus serratus;* but differs from it in the following respects: the edges of the leaf have no serratures, but are quite entire. In the disc or surface are immersed hollow, spherical, or oval air-bladders, hairy within, growing generally in pairs, but often single in the angles of the branches, which are most probably air-bladders destined to buoy up the plant in the water. Lastly, on the summits or extreme segments of the leaves, appear tumid vesicles about three quarters of an inch long, sometimes oval and in pairs, sometimes single and bifid, with a clear viscid mucus interspersed with downy hairs.

Linnæus informs us, that the inhabitants of Gothland in Sweden, boil this fucus in water, and, mixing therewith a little coarse meal or flour, feed their hogs with it; for which reason they call the plant *swine-tang*. And in the Hebrides, the inhabitants dry their cheeses without salt, by covering them with the ashes of this plant. But the most beneficial use to which the fucus vesiculosus is applied, is in making pot-ash, or kelp, a work much practised in the Western Isles. Its virtues, in a medical view, have been much celebrated by Dr. Russel, in his Dissertation concerning the use of Sea-water in the Diseases of the Glands. He found the saponaceous liquor, or mucus, in the vesicles of this plant, to be an excellent resolvent, extremely serviceable in dispersing all scorbutic and scrophulous swellings of the glands. He recommends the patient to rub the tumor with these vesicles, bruised in his hand, till the mucus has thoroughly penetrated the part, and afterwards to wash with sea-water. Or otherwise, to gather two pounds of the tumid vesicles, in the month of July, when they are full of mucus, and infuse them in a quart of sea-water, in a glass-vessel, for the space of 15 days, when the liquor will have acquired nearly the consistence of honey. Then strain it off through a linen cloth, and rub this liquor with the hand, as before, three or four times a-day, upon any hard or scrophulous swellings, washing the parts afterwards with sea-water; and nothing can be more efficacious to disperse them. Even scirrhosities, he says, in women's breasts, have been dispelled by this treatment. The same author, by calcining the plant in the open air, made a very black salt powder, which he called *vegetable æthiops;* a medicine once much in use as a resolvent and deobstruent, and recommended also as an excellent dentifrice, to correct the scorbutic laxity of the gums, and to take off the foulness of the teeth. In this state, the fucus very much resembles burnt sponge.

FU'LCRUM, in botany, a prop, is a term used to express those small parts of plants, of which the chief use is to strengthen and support them. *Fulcra* are of seven kinds: viz. *Stipula*, a scale or small leaf; *Bractea*, a floral leaf; *Spina*, a thorn; *Aculeus*, a prickle; *Cirrhus*, a clasper or tendril; *Glandula*, a gland; and *Pilus*, a hair. See Botany.

FULI'GO, (*quasi fumiligo*, from *fumus*, smoke); soot. *Fuligo ligni*, wood-soot, or the condensed smoke from burning wood, has a pungent, bitter, and nauseous taste; and is resolved by chemical analysis into a volatile alkaline salt, an empyreumatic oil, a fixed alkali, and an insipid earth. The tincture prepared from this substance, *tinctura fuliginis*, was formerly recommended as a powerful antispasmodic in hysterical affections; but the assafœtida in it, was probably the most efficacious ingredient, and for this reason the Colleges have rejected it.

FULIGINOUS, (from *fuligo*, smoke), an epithet applied to any exhalations of the nature of smoke. Some make a needless distinction between *fuligo* and *fumus*.

FULLER'S-EARTH; a species of fat clay, of a greyish ash-coloured brown, in all degrees from very pale to almost black; having also generally something of a greenish cast. It is very hard and firm, of a compact texture, of a rough and somewhat dusty surface that adheres slightly to the tongue. It is very soft to the touch, not staining the hands, nor breaking easily between the fingers. It has a little harshness between the teeth, and melts freely in the mouth. Thrown into water, it makes no ebullition or hissing: but swells gradually in bulk, and falls into a fine soft powder. It makes no effervescence with nitrous acid. This earth, in a moistened state, is applied by nurses to the nates of infants to defend them from excoriation. The use of it instead of soap, in washing the hands, is also said to prevent chapping of the skin in frosty weather. The greatest quantity and the finest earth of this kind in the world, is dug in the pits at Wavedon, near Woburn in Bedfordshire.

FULMINA'TIO, (from *fulmen*, thunder), in chemistry, fulmination; a quick and lively explosion of bodies, such as takes place in fulminating gold, fulminating powder, and in the combustion of inflammable gas and vital air. The *Fulminating Powder*, is pre-prepared thus:

Mix three parts of nitre, two of fixed alkaline salt, and one of sulphur.

This composition has the property of detonating in the open air, with a considerable explosion, when gradually heated so as to liquefy it.

FUMA'RIA, (from *fumus* smoke; its juice, when dropped into the eye, producing the same sensation as smoke), common FUMITORY, an indiginous plant. It is the *Fumaria officinalis pericarpiis monospermis racemosis, caule diffuso*, Linn. Class, *Diadelphia.* Order, *Decandria.* The leaves are directed for medicinal use by the Edinburgh college; they are extremely succulent, and have no remarkable smell, but a bitter, somewhat saline taste. This plant has been supposed, by physicians of the first authority, both ancient and modern, to be very efficacious in removing obstructions of the viscera, particularly those of the hepatic system. It is also highly commended in scorbutic and acrimonious states of the fluids; and therefore employed in various cutaneous diseases, taken in pretty large doses, especially the juice mixed with whey. When used as common drink, it proves diuretic and laxative. Dr. Cullen found it useful in many cases, wherein bitters are prescribed; but he says, its remarkable virtues are those of clearing the skin of many disorders; and in this way he experienced its good effects in many instances of cutaneous affection, which he would call *lepra.* The dose is two ounces of the expressed juice twice a-day; or, the dried root may be given in infusion or decoction, or the extract; for these all retain the virtues of the fresh herb.

FUMA'RIA BULBO'SA. See ARISTOLOCHIA FABACEA.

FUMA'RIA OFFICINA'LIS; the systematic name of the fumitory. See FUMARIA.

FUMIGA'TION, *(fumigatio*, from *fumus*, smoke;) the external application of substances, in a state of vapour, for the cure of diseases. Since our knowledge of the absorbent system has become extensive, there has been no difficulty in comprehending the effects produced on the system by medicines applied to the skin. The palsies produced among water-gilders, workers in lead-mines, &c. are now not less perfectly understood, than the benefits received, in many cases, where the air is impregnated with salutary materials. Catarrhs and colds, for instance, are relieved by fumes received with the breath (see CATARRHUS): by the same means, expectoration is assisted in the asthma; and even ulcers in the lungs are said to have been relieved by this method. But this is still more strongly exemplified by the use of mercury after this way. See FUMIGATION, MERCURIAL.

FUMIGATION, MERCURIAL; one of the modes by which surgeons affect the constitution with mercury, in syphilitic cases. This was much employed by the celebrated Astruc, afterwards revived in France by the Chevalier Lalonette; and, by Mr. Abernethy, lately recommended in his Surgical Cases, where some cases are related which clearly show the advantages that attend this method of employing mercury. The grounds of preference in favour of fumigation are, according to this writer, *First*, from its affecting the constitution when other means have failed; and, *Secondly*, from its producing its effects in a much shorter time than the other modes require. The term, "*mercurial fumigations*," is apt to excite wrong ideas of this method. Fumigations have been often employed to correct *local* diseases; and have then, by design, been made of an *acrid* quality. And even when they were formerly employed with a view of affecting the constitution, it was at a time when the chemical compounds of quicksilver were not understood, and sufficient attention was not paid to those circumstances on which the success of their application depends.

Lalonette, who was a physician at Paris, in the space of thirty-five years, successfully employed this method in more than four hundred cases, that had resisted all the ordinary means of cure. He enclosed the patient, previously undressed, in a kind of box resembling a sedan chair, with an opening at the top to let out the head, and another at the bottom, to which was fitted a small grate or furnace, having in it a heated iron for converting the mercurial powder into fume. The preparation he made use of was a kind of calomel, which, by repeated sublimation from iron-filings, was so far deprived of its muriatic acid, as to be in part reduced into running quicksilver; and, while it possessed considerable volatility, was perfectly irritating. Some of this powder being strewed upon the hot iron placed below, was immediately converted into smoke, which surrounded the patient's body, and after some time settled on his skin in the form of a white and very fine calx of quicksilver: a complete dress, having its inner surface fumigated with the same powder, was then put on. The remedy being thus generally applied to the mouths of the cutaneous absorbents, soon got admission into the circulating fluids; and the constitution became thereby more speedily affected than by any other process known before.

The feelings of the patient during this process, are not at all unpleasant, provided the heat be properly regulated; there is nothing uncleanly or disagreeable in the powder applied to the skin; and, in fact, all who have had an opportunity of comparing it with the common method by *inunction*, have been aware of the superior advantages attending it.

Mr. Abernethy relates some cases in which fumigation accomplished, with facility, the cure of complaints which had resisted long-continued mercurial courses, both by friction and internal exhibition. Indeed, "it is reasonable to think," he says, "that this object will be more certainly obtained by the absorption thus taking place from almost the whole surface of the body, than by any other method hitherto devised. Yet it is but right to say, that my hopes of success from it have not always been fulfilled; and that, in some few cases where mercury showed a particular tendency to act on the bowels without affecting the mouth, the mercurial fumes seemed to produce this effect even sooner than the ointment had done: and in one young man, whose mouth neither frictions nor the internal use of mercury could be made to affect, but in whom they occasioned constant tremors of the muscles, and spasms of the bowels, the fumigations were not attended with any better success. Happily, however, such cases are rare; and in general the fumigations affect the constitution speedily, and in the usual manner."

The *fumigating powder* of Lalonette being a very operose and expensive preparation, and having no advantage over one made by abstracting the muriatic acid from calomel, Mr. Abernethy employed the following in lieu of it:

Two drachms of aqua ammoniæ were added to six ounces of distilled water, and four ounces of calomel thrown into this liquor, and shaken up with it. The powder is afterwards separated by a filter, and dried.

The powder thus obtained, is of a grey colour, and contains a good deal of quicksilver in its metallic state, which of course is extremely volatile, but becomes oxidated when raised into fume, and afterwards condenses into a white and very fine dust.

Mercurial fumigation, however, was not found to be well adapted to hospital practice; for sometimes the iron was too much heated, and the patients were made, by this means, to perspire profusely, so that the powder was formed into a paste, which was irregularly incrusted on the skin. Besides, the patients could not be induced to wear a complete under-dress; and in that case the powder was wiped away, and the plan of treatment frustrated: for the design is, to allow of a constant absorption of this subtile preparation of quicksilver, from the whole surface of the body. Nevertheless, it must surely be an advantage to be able, in the generality of patients, not merely in venereal, but in other diseases, to produce so sudden and complete a *mercurial* affection of the system as has been evinced in these trials.

It has been objected, that fumigation cannot be depended on for the cure of syphilis. But Mr. Abernethy says he never knew it fail, nor can we see why mercury, used thus, should, when absorbed, prove less effectual than when this mineral is combined with lard in the common ointment. If fumigations in this mode have failed, it may have been owing to their being improperly managed. Thus, if administered frequently and largely at first, they may have considerably affected the mouth, without proportionally affecting the constitution in general; or, from the quickness with which they heal venereal ulceration, the cure may have been too soon supposed complete, and their use discontinued before they had entirely eradicated the disease. Under proper management, there is no doubt, but mercury, employed in this manner, must be adequate to the cure of every variety of the disease.

Mr. Abernethy describes another way in which mercurial fumigations may be occasionally employed with advantage, though the benefit is less important; and perhaps this method may be regarded merely as a refinement in the practice of surgery. In local disease of the joints, such as white swellings of the knee, and in sarcomatous enlargements of the breast in women, Mr. Sharp and Mr. Blicke have been long accustomed to direct fumigated stockings, or under-waistcoats, to be worn. By this means the complaints have been relieved, and the constitution affected, without the unpleasantness arising from mercurial frictions.

FUMIGATION, NITROUS; a process by means of which the nitrous acid, in a state of vapour, is dispersed through the apartments of those who lie sick of infectious fevers. This means of destroying contagion in prisons, ships, and other crouded places, was first proposed by Dr. Carmichael Smyth, who, after producing various and irrefragable proofs of its safety and efficacy, received a reward from parliament for his ingenuity. When this fumigation is undertaken on board of a ship, the ports and scuttles are closed; a number of pipkins, containing hot sand, are procured: and, into each of the latter, is plunged a small tea-cup, containing about half an ounce of sulphuric acid. As soon as the acid is properly heated, an equal quantity of nitre, pulverised, is gradually added, and the mixture stirred with a glass rod. Vapours now ascend, which result from a decomposition of the nitre, and the pipkins, in this state, are carried, by the nurses and convalescents, to different parts of the ward or apartment, and even placed, for a short time, under the cradles or beds of the sick, till every corner is properly impregnated with the vapour. In this proceeding, which is repeated every night and morning, no inconveuience is ever felt, either by the patients or attendants, except when the fumes are brought so near as to be drawn into the lungs before their intermixture with the surrounding atmosphere; and in that case, they only produce a momentary coughing, which is of no consequence. Care is also taken to expose the infected bed-clothes and body-linen of the patients to the nitrous vapour during the fumigation; in about an hour after which, the fresh air is admitted from the ports and scuttles.

The pleasing and immediate effect produced by the nitrous vapour, in destroying the disagreeable and unwholesome smell, arising from the bodies of a number of sick persons crowded together, is very perceptible; and the salutary consequences soon become manifest, not only by an abatement in the malignity of the fever, but also by the entire stop which is soon put to the progress of infection. It should also be remarked, as a circumstance of no small importance, that, by this mode of fumigation, the atmospheric air, far from becoming noxious, as might be imagined, from its impregnation with the nitrous vapour, is *rendered purer and more fit for respiration.* Mr. Keir, an eminent chemist at Birmingham, says, the fumes in this process, are quite different from the ordinary red nitrous vapour in the distillation of *aqua-fortis*, or from that which exhales in the solution of metals by means of the latter. The nitrous vapour, raised in Dr. Smyth's method of fumigation, are *highly oxygenated*, and mixed with a large proportion of dephlogisticated air, which is extricated from the materials employed.

The following table, transmitted to the commissioners of sick and hurt, by Mr. Patterson, surgeon to the hospital for prisoners of war at Forton, affords a comparative statement, highly favourable to the practice of nitrous fumigation. It shows the greatest number of patients in the hospital, the weekly number discharged and dead, for four weeks before, and six weeks after, the nitrous vapour was applied; viz. from Oct. 16, to 26 Dec. 1796.

Before the Nitr. Vapour was used.				After the Nitr. Vapour was used.			
Week	Greatest No. in Hosp.	Disch.	Dead.	Weeks	Greatest No. in Hosp.	Disch.	Dead.
1	223	2	8	1	340	27	6
2	372	4	21	2	332	7	5
3	371	0	13	3	342	11	8
4	369	1		4	340	8	4
			9	5	486	12	1
				6	539	63	5
	Total,	7	51		Total,	128	29

Another effect, attributed, by this gentleman and others, to the diffusion of nitrous vapour in the wards of the hospital, is that of producing a favourable change in those *ulcers*, which, "on a sudden, and nearly at one and the same time," from a healthy state, "become foul, sloughing and putrid;" a very common circumstance in crouded hospitals.

The nature of contagion is involved in much obscurity. The disagreeable smells which commonly accompany it, seem to favour the idea of the combinations of hydrogen gas, with sulphur, carbon, and phosphorus; but whether these, separately or combined, be the contagion itself, a disposition of the atmosphere favourable to its production, or the vehicle of the contagion, is not easy to say. That these gases are generated from putrefying animal and vegetable substances, is well known; and also, that they produce fatal effects upon the human frame. But it is not quite so clear, that oxygen will unite with these gases at the common temperature of the atmosphere; and Dr. Yeats imagines it requires something more than mere contact to produce a chemical union between them. That oxygen is evolved by the nitric vapour, is proved from the most respectable authorities. According to the experiments of Berthollet, the palest nitric acid will give out oxygen upon exposure to the sun's light; and Lavoisier, in his Elements of Chemistry, says that nitric acid has but a slight hold of oxygen, and relinquishes it readily to a great number of bodies, by the assistance of a gentle heat. The fourth degree of the impregnation of azot with oxygen, the same eminent chemist has termed oxygenated nitric acid; and it is this, which, in fact, is disengaged in Dr. Smyth's fumigations.

The end in view, from nitrous fumigation, is, no doubt, to render the atmosphere purer by affording oxygen. Even Dr. Trotter, an opponent of this practice, or one rather who considers its merits as overrated, acknowledges, that *the nitric fumes neutralize the disagreeable smells by chemical agency*; but, we may add also, that the superabundant oxygen is let loose from the oxygenated vapour. Nevertheless, it is certain, that ventilation, cleanliness, and a free circulation of air, are by no means to be neglected; but though these have been carefully attended to in many cases supposed to have proved successful in consequence of nitrous fumigation, there is not the smallest reason for supposing, that the same happy result would have taken place without the intervention of the latter.

FUMITORY. See Fumaria.

FUNCTION, *(functio;* from *fungo*, to perform); the act of fulfilling the duties of any employment. This term, being also applied to the actions of the body, is, by physiologists, divided into vital, animal, and natural. The *vital* functions are those necessary to life, and without which the individual cannot subsist; as the motion of the heart, lungs, &c. The *natural* functions are such as it cannot subsist any considerable time without; as the digestion of the aliment, and its conversion into blood. Under *animal* functions are included the senses of touching, tasting, &c. memory, judgment, and voluntary motion: without any or all of which an animal may live, but not very comfortably. The animal functions perform the motion of the body by the action of the muscles; and this action consists chiefly in the shortening the fleshy fibres, which is called *contraction*, the principal agents of which are the arteries and nerves distributed in the fleshy fibres. All parts of the body have functions or actions peculiar to themselves. Life consists in the exercise of these functions, and health in the free and ready exercise of them. See Action.

FUNDAMENT, the lowest part of the intestinum rectum, called by anatomists the *anus*. See Anus.

FU'NGI, (from *σφονγος*, *fungus)*, in botany, the name of the 4th order of the 24th class of vegetables, in the Linnæan system; comprehending all those which are of the mushroom kind, and which, in Tournefort, constitute the 2d, 3d, 4th, 5th, 6th, 7th, and 8th genera of the first section in class 17. These plants are rarely branched, sometimes creeping, but most commonly erect. Such as are furnished with branches have them of a light spongy substance like cork. Mushrooms differ from the fuci, in that those which, like the fuci, have their seeds contained in capsules, are not branched, as that numerous class of sea weeds are. The greatest part of mushrooms have no root; some, instead of roots, have a number of fibres, which, by their inosculations, frequently form a net with unequal meshes, some of which produce plants similar to their parent vegetable. The stamina in these plants are still undetermined. The genera of this order are Agaricus, *Agaric;* Boletus; Byssus; Clathrus; Clavaria; Elvela; Hydnum: Lycoperdon; Mucor: Peziza, *Cup-mushroom;* Phallus, *Stinkhorns.* As a vegetable food, they are at best suspicious; and some of them are certainly poisonous.

Fungi are also an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus. The ancients called fungi *children of the earth*, meaning, no doubt, to indicate the obscurity of their origin. The moderns have likewise been at a loss in what rank to place them; some referring them to the animal, some to the vegetable, and others to the mineral kingdom. Messrs. Wilck and Münchausen have not scrupled to rank these bodies in the number of *animal* productions; because, when fragments of them or their seeds were macerated in water, these gentlemen perceived a quantity of animalcules discharged, which they supposed capable of being changed into the same substance. It was the ancient opinion, that beef could produce bees; but it was reserved for Messrs. Wilck and Münchausen to suppose, that bees could produce beef. Wilck asserts, that fungi consist of innumerable cavities, each inhabited by a polype; and he does not hesitate to ascribe the formation of them to their inhabitants, in the same way as it has been said that the coral, the lichen, and the mucor were formed. Hedwig has lately shown, how ill-founded this opinion is with respect to the lichen; and M. Durande has demonstrated its falsity with regard to the corallines. "Indeed (says M. Bonnet, talking of the animality of fungi) nothing but the rage for paradox could induce any one to publish such a fable; and I regret that posterity will be able to reproach our times with it."

It cannot be denied that the mushroom is one of the most perishable of all plants, and it is therefore the most favourable for the generation of insects. Considering the quickness of its growth, it must be furnished with the power of copious absorption; the extremities of its vessels must be more dilated than in other plants. Its root seems, in many cases, to be merely intended for its support; for some species grow upon stones or moveable sand, from which it is impossible that they can draw much nourishment. We must therefore suppose, that it is chiefly by the stalk that they absorb. These stalks grow in a moist and tainted air, in which float multitudes of eggs, so small, that the very insects they produce are with difficulty seen by the microscope. These eggs may be compared to the particles of the Bysses, 100,000 of which, as M. Gleditsch says, are not equal to the fourth of a grain. May we not suppose, that a quantity of such eggs are absorbed by the vessels of the fungus, that they remain there, without any change, till the plant begins to decay? Besides, the eggs may be only deposited on the surface of the plant, or they may exist in the water into which they are thrown for examination. Do we not see that such eggs, dispersed through the air, are hatched in vinegar, in paste, &c. and wherever they find a convenient nidus for their development? Can it be surprising then, that the corruption of the mushroom should make the water capable of disclosing certain beings that are really foreign to both?

It is not more easy to acquiesce in the opinion of those naturalists, who place the fungi in the mineral kingdom, because they are found growing on porous stones, thence called *Lapides Fungarii*; which, however, must be covered with a little earth, and be watered with tepid water, in order to favour the growth. Such mushrooms are no more the produce of the stone, than the lichen is of the rock to which it adheres, or the moss, of the tree on which it is found. We have only to observe the growth of mushrooms to be convinced, that this happens by development, and not by addition or combination of parts as in minerals. The opinion of Boccone, who attributed them to an unctuous matter performing the function of seed, and acquiring extension by apposition of similar parts; and Morison's, who conceived that they grew spontaneously out of the earth by a certain mixture of salt and sulphur, joined with oils from the dung of quadrupeds, have now no longer any adherents. Fungi are produced, they live, they grow by development; they are exposed to those different vicissitudes natural to the different periods of life which characterize living substances; they perish and die. They extract, by the extremity of their vessels, the juices with which they are nourished; they elaborate and assimilate them to their own substance, they are, therefore, organized and living beings, and consequently belong to the vegetable kingdom. But whether they are real plants, or only the production of plants, is still a matter in dispute with the ablest naturalists.

Some ancient authors have pretended to discover the seed of mushrooms; but the opinion was never generally received. Petronius, when he is laughing at the ridiculous magnificence of his hero Trimalcio, relates, that he had "written to the Indies for the seed of the morelle."

These productions were generally attributed to the superfluous humidity of rotten wood, or other putrid substances. The opinion took its rise from observing that they grew most copiously in rainy weather. Such was the opinion of Tragus, of Bauhin, and even of Columna, who, talking of the peziza, says, that its substance was more solid, and harder, because it did not originate from rotten wood, but from the *pituita* of the earth. It is not surprising that, in times when the want of experiment and observation made people believe that insects could be generated by putrefaction, we should find the opinion general, that fungi owed their origin to the putrescence of bodies, or to a viscous humour analogous to putridity.

Malphighi could not satisfy himself as to the existence of seeds which other botanists had pretended to discover. He only says, that these plants must have them, or that they perpetuate themselves and shoot by fragments. Micheli, among the moderns, appears to have employed himself most successfully on this subject. He imagined, that he not only saw the seeds, but even the stamina, as well as the little transparent bodies destined to favour the dissemination and the fecundation of these seeds. Before this author, Lister thought he perceived seeds in the *Fungus perosus crassus magnus* of John Bauhin: the little round bodies that are found in the pezizæ and helvellæ, at that time passed for seeds; which did not appear at all probable to Marsigli, considering that the eye, when assisted by the very best microscopes, could perceive nothing similar in much larger fungi. Indeed these bodies may be the capsules or covers of the seeds, if they are not the seeds themselves. However this may be, Marsigli, observing that fungi were often without roots or branches, and that they wanted flowers and seeds, the means which nature employs for the production of perfect plants, thought himself warranted in doubting whether these beings could be ranked in the number of vegetables.

The doubts of Marsigli prompted him to observe the formation of fungi. Their matrix he called *situs:* he imagined they grew in places where they met with an unctuous matter, composed of an oil mixed with nitrous salt, which, by fermentation, produced heat and moisture, and insinuated itself between the fibres of the wood; that is, he imagined them the production of a viscous and putrescent humour. Lancisi, in like manner, considered fungi as owing their existence to the putrefaction of vegetables, and supposed them a disease in the plant; but he imagined, "that the fibres of the tree were necessary to their production," as is the case in the formation of galls: he compared them to the warts and other excrescences of the human body. He added, that such fungous vegetable tumors must necessarily assume various forms and figures, from the fluids which distend the tubes and vessels relaxed by putrescence, from the ductility of the fibres and their direction, and from the action of the air.

This opinion has been refuted by the celebrated naturalist M. de Jussieu, in the Memoirs of the Academy of Sciences for the year 1728. He maintains, that the fungi have a great analogy with the lichen, which is allowed to be a vegetable; that, like the lichen, they are divested of stalk, branches, and leaves; that like it, they grow and are nourished upon the trunks of trees, on pieces of rotten wood, and on all sorts of putrid vegetables; that they resemble the lichen too in the rapidity of their growth, and the facility with which many of them may be dried and restored to their former figure, upon being immersed in water; and lastly, that there is a great similarity in the manner in which their seeds are produced. He affirms, that only the warts and excrescences which grow on animal bodies, and the knots and other tumors that are to be found on trees, can be compared with one another; for they are composed equally of the solid and liquid substance of the plant or animal on which they grow; whereas the matter of the fungi is not only quite distinct from that of the plants on which they are found, but often entirely similar to the substance of those that spring immediately from the earth.

The organization, says M. de Jussieu, which distinguishes plants and other productions of nature, is visible in the fungi; and the particular organization of each species is constant at all times and in all places; a circumstance which could not happen if there were not an animal re-production of species, and consequently a multiplication and propagation by seed. This is not, he says, an imaginary supposition; for the seeds may be felt like meal upon mushrooms with gills, especially when they begin to decay; they may be seen with a magnifying glass, in those that have gills with black margins: and, lastly, says he, botanists can have no doubt that fungi are a distinct class of plants, because, by comparing the observations made in different countries with the figures and descriptions of such as have been engraven, the same genera and the same species are every where found.

Notwithstanding this refutation by M. de Jussieu, another naturalist, M. de Necker, has firmly maintained, in his work entitled "*Mycitologia*," That the fungi ought to be excluded from the three kingdoms of nature, and be considered as intermediate beings. He has observed, like Marsigli, the matrix of the fungi: and has substituted the word *carchte* (initium faciens) instead of *situs;* imagining that the rudiment of the fungus cannot exist beyond that point in which the development of the filaments or fibrous roots is perceived. He allows that fungi are nourished and grow like vegetables; but he thinks that they differ very much from them in respect of their origin, structure, nutrition, and rapidity of growth. He says, that the various vessels which compose the organization of vegetables are not to be found in the fungi, and that they seem entirely composed of cellular substance and bark: so that this simple organization is nothing more than an aggregation of vessels endowed with a common nature, that suck up the moisture in the manner of a sponge; with this difference, that the moisture is assimilated into a part of the fungus. Lastly, that the fructification, the only essential part of a vegetable, and which distinguishes it from all other organized bodies, being wanting, fungi cannot be considered as plants. This he thinks confirmed by the constant observation of those people who gather the morelle and the mushroom, and who never find them in the same spots where they had formerly grown. As the generation of fungi, says M. Necker, is always performed when the parenchymatous or cellular substance has changed its nature, form, and function, we must conclude that it is the degeneration of that part which produces these bodies.

But, if fungi were owing merely to the degeneration of plants, they would be still better entitled to constitute a new kingdom. They would then be a decomposition, not a new formation or new bodies. Besides, we cannot deny that, in those bodies which form the limit between the animal and vegetable kingdoms, the organization becomes simple, as the organs destined for nutrition are multiplied; but, as the last in the class of insects belongs to the animal kingdom, fungi ought, notwithstanding the simplicity of their organization, still to belong to the vegetable kingdom. The parenchymatous or cellular substance, which, as Mr. Bonnet says, is universally extended, embraces the whole fibrous system, and becomes the principal instrument of growth, must naturally be more abundant in these productions; and this accounts for the rapidity of their enlargement. Besides, growth, whether slow or rapid, never was employed to determine the presence or absence of the vegetable or animal character. The *draba verna*, which in a few weeks shoots, puts forth its leaves, its flowers, and fruit, is not less a plant than the palm. The insect that exists but for a day is as much an animal as the elephant that lives for centuries. As to the seeds of the fungi, it is probable that nature meant to withdraw from our eyes the dissemination of these plants, by making the seeds almost imperceptible; and it is likewise probable, that naturalists have seen nothing but their capsules. Since, however, from the imperfection of our senses, we are unable to perceive these seeds, ought we to infer that they do not exist? Are we authorized to conclude this, because we do not find mushrooms where we have found them a year before? Undoubtedly not; for the greater part of plants require a particular soil, and the same mould that this year will foster a rare plant will next year allow it to perish. Neither are we at liberty to deny the existence of these seeds, because those bodies which have been called their seeds, and the fragments or cuttings of the plants themselves, have not produced others of the same species. Nature seems to have reserved for herself the care of disseminating certain plants: it is in vain, for instance, that the botanist sows the dust found in the capsules of the orchis, which every one allows to be the seed. But, after all, what are those parts in the fungi casually observed by naturalists, and which they have taken for the parts of fructification? These are quite distinct from the other parts; and whatever may be their use, they cannot have been formed by a prolongation of the cellular substance, or of the fibres of the tree on which the fungus grows: they are therefore owing, like flower and fruit, to the proper organization of the plant. These plants, therefore, have a particular existence, independent of their putrefying nidus. The gills of certain fungi, which differ essentially from the rest of the plant in their conformation, would be sufficient to authorize this latter opinion. But can putrefaction create an organic substance?

Nature undoubtedly disseminates through the air, and over the surface of the earth, innumerable seeds of fungi, as well as eggs of insects. The plant and the animal are excluded, when the nidus or the temperature is favourable for their development. No fortuitous concourse, either of atoms or fluids, could produce bodies so exquisitely and so regularly organized. It is sufficient to throw one's eyes on the beautiful plates which Schæffer has published of them, and compare them, by the glass, with the warts and other excrescences of animals, to be convinced that they have not the same origin. The function of the cellular substance in vegetables must be greatly superior to that in animals, if it could produce any thing but deformities.

The greater part of fungi exhibit a configuration much too regular, constant, and uniform, to be the effect of chance or putrefaction. As this form is preserved the same in all places where fungi have been found, it follows, that they contain in themselves the principles of their re-production. They resemble the misletoe and other parasitic plants, which are perfectly distinct from the trees on which they grow. The fungi, therefore, are organized and living substances, or true plants. If the manner of their production is unknown, that of some insects is so too.

It is well known that poisonous effects are sometimes produced by fungi, even of the esculent species, taken into the stomach. For some remarks on the latter, which apply to the whole of this class of substances, see the article AMANITÆ.

FU'NGITÆ, a kind of fossile coral, of a conical figure, though sometimes flat and striated longitudinally.

FU'NGUS, in surgery, a spongy excrescence which arises in wounds and ulcers, commonly known by the name of *proud-flesh*, though often improperly so called. This luxuriance is commonly *produced*, by stimulating salves, particularly of the class named *digestives*. At present these are little resorted to; and when spongy granulations arise spontaneously, a compress and bandage, with the application of astringent powders, or dry lint, are sufficient to restrain them. White swellings are called *fungi*, by some of the ancient authors. In Vogel's *Nosology*, the term is made to signify a soft œdematous tumor of the joint.

FU'NGUS CE'REBRI, otherwise named *hernia cerebri;* a morbid protrusion, or unnatural growth from the substance of the brain, when exposed in cases of fractured skull, &c. Mr. Abernethy says, the formation of these funguses seems to proceed from an injury done to a part of the brain by concussion or contusion, which has terminated in a diseased state of the vessels, similar to what occurs in apoplexy. The morbid state increasing, one or more vessels give way, and an effusion of blood into the substance of the brain ensues, which, if the skull were entire, would probably occasion apoplexy, but, where there is a deficiency of bone that allows it to expand, presses the surface of the brain and its meninges through the vacant space. The dura mater soon ulcerates, and the tumor pushing through the openings, now increase with a rapidity proportioned to that with which the hæmorrhage takes place within. At last, the pia mater, and the stratum of the brain which cover the effused blood, are so extended as to give way, and the blood oozes out and coagulates. Thus the quick growth, and all the other phænomena observable in these tumors, are satisfactorily accounted for.

It seems probable, that similar injuries at other times give rise to the formation of abscesses in the substance of the brain, which are not easily ascertained, and which generally occasion the death of the patient.

The *plan of treatment* which Mr. Abernethy proposes is this: He says, where no bad symptoms precede the appearance of the tumor, or where they go entirely away upon its being freed from the confinement of the dura mater, it may, perhaps, be most prudent not to interfere in the treatment of the complaint; for probably the hæmorrhage will cease, and the coagulum will drop off in pieces, or gradually waste away, and be no more renewed. All that appears necessary, then, under such circumstances, is to cover the tumor and sore with some mild dressing, carefully avoiding all pressure, which, both reason and experience show, is likely to be attended with bad consequences. Should the bulk of the tumor, however, become inconvenient, or render pressure from the dressings unavoidable, the practice which present experience evinces to be most successful, consists in occasionally paring off the tumor with a knife. In this manner Mr. Hill, surgeon, in Dumfries, treated several cases with success.

But if the tumor continues to increase, and if the patient suffer a train of bad symptoms, apparently arising from irritation and pressure made on the brain, some further attempt to relieve him seems to be required. Under these circumstances, we have reason to suspect that the coagulum, from want of room to protrude, is enlarging internally; or that, by plugging up the orifice in the bone, it prevents the escape of some fluid collected within the cranium. The obvious mode of relief here appears to be, to enlarge the opening in the bone in proportion to the extent and increase of the tumor. Many surgeons have objected to the removal of much of the cranium, lest protusions of this kind should ensue; but it is evident that these tumors arise from an injury and consequent disease of a part of the brain, the event of which must be more fatal if the bone remain entire. A large removal of bone was formerly a frequent event; yet a protrusion of this kind very seldom took place.

But although, by thus allowing a free escape to the effused blood, we may prevent the injurious effects of its pressure on the brain, yet, Mr. Abernethy observes, the degree of hæmorrhage may endanger the life of the patient.

The quantity of blood effused will depend on the magnitude of the vessels, or on their disposition to bleed. As the disease is generally situated not far beneath the surface of the brain, there is less risque of its proceeding from the former cause. If it arises from the latter, it is very likely that the distension caused by the confinement of the effused blood would irritate the vessels, and keep up their disposition to hæmorrhage; therefore the treatment already recommended is likely to diminish it. But should the quantity of the hæmorrhage seem to threaten the life of the patient, it may be most proper to take away the coagulum, and to expose the cavity in the brain, in order to learn whether suffering some sudden loss of blood to take place, together with the exposure of the bleeding vessels, may not produce a beneficial change, and a cessation of the hæmorrhage.

Mr. Abernethy's inducement for proposing this plan of treatment is, that no other carries with it a probability of success. There is an impropriety in attempting to restrain the hæmorrhage by pressure; ligatures cannot be applied, and styptics are known to be dangerous in their effects. He says, it is obvious, from the nature of the substance of which the tumor is composed, that styptic remedies applied to its surface can have scarcely any effect in lessening its bulk, and none at all in putting a stop to its growth; and experience shows, that the more active of them are not only ineffectual, but highly dangerous.

Some good effects, we understand, have resulted from sprinkling these excrescences with the following:

℞ Myrrhæ in pulv. trit.
Lap. Calaminar. præp. sing. unc. ss. Misce fiat pulvis.

In the case of hæmorrhage continuing after the coagulum has been removed, and the vessels exposed, Mr. Abernethy submits whether some of the vegetable astringents diluted, such as infusion of galls, might not be successfully applied to stop the bleeding.

FU'NGUS IGNIA'RIUS. See AGARICUS.

FU'NGUS LARI'CIS. See AGARICUS ALBUS.

FU'NGUS MELITE'NSIS. Some botanists assert that this is improperly called a fungus, it being the *Cinomorium coccineum*, Linn. A drachm of the powder is given for a dose, in dysenteries and hæmorrhagies, and, we are told, with remarkable success.

FU'NGUS ROSA'CEUS. See BEDEGUAR.

FU'NGUS SA'LICIS; the WILLOW-FUNGUS. The species of fungus ordered in some pharmacopœias by this name is the *Boletus suavolens; acaulis superne lævis, salicibus*, Linn. It is the *Boletus albus* of Hudson. When fresh, it has a sub-urinous smell, and at first an acid taste, followed by a bitter one. It is used at present, very rarely; but was formerly given in phthisical cases.

FU'NGUS SAMBUCI'NUS. See AURICULA JUDÆ.

FUNGUS VINOSUS; a dark cobweb-like fungus, which vegetates in dry cellars, where wine, ale, and other liquors are kept.

FUNICULA'RIS, (from *funis*, a rope), an epithet formerly applied to a particular opinion in philosophy, maintained by Franciscus Linus, where the cohesion of bodies is accounted for from a property holding them together, as in the make of a *rope;* but it was successfully opposed and refuted by Mr. Boyle.

FUNI'CULUS, is strictly a little rope: but by anatomists applied to some parts that have a resemblance to a rope or chord in texture. The umbilical vessels, twisted into the navel-string, furnish an example.

FU'NIS UMBILICA'LIS. See UMBILICUS.

FUNNEL, an implement of pewter, tin, or glass, used by apothecaries, to convey liquids into narrow-mouthed vials. It consists of an inverted cone, from which a small tapering pipe descends.

FU'RCÆ, in botany, forks; a species of armature or offensive weapon, with which some plants are furnished. They are of the nature of prickles, being, like them, detached from the bark or outer rind only, and consisting of two or three prongs. The term is exemplified in berberry, currant-tree, triple-thorned acacia, hard seeded chrysanthemum, black horehound, barleria, *fagonia*, garden-burnet, and some other plants.

FU'RFUR, a term which signifies properly *husk*, or *chaff;* therefore is used for *scurf* or *dandriff*, that grows upon the skin, which bears some likeness to bran. Hippocrates frequently uses ϖιτυρωδης, *furfurea*, to express a peculiar sediment in the urine like bran; and Galen, with many others, have termed ϖιτυριασις; *furfuratio*, such dry scaly eruptions of the skin as are seen in leprosies, and in scorbutic affections. See PITYRIASIS.

FURFURACEOUS, (*furfuraceus*, from *furfur*, bran); a term applied to the sediment deposited in the urine of persons afflicted with fever, of a reddish or whitish matter, which generally appears within an hour or two after the urine is passed, and only falls in part to the bottom, the urine remaining turbid.

FURNACE, a chemical utensil or vessel proper to contain fire, or to raise and maintain a vehement fire in, whether of coal or wood. Of these there are a great variety, according to the different uses to which they are applied. In all furnaces the principal things to be attended to are, 1. To confine the heat as much as possible to the matter to be operated upon; 2. To prevent its being dissipated; 3. To produce as much heat with as little fuel as possible; and, 4. To have it in our power to regulate the degree of heat according to our pleasure.

To answer the first intention, the fire is usually confined in a chamber or cavity built on purpose for it, and furnished with a door for putting in the fuel; a grate for supporting it, and allowing air to pass through, as well as the ashes to drop down into a cavity provided on purpose, and called the *ash-pit.* Thus the heat produced by the inflamed fuel is confined by the sides of the furnace, and obliged to spend great part of its force upon the subject inclosed.

The second intention, *viz.* to prevent the dissipation of the heat, is obtained by shutting the door of the furnace; taking care that the chimney be not too wide, and that the matter to be acted upon be placed in such a manner that the fire may have its full effect upon it as it goes up the chimney.

The third intention, which is the most important, is at the same time the most difficult to answer, and depends entirely upon the proportion between the spaces betwixt the furnace bars and the wideness and height of the chimney. This will appear from a consideration of the principles on which the degrees of inflammation are produced. These depend entirely on the current of air which passes through the inflamed fuel. As soon as the fuel is set on fire, a certain degree of heat is produced; but unless a constant influx of air is admitted through the burning fuel, the fire is instantly extinguished; nor is it possible by any means to renew the inflammation until we admit a stream of fresh air among the fuel. When this is done, a rarefaction commences in the air of the fire-place of the furnace; so that it is no longer a counterpoise to the external air, and is therefore driven up the chimney by that which enters at the ash-pit. This again, passing through the fuel, is rarefied in its turn; and giving place to fresh quantities, there is a constant flow of air up the chimney. In proportion to the rarefaction of the air in the fire-place, the greater is the heat. But by a certain construction of the furnace, the under part of the chimney will become almost as strongly heated as the fire-place; by which means, though a very strong current of air is forced through the fuel, yet as great part of the heat is spent on the chimney, where it can be of no use, the fuel is wasted in a very considerable degree. To avoid this, we have no other method than to contract the throat of the chimney occasionally by a sliding plate; which when put quite in shuts up the whole vent, and, by being drawn out more or less, leaves a larger or smaller vent at pleasure. This plate ought to be quite drawn out till the fuel is thoroughly kindled, and the furnace well heated, so that a current of air may flow strongly through the fuel. After this the plate is to be put in a certain length, so as just to prevent the smoke from coming out at the door of the furnace. The rarefaction of the air in the fire-place will solicit a very considerable draught of air, which will keep the fuel inflamed to a great degree; at the same time that the heat, being reflected from every part of the furnace excepting that narrow passage where the smoke goes up, becomes very intense. A large quantity of fuel may be put in at once, which will consume slowly, and thus require but little attention in comparison with those furnaces where no such precaution is used. The sliding-plate may be made of cast-iron in those furnaces where no great heat is excited; but in others fire-clay will be more convenient. The contrivance, however, is scarce applicable to those furnaces where great quantities of metal are to be melted; and accordingly the waste of fuel there is immense. It is computed, that the iron works of Carron in Stirlingshire, consume annually as many coals as would be sufficient for a city containing 700,000 inhabitants.

The fourth intention, *viz.* that of regulating the heat, is accomplished by allowing only a certain quantity of air to pass through the fuel. For this purpose, according to Dr. Black, it is necessary to have the command of the furnace below; the parts above being frequently filled with small quantities of soot. The best method of managing this is to shut up the door of the ash-hole perfectly close, and to have a set of round holes bearing a certain proportion to one another; and their areas being as 1, 2, 4, 8, 16, &c. Seven or eight of these ought to be made in the door of the ash-pit, which will give a sufficient command over the fire. When the fire is to be increased to the utmost, all the passages both above and below are to be thrown open, and the height of the vent augmented; which, by increasing the height of the column of rarefied air, increases also the motion of that through the fuel, and of consequence also the heat of the furnace. Macquer recommends another tube applied to the ash-pit, widest at the end farthest from the furnace, and tapering gradually towards it. The intention of this is to augment the current and velocity of the air by its being made to pass from a wider into a narrower vent; but though this is no doubt true, the air will not ultimately move with greater velocity than if the tube were not there. It can only be useful, therefore, in cases where the furnace is placed in a small room, and the tube itself has a communication with the external air.

The furnaces required for the purposes of the chemical laboratory are, the Evaporatory-Furnace, the Reverberatory-Furnace, and the Forge-Furnace, which we shall here severally describe; observing, that an account is already given, under the article Chemical Apparatus, of some furnaces, of modern contrivance, for the purposes of *experiment.*

1. *The Evaporatory Furnace.*—This furnace has received its name from its use. It is employed to reduce liquid substances into vapour by means of heat, in order to separate the more fixed principles from those which are more ponderous, and which were mixed, suspended, compounded, or dissolved in the fluid. The fire-place is covered by the evaporatory vessel; and two or three grooves, channels, or depressions, are

made in the sides of the furnace, near its upper edge, to facilitate the drawing of the fire. The vessel which contains the substance to be evaporated, is called the *evaporatory vessel.* Vessels of this kind are generally formed of earth, glass, or metal. Those made of unglazed earth are too porous, insomuch that liquids filtrate through their texture. Those of porcelain biscuit are likewise penetrable by liquids strongly heated. and suffer gaseous or aëriform substances to escape. The beautiful experiments of Mr. D'Arcet upon the combustion and destruction of the diamond, in balls of porcelain, serve to illustrate this subject. Mr. Chaptal has also confirmed his results by experiments in the large way, upon the distillation of aqua fortis, which loses as well in quality as quantity when the process is carried on in vessels of porcelain clay. Glazed earthen vessels cannot be used when the glazing consists of the oxides or calces of lead or copper, as those metallic matters are attacked by acids, fats, oils, &c. Neither can earthen vessels be employed which are covered with enamel, because this kind of opaque glass is almost always full of small cracks, through which the liquid would introduce itself into the body of the vessel. Earthen vessels cannot therefore be properly made use of, excepting in operations of little delicacy, in which precision and accuracy are not indispensably necessary. Evaporatory vessels of glass are in general to be preferred. Those which resist the fire better than any others, are prepared in the laboratory, by breaking a sphere of glass or a receiver into two equal parts by means of a red-hot iron; as the capsules which are made in the glass-house are thickest at the bottom, and consequently very liable to break at that part when exposed to the fire.

In manufactories, evaporatory vessels of metal are commonly made use of, and copper is most generally employed, because it not only possesses the property of resisting fire, but has a considerable degree of solidity, together with a facility of being wrought. Alembics are made of this metal, for the distillation of vinous spirits, and aromatic substances; and also caldrons or pots for the crystallization of certain salts, and for several dyeing processes, &c. Lead is likewise of considerable use, and should be made choice of whenever operations are to be performed upon substances which contain the sulphuric acid, such as the sulphates of alumine and of iron: and for the concentration and rectification of the *vitriolic acid.* Tin vessels are also employed in some operations; the scarlet-bath affords a more beautiful colour in boilers of this metal than in those of any other. Capitals of tin have already begun to be substituted in the room of those of copper, in the construction of alembics; and by this means the several products of distillation are exempted from every suspicion of that dangerous metal. Boilers of iron are likewise used for certain coarse operations; as, for example, in the concentration of the lixivia of common salt, of nitre, &c.

In some delicate operations vessels of gold, silver, or platina, are to be preferred: but the price and scarcity of these vessels do not permit them to be used, especially in the large way.

It is, however, from the nature of the substance to be evaporated, that the choice of the vessel most suitable to any operation must be determined. There is no particular kind of vessel which can be employed exclusively on all occasions. It may indeed be observed, that glass presents the greatest number of advantages, as it is composed of a substance the least attacked, the least soluble, and the least destructible by chemical agents.

The vessels employed in evaporation are known by the names of capsules, cucurbits, &c. according to their different forms. These vessels ought in general to be very wide and shallow, in order that the distillation and evaporation may be speedy and economical. It is necessary that the evaporatory vessel be not narrow at its upper part, that the heat be applied to the liquid in all parts, and equally; and that the column or mass of the liquid should have little depth, and a large surface of evaporation. Upon these principles Professor Chaptal has constructed boilers for distilling brandy, which save eleven-twelfths of the time, and four-fifths of the combustible materials.

The operation of evaporation may be performed in three different ways. 1. By a naked fire. 2. By the sand-bath. 3. By the water-bath. Evaporation is made by a naked fire, when there is no substance interposed between the fire and the vessel which contains the liquid intended to be evaporated: as, for example, when water is boiled in a pot. It is performed by the sand-bath, when a vessel filled with sand is interposed between the fire and the evaporatory vessel. The heat in this case is communicated more slowly and gradually; and the vessels, which would otherwise have been broken by the immediate application of the heat, are enabled to resist its force. At the same time, the heat is more equally kept up; the refrigeration is more gradual; and the operations are performed with a greater degree of order, precision, and facility.

But if, instead of employing a vessel with sand, a vessel of water be made use of, and the evaporatory vessel be plunged in the liquid, the evaporation is said to be made on the water-bath: in this case, the substance to be evaporated is only heated by communication from the water. This form or method of evaporation is employed when certain principles of great volatility, such as alcohol, or the aromatic principles of plants, are to be extracted or distilled. It possesses the advantage of affording products which are not changed by the fire, because the heat is transmitted to them by the intervention of a liquid: it is this circumstance which renders the process valuable for the extraction of volatile oils, perfumes, ethereal liquids, &c. It has also the advantage of affording a heat nearly equal, because the degree of ebullition is a term nearly constant: and this standard heat may be graduated or varied at pleasure, by adding salts to the liquid of the water-bath, as this single circumstance renders the ebullition more or less quick and easy. The same effect may likewise be produced by restraining the evaporation; for in this case, the liquid may assume a degree of heat much more considerable, as is seen in the digester of Papin, steam engines, eolipiles, and the boilers for striking the red tinge in cotton, &c.

Sublimation evidently differs from evaporation, because the substance to be raised is solid. The vessels used in this operation are known by the name of sublimatory vessels. These are commonly globes terminating in a long neck; which are then called mattrasses. In order to sublime any substance, a part of the ball of the mattrass is surrounded with sand. The matter which is volatilized by the heat rises, and is condensed against the coldest part of the vessel; where it forms a stratum or cake, that may be taken out by breaking the vessel itself. In this manner it is that sal ammoniac, corrosive sublimate, and other similar products are formed for the purposes of commerce. This operation is usually performed either for the purpose of purifying certain substances, and disengaging them from extraneous matters; or else to reduce into vapour, and combine under that form, principles which would have united with great difficulty if they had not been brought to that state of extreme division.

2. *The reverberatory furnace.*—The title of the reverberatory furnace has been given to that construction which is appropriated to distillation.

A furnace of this kind is composed of four parts. 1. The ash-hole, intended for the free passage of the air, and to receive the ashes or residue of the combustion. 2. The fire-place, separated from the ash-hole by the grate, in which the combustible matter is contained. 3. A portion of a cylinder, which is called the laboratory, because it is this part which receives the retorts employed in the operations or distillations. 4. These three pieces are covered with a dome, or portion of a sphere, pierced near its upper part by an aperture, which affords a free passage to the current of air, and forms a chimney. The most usual form of the reverberatory furnace is that of a cylinder terminated by a hemisphere, out of which arises a chimney of a greater or less length, to produce a suitable degree of circulation of the air.

It is necessary, in order that a reverberatory furnace may be well proportioned, that the ash-hole should be large, to admit the air fresh and unaltered; and that the fire-place and laboratory together should have the form of a true ellipsis, whose two foci should be occupied by the fire and the retort. In this case all the heat, whether direct or reflected, will strike the retort. The reverberatory furnace is used for distillation, which is that process by which the force of fire is applied to disunite and separate the several principles of bodies, according to the laws of their volatility, and their several affinities. Vessels of this kind are known by the name of retorts. They are formed of glass, stone-ware, porcelain, or metal: these substances being respectively used, according to the nature of the bodies intended to be exposed to distillation. But whatever be the nature of the material, the form of the retort is the same; it resembles an egg, terminating in a beak or tube, which diminishes insensibly in diameter, and is slightly inclined or bended. The oval portion of the retort, which is called its belly, is placed in the laboratory of the furnace, and is supported upon two bars of iron, which separate the laboratory from the fire-place: while the beak or neck of the retort issues out of the furnace through a circular aperture formed in the edges of the dome and of the laboratory.

There is also a vessel intended to receive the product of the distillation which is fitted to the neck of the retort, and is called the recipient, or receiver. This receiver is commonly a sphere with two apertures: the one of considerable magnitude, to receive the neck of the retort; the other smaller, to afford vent for the vapours. This part is called the tubulure of the receiver; whence the terms tubulated receiver, or receiver not tubulated.

Although the reverberatory furnace be particularly adapted to distillation, this operation may be performed on the sand-bath; and here, as in other cases, it depends singly on the intelligence of the artist to vary his apparatus according to the necessity of circumstances, and the nature of the substances upon which he operates. The construction of these furnaces may likewise be varied; and the chemist will find it necessary to learn the art of availing himself of every apparatus he may possess, to carry his various operations into execution.

3. *The forge furnace.*—This furnace is that in which the current of air is determined by bellows. The ash-hole, the fire-place, and the laboratory are here all united together; and this assemblage forms only a portion of a cylinder, pierced near the lower angle by a small hole, into which the tube of the bellows enters. This part is sometimes covered with a hemisphere or dome, to concentrate the heat with greater efficacy, and to reflect it upon the bodies exposed to it. The forge furnace is employed in the fusion and calcination of metals, and generally for all the operations which are performed in crucibles. See Crucible.

FURU'NCULUS, (from *furo*, *to rage*; so called from the violence of its heat and inflammation before suppuration), a *boil*; a phlegmonous tumor, commonly terminating in a suppuration of a peculiar kind. It is a variety of the *phlogosis phlegmone* of Cullen, so distinguished, on account of its form, which is that of a small circumscribed inflammatory tumor arising on the skin, and terminating in an acute tubercle, about the size of half a pigeon's egg, seldom larger, but attended with redness and pain, and sometimes with a violent burning heat. If left to suppurate spontaneously, it breaks at first on the apex, or most pointed part; when some drops of pus, like that from an abscess, are discharged. After this, a slough, consisting of the cellular membrane, in a corrupted state, is gradually thrown off, the cavity is filled up with healthy granulations of flesh, and the part is healed. Mr. Hunter considers this as a tumor of a peculiar nature, arising, in the first instance, from the death, and consequent sloughing, of the cellular membrane. Contrary to those who attribute boils to a constitutional cause, he advises the most active means to resist their first formation. This is probably best effected, by leeches to the tumor in its earliest state, by sedative fomentations, by mild saponaceous liniments, or discutient lotions, such as aq. ammon. acet. with a proportion of tinct. opii. If suppuration cannot be prevented, emollient poultices are required, with the previous application of an ointment, consisting of a drachm of camphor dissolved in an ounce of palm oil. But active stimulants increase the inflammation, and, in their early stage especially, extend the mischief. That boils give vent to any thing noxious to the constitution, is a circumstance scarcely to be allowed by surgeons of the modern school; but that the peculiar disposition of the cellular membrane to take on inflammation, in this disease, may be restrained by alteratives, bark, and other medicines which act on the system, experience seems to have sufficiently determined.

FUSIFO'RMIS, (from *fusus*, a spindle), spindle-shaped; a term, in botany, applied to roots which taper downwards, such as the carrot, parsnep, &c.

FUSION, (from *fundo*, to pour out), in chemistry, the reduction of solid bodies into a state of fluidity by fire. Almost all natural substances, the pure earths, and the solid parts of animals and vegetables excepted, melt in proper degrees of fire; some in a very gentle heat, while others require its utmost violence. Turpentine, and other soft resinous substances, *liquefy* in a gentle warmth; wax, pitch, sulphur, and the mineral bitumens, require a heat too great for the hand to support; fixed alkaline salts, common salt, nitre, require a red, or almost white, heat to *melt* them; and glass, a full white heat. Among metallic substances, tin, bismuth, and lead, flow long before ignition: antimony likewise melts before it is visibly red-hot, but not before the vessel is considerably so: the regulus of antimony demands a much stronger fire. Zinc begins to melt in a red heat; gold and silver require a low white heat; copper a bright white heat; and iron an extreme white heat.

One body, rendered fluid by heat, becomes sometimes a menstruum for another, not fusible of itself in the same degree of fire. Thus red-hot silver melts, upon being thrown into melted lead less hot than itself; and thus if steel, heated to whiteness, be taken out of the furnace, and applied to a roll of sulphur, the sulphur instantly liquefying, occasions the steel to melt with it; hence the *chalybs cum sulphure* resulted. This concrete, nevertheless, remarkably impedes the fusion of some other metals, as lead, which, when united with a certain quantity of sulphur, is scarce to be perfectly melted by a very strong fire: hence the method, described by some, of purifying zinc, a metal upon which sulphur has no effect from the lead so frequently mixed with it.

Sulphur is the only unmetallic substance which mingles in fusion with metals. Earthy, saline, and other matters, even the calces and glasses prepared from metals themselves, float distinct upon the surface, and form what is called *scoria* or dross. Where the quantity of this is large in proportion to the metal, it is most commodiously separated by pouring the whole into a conical mould: the pure metal, or *regulus*, though small in quantity, occupies a considerable height in the lower part of the *cone*, and when congealed, may be easily freed from the scoriæ by a hammer. The mould should be previously greased, or rather smoked, to make the metal come freely out; and thoroughly dried and heated, to prevent the explosion which sometimes happens from the sudden contact of melted metals with moist bodies.

G.

GABIA'NUM O'LEUM. See PETROLEUM RUBRUM.

GALACTO'PHORUS DU'CTUS, (from γαλα, *milk*, and φερω, *to carry*, because they bring the milk to the nipple); the *galactophorous ducts*. These are excretory ducts of the glands of the breasts of women, which terminate in the papilla or nipple.

GALA'CTITES, a fossil substance much resembling the *morochthus* or French chalk, in many respects, but different from it in colour. The ancients found it in the Nile, and in some rivers in Greece, and used it in medicine as an astringent, and for defluxions and ulcers of the eyes. At present it is common in Germany, Italy, and some parts of France; but here it is wholly overlooked, being esteemed only a worse kind of morochthus.

GALA'NGA, *(Galanga*, its supposed Indian name); galangal. The roots of this plant were formerly much used in medicine. Two kinds are mentioned in the British pharmacopœias, which differ only in size, both being the produce of one plant, viz. the *marcuta galanga; caulino simplici foliis lanceolatis subsessilibus*, Linn. The dried root is brought from China, in pieces from an inch to two in length, but scarcely half so thick; branched, full of knots and joints, with several circular rings, of a reddish brown colour on the outside, and rather brownish within. It has an aromatic smell, not very grateful, and an unpleasant, bitterish, hot, biting taste. It was formerly reckoned a good stomachic bitter, and generally ordered in bitter infusions. It is now, however, seldom employed in practice.

GALA'NGA MA'JOR. See GALANGA.

GALA'NGA MI'NOR. See GALANGA.

GALANGAL. See GALANGA.

GALANGAL, ENGLISH. See CYPERUS.

GA'LBANUM, (GALBANUM, Heb.); a gummi-resinous juice, obtained from the joints of the stem of the *bubon galbanum; foliis rhombeis dentatis striatis glabris, umbellis paucis*, Linn. Class, *Pentandria.* Order, *Digynia.* See BUBON. It is an umbelliferous plant, growing in Persia, and many parts of Africa. The juice, as brought to us, is semipellucid, soft, tenacious; of a strong, and to some unpleasant, smell; and a bitterish warm taste: the better sort is in pale coloured masses, which, on being opened, appear composed of clear white tears. Geoffroy relates, that a dark greenish oil is to be obtained from this by simple distillation, which, upon repeated rectifications, becomes of an elegant sky-blue colour. The purer sorts of galbanum are said, by some, to dissolve entirely in wine, vinegar, or water; but these liquors are only partial menstrua with regard to this drug; nor do spirit of wine or oils prove more effectual in this respect: the best dissolvent is a mixture of two parts spirit of wine and one of water. Galbanum agrees in virtue with gum ammoniacum, but is generally accounted less efficacious in asthmas, and more so in hysterical complaints. It is exhibited in the form of pills or emulsion, to the extent of about a drachm. Applied externally, it is supposed to resolve and discuss tumors, and to promote suppuration in languid accumulations of matter.

The officinal preparations of galbanum are the following:—*Galb. purif. Pil. galb. comp.* Lond. *Pil. assæ fœtid. comp.* Edin. *Tinct. galb.* Lond. *Emplast. picis burgund.* Dubl. *Emp. assæ fœtid.* Edin. *Emp. gummos.* Edin. *Emp. lith. comp.* Lond.

GALBANE'TUM, a composition or preparation of galbanum, formerly prescribed, but now out of use.

GA'LDA GUMMI; a gum-resin, which is mentioned by old writers, but it is totally forgotten in the present practice. Externally, it is of a brown colour, but white within, of a hard lamellated structure, and smells and tastes somewhat like gum elemi. When burnt, it gives out an agreeable odour. It was formerly used as a warm, stimulating medicine, and applied in plasters as a strengthener to sprained joints.

GA'LEA, in *anatomy*, the name of the amnios. In *surgery*, a bandage for the head is thus called. In *botany*, the upper lip of a labiated flower is called its *galea*, or *crest.* Among diseases, it is, by analogy, a name for a species of head-ach, which surrounds the head like an helmet. See GALEATED.

GALEATED, (from *galea*, a helmet); in botany, an epithet given to such plants as bear a flower resembling a helmet, as the monk's-hood. Some also express the same thing by *galericulate*, and *cucullate.*

GALE'GA, (γαλεγα, from γαλα, *milk;* so named, because it encreases the milk of animals who eat it, particularly of goats); the herb GOATS'-RUE: *Galega officinalis leguminibus strictis, erectis; foliolis lanceolatis, striatis, nudis,* Linn. From the little smell and taste of this plant, it may be supposed to possess little medical virtue, as, in fact, is the case. In Italy, the leaves are eaten among salads.

GALE'GA OFFICINALIS; the systematic name of the goats'-rue. See GALEGA.

GALEN (Claudius), in Latin *Galenus*, prince of the Greek physicians after Hippocrates, was born at Pergamus, in the Lesser Asia, about the year 131. His father was possessed of a considerable fortune; was well versed in polite literature, philosophy, astronomy, and geometry; and was also well skilled in architecture. He himself instructed his son in the first rudiments of learning, and afterwards procured him the greatest masters of the age in philosophy and eloquence. Galen, having finished his studies under their care, chose physic for his profession, and chiefly studied the works of Hippocrates. Having at length exhausted all the sources of literature that were to be found at home, he resolved to travel, in order to converse with the most able physicians in all parts, intending at the same time to take every opportunity of inspecting, on the spot, the plants and drugs of the countries through which he passed. With this view he went to Alexandria, and staid some years in that metropolis of Egypt: from thence he travelled through Cilicia; passed through Palestine; visited the isles of Crete and Cyprus; and made two voyages to Lemnos, in order to examine the Lemnian earth, which was then esteemed an admirable medicine. With the same view he went into the Lower Tyria, in order to obtain a thorough insight into the nature of the opobalsamum, or balm of Gilead; and, having completed his design, returned home by way of Alexandria.

Galen had been four years at Pergamus, where his practice was attended with extraordinary applause, when some seditious commotions induced him to go to Rome, where he resolved to settle: but the proofs he gave of his superior skill, added to the respect shown him by several persons of very high rank, created him so many enemies among his brethren of the faculty, that he was obliged to quit the city, after having resided there four or five years. But he had not long returned to Pergamus, when he was recalled by the emperors Aurelius and Severus. After their death, he retired to his native country, where he died about the year 200. He wrote in Greek, and is said to have composed two hundred volumes, which were unhappily burnt in the temple of Peace. The best editions of those that remain are, that printed at Basil, in 1558, in five volumes; and that of Venice, in 1625, in seven volumes. Galen was of a weak and delicate constitution, as he himself asserts: but he, nevertheless, by his temperance and skill in physic, arrived to a great age; for it was his maxim, always to rise from table with some degree of appetite. He is justly considered as the greatest physician of antiquity, next to Hippocrates; and he performed such surprising cures, that he was accused of magic.

In his time the dogmatic, empiric, methodic, and other sects, had each their abettors. The methodics were held in great esteem, and looked upon to be superior to the dogmatics, who were strangely divided among themselves, some of them following Hippocrates, others Erasistratus, and others Asclepiades. The empirics made the least considerable figure of any. Galen undertook the reformation of medicine, and restored dogmatism. He seems to have been of that sect which was called *eclectic*, from their choosing out of different authors what they esteemed good in them, without being particularly attached to any one more than the rest. This declaration he indeed sets out with;

but, notwithstanding this, he follows Hippocrates much more than any of the rest, or rather follows nobody else but him. Though before his time several physicians had commented on the works of Hippocrates, yet Galen pretends that none of them had understood his meaning. His first attempt therefore was to explain the works of Hippocrates; with which view he wrote a great deal, and after this set about composing a system of his own. In one of his books entitled "Of the Establishment of Medicine," he defines the art to be one which teaches to preserve health and cure diseases. In another book, however, he proposes the following definition: "Medicine," says he, "is a science which teaches what is sound, and what is not so; and what is of an indifferent nature, or holds a medium between what is sound and what is the reverse." He affirmed, that there are three things which constitute the object of medicine, and which the physician ought to consider as sound, as not sound, or of a neutral and indifferent nature. These are the body itself, the signs, and the causes. He esteems the human body sound, when it is in a good state or habit, with regard to the simple parts of which it is composed, and when, besides, there is a just proportion between the organs formed of these simple parts. On the contrary, the body is reckoned to be unsound, when it recedes from this state, and the just proportion abovementioned. It is in a state of neutrality or indifference, when it is in a medium between soundness and its opposite state. The salutary signs are such as indicate present health, and prognosticate that the man may remain in that state for some time to come. The insalubrious signs, on the contrary, indicate a present disorder, or lay a foundation for suspecting the approach of one. The neutral signs, or such as are of an indifferent nature, denote neither health nor indisposition, either for the present, or for the time to come. In like manner he speaks of causes salutary, unsalutary, and indifferent.

These three dispositions of the human body, that is, soundness, its reverse, and a neutral state, comprehend all the differences between health, and disorder, or indisposition: and each of these three states or dispositions has a certain extent peculiar to itself. A sound habit of body, according to the definition of it already given, is very rare, and perhaps never to be met with; but this does not hinder us to suppose such a model for regulating our judgment with respect to different constitutions. On this principle Galen establishes eight other principal constitutions, all of which differ more or less from the perfect model abovementioned. The four first are such as have one of the four qualities of hot, cold, moist, or dry, prevailing in too great a degree; and accordingly receive their denomination from that quality which prevails over the rest. The four other species of constitutions receive their denominations from a combination of the abovementioned: so that, according to his definition, there may be a hot and dry, hot and moist, a cold and moist, and a cold and dry constitution. Besides these differences, there are certain others which result from occult and latent causes, and which, by Galen, are said to arise from an *idiosyncrasy* of constitution. It is owing to this idiosyncrasy that some have an aversion to one kind of aliment, and some to another: that some cannot endure particular smells, &c. But though these eight lastmentioned constitutions fall short of the perfection of the first, it does not thence follow that those to whom they belong are to be classed among the valetudinary and diseased. A disease only begins when the deviation becomes so great as to hinder the action of the parts.

Galen describes, at great length, the signs of a good or bad constitution, as well as those of what he calls a *neutral habit*. These signs are drawn from the original qualities of cold, hot, moist, and dry, and from their just proportion or disproportion with respect to the bulk, figure, and situation, of the original parts. With Hippocrates, he establishes three principles of an animal body; the parts, the humours, and the spirits. By the parts, he properly meant no more than the solid parts: and these he divided into similar and organical. Like Hippocrates, he also acknowledged four humours; the blood, the phlegm, the yellow bile, and black bile. He established three different kinds of spirits; the vital, the animal, and the natural. The first of these are, according to him, nothing else but a subtle vapour arising from the blood, which draws its origin from the liver, the organ or instrument of sanguification. After these spirits are conveyed to the heart, they, in conjunction with the air we draw into the lungs, become the matter of the second species, that is, of the vital spirits, which are again changed into those of the animal kind in the brain. He supposed that these three species of spirits served as instruments to three kinds of faculties, which reside in the respective parts where these faculties are formed. The natural faculty is the first of these, which he placed in the liver, and imagined to preside over the nutrition, growth, and generation, of the animal. The vital faculty he lodged in the heart, and supposed, that by means of the arteries it communicated warmth and life to all the body. The animal faculty, the noblest of all the three, and with which the reasoning or governing faculty was joined, according to him, has its seat in the brain; and, by means of the nerves, distributes a power of motion and sensation to all the parts, and presides over all the other faculties. The original source or principle of motion in all these faculties, Galen, as well as Hippocrates, defines to be *Nature*.

Upon these principles Galen defined a disease to be "such a preternatural disposition or affection of the parts of the body, as primarily, and of itself, hinders their natural and proper action." He established three principal kinds of diseases; the first relates to the similar parts; the second, to the organical; and the third is common to both these parts. The first kind of diseases consists in the intemperance of the similar parts; and this is divided into an intemperature *without matter*, and an intemperature *with matter*. The first discovers itself when a part has more or less heat or cold than it ought to have, without that change of quality in the part being supported and maintained by any matter. Thus, for instance, a person's head may be over-heated and indisposed by being exposed to the heat of the sun, without that heat being maintained by the continuance of congestion of any hot humour in the part. The second sort of intemperature is, when any part is not only rendered hot or cold, but also filled with a hot or cold humour, which are the causes of the heat or cold felt in the part. Galen also acknowledged a simple intemperature; that is, when one of the original qualities, such as heat or cold, exceeds alone and separately; and a compound intemperature, when two qualities are joined together, such as heat and dryness, or coldness and humidity. He also established an equal and unequal temperature. The former is that which is equally in all the body, or in any particular part of it, and which creates no pain, because it is become habitual, such as dryness in the hectic constitution. The latter is distinguished from the former, in that it does not equally subsist in the whole of the body, or in the whole of a part. Of this kind of intemperature we have examples in certain fevers, where heat and cold, equally, and almost at the same time, attack the same part; or in other fevers, which render the surface of the body cold as ice, while the internal parts burn with heat; or, lastly, in cases where the stomach is cold, and the liver hot.

The second kind of disorders, relating to the organical parts, results from irregularities of these parts, with respect to the number, bulk, figure, situation, &c.; as when one has six fingers, or only four; when one has any part larger or smaller than it ought to be, &c. The third kind, which is common both to the similar and the organical parts, is a solution of continuity, which happens when any similar or compound part is cut, bruised, or corroded.

Like Hippocrates, Galen distinguished diseases into acute and chronical; and, with respect to their nature and genus, into benign and malignant; also into epidemic, endemic, and sporadic. For his account of the causes of diseases, see CAUSES. Considering their symptoms, he says, "A symptom is a preternatural affection, depending upon a disease, or which follows it as a shadow does the body." He acknowledged three kinds of symptoms: the first and most considerable of these consisted in the action of the parts being injured or hindered; the second, in a change of the quality of the parts, their actions in the mean time remaining entire; the third related to defects in point of excretion and retention.

The *signs* of diseases, Galen divides into *diagnostic* and *prognostic.* The first, he says, are so called because they enable us to know diseases, and distinguish them from each other. They are of two sorts, *pathognomonic* and *adjunct.* The first are peculiar to every disease, make known its precise species, and always accompany it, so that they begin and end with it. The second are common to several diseases, and only serve to point out the difference between diseases of the same species. In a pleurisy, for instance, the pathognomonic signs are, a cough, a difficulty of breathing, a pain of the side, and a continued fever; the adjunct signs are, the various sorts of matter expectorated, which are sometimes bloody, sometimes bilious, &c. The *diagnostic* signs were drawn from the defective or disordered dispositions of the parts, or from the diseases themselves; secondly, from the causes of diseases; thirdly, from their symptoms; and, lastly, from the particular dispositions of each body, from things which may prove prejudicial, and those that do service, and from epidemical diseases. The *prognostic* signs he gathered from the species, virulence, and peculiar genus of the disease: but as we have elsewhere spoken so largely concerning the prognostics of Hippocrates, it is superfluous to be particular on those of Galen. His *method of cure* differed little from that of Hippocrates: but from the specimen already given of Galen's method of teaching the medical art, it is evident that his system was little else than a collection of speculations, distinctions, and reasonings: whereas that of Hippocrates was founded immediately upon facts, which he had either observed himself, or had learned from the observation of others.

The system of Galen, notwithstanding its defects and absurdities, remained almost uncontradicted for a very long period. Indeed, it may be considered as having been the prevailing system, till the inundation of the Goths and Vandals put an almost entire stop to the cultivation of letters in Europe. But, during the general prevalence of the system of Galen, there appeared some writers to whom medicine was indebted for improvements, at least in certain particulars. Among the most distinguished of these we may mention Oribasius, Ætius, Alexander, and Paulus.

GALE'NA, a name given by mineralists to a species of poor lead-ore. It is lead mineralised by sulphur; or a *sulphuret of lead. Galena* was also the original name given by Andromachus to his *theriaca,* from its effect in bringing on a pleasing calm over the spirits on taking it.

GALENIC, a term in ancient medicine, which denotes a particular manner of considering and treating diseases, founded on the principles of Galen. That author, collecting and digesting what the physicians before him had done, and explaining every thing according to the strictest doctrine of the Peripatetics, put physic on a new footing: he introduced the doctrine of the four elements; the cardinal qualities, and their degrees; and the four humours or temperaments. See GALEN. The name of *Galenists* was formerly given to such physicians as practised, prescribed, or wrote, on the Galenical principles.

GALENICAL; a term frequently used as contradistinguished from *chemical.* The distinction of *galenical* and *chemical* was occasioned by a division of the practitioners of medicine into two sects, which happened on the introduction of chemistry into medicine. Then the chemists, arrogating to themselves every kind of merit and ability, stirred up an opposition to their adversaries, founded on the invariable adherence of the other party to the ancient practice. And though this division into the two sects of galenists and chemists has long ceased, yet the distinction of medicines which resulted from it is retained even at present. Galenicals are those medicines which are formed by the easier preparation of herbs, roots, &c. by infusion, decoction, &c. and by combining and multiplying ingredients; whilst chemical remedies derive their virtues from the operations by fire, and other modes of elaborate preparation, as calcination, digestion, fermentation, &c.

GALEO'PSIS, (*καληοψις*, from *καλοι*, *good*, and *οψις*, *vision*, so called, because it was once reckoned good for the sight: or from *γαληα*, *a cat*, and *οψις*, *aspect;* the flowers gaping like the open mouth of an animal). See Lamium album.

GALERI'CULUM APONEUROTICUM; a name given to the tendinous expansion which lies over the pericranium.

GA'LIUM, (*γαλιον*, from *γαλα*, *milk*, some species having the property of coagulating milk); the herb CHEESE-RENNET.

GA'LIUM ALBUM; the greater LADIES' BEDSTRAW; *galium mollugo; foliis octonis, ovato-linearibus, subserratis, palentissimis, mucronatis; caule flaccido, ramis patentibus*, Linn. This plant, with its flowers, are sometimes used medicinally. In the dose of five ounces, or more, the expressed juice, taken every evening upon an empty stomach, is said to have cured the epilepsy.

GA'LIUM APERINE; the systematic name of the GOOSE-GRASS. See Aperine.

GA'LIUM LU'TEUM. This species is the *galium verum; foliis octonis, linearibus, sulcatis; ramis floriferis, brevibus*, of Linnæus. The tops were long used as an efficacious medicine in the cure of epilepsy; but the practice of the present day, very properly, has rejected them. Indeed, from the sensible qualities of this plant little could be expected.

GA'LIUM MOLLU'GO; the systematic name of the greater ladies' bedstraw. See Galium album.

GA'LIUM VE'RUM; the systematic name of the true ladies' bedstraw. See Galium luteum.

GALL, in the animal economy, the bitter fluid secreted by the liver. See Bilis. A great number of experiments have been made upon the gall in different animals; but few conclusions can be drawn from them with any certainty. Dr. Percival, however, has shown that putrid bile may be corrected by vegetable acids, vinegar, and juice of lemons. These, he observes, have this effect much more completely than the mineral acids; and hence, he thinks, arises the great usefulness of the vegetable acids in autumnal diseases; which are always attended with a putrescent disposition of the bile, owing to the heat of the preceding summer. On this occasion he takes notice of a common mistake among physicians, who frequently prescribe elixir of vitriol in those diseases, where vinegar or lemon juice would be much more effectual. From this effect of acids on the gall, he also thinks we may see why the immoderate use of acids is so pernicious to digestion. It is necessary to health that the gall should be in some degree acrid and alkalescent: but, as acids have the property of rendering it perfectly mild and sweet, they must be proportionably pernicious to the due preparation and assimilation of the food, which without an acrid bile cannot be accomplished. Hence the body is deprived of its proper nourishment and support, the blood becomes vapid and watery, and a fatal cachexy unavoidably ensues. This has been the case with many unfortunate persons, who, in order to reduce their excessive corpulency, have indulged themselves in the too free use of vinegar. From the mild state of the gall in young children, Dr. Percival also thinks it is, that they are so much troubled with acidities.

GALL-BLADDER, VESICULA FELLIS, a kind of small bag, shaped like a pear; that is, narrow at one end, and wide at the other. The wide extremity is termed the *fundus* or *bottom*, the narrow end is the *neck*, and the middle portion the *body*. About one third of the body of the gall-bladder lies in a depression on the concave side of the liver, from the trunk or sinus of the vena portæ, where the neck is situated, to the anterior edge of the great lobe, a little toward the right side, where the bottom is placed; and in some subjects it advances beyond the edge, so as to oppose itself to the muscles of the abdomen, under the edges of the false ribs. Therefore, when in a standing posture, the vesicula fellis lies in a plane inclined a little from behind forward. When we lie upon the back, it is almost inverted. When we lie on the right side, the bottom is turned downward, and it is turned upward when we lie on the left side; and these situations vary according to the different degrees of eash posture.

The gall-bladder is composed of several coats, the outermost of which is a continuation of that which invests the liver, and consequently of the peritonæum. The under side of the gall-bladder touches the colon at the beginning of the duodenum, and sometimes at the pylorus. The second coat is said by some to be fleshy, and made up of two strata, one longitudinal, the other transverse, like that of the stomach or intestines; but, except in some very robust subjects, there are scarcely any muscular fibres to be seen. A whitish stratum is looked upon as the third coat of the gall-bladder, answering to the tunica nervosa of the intestines. The innermost, or fourth coat, has on the inside a great number of reticular folds, filled with small lacunæ, like perforated papillæ, especially near the neck of the vesicula, where these folds are longitudinal, and afterwards form a kind of small pylorus, with plaits of the same nature with those in the great one. These lacunæ are looked upon to be glands. Sabatier admits only of the first and the last of these coats, and considers the intermediate substance as being merely cellular and vascular.

That side of the body of the gall-bladder which lies next to the liver, is connected to that viscus by a vast number of filaments, which run a great way into the substance of the liver. Among these fibres, in some animals, ducts have been observed a long time ago. They are most numerous near the neck of the vesicula, and are named *ductus cysto-hepatici*, or *hepatico-cysti;* but no such ducts can be demonstrated in the human body.

The neck of the vesicula is formed by the contraction of the small extremity; and this neck, bending afterwards in a particular manner, produces a narrow canal, named *ductus cysticus*. This incurvation represents, in some measure, the head of a bird, of which the cystic duct, by the gradual diminution of its diameter, expresses the beak. To see this curvature in its true natural situation, the liver is to be raised but very little, and the duodenum left untouched. This incurvation, we may suppose, is of use in hindering too precipitate a discharge of the bile, which, in some situations of the body, might occasionally happen.

The neck of the gall-bladder is nearly of the same structure with the other parts. It has on the inside several reticular rugæ and some folds, which appear like fragments of valvulæ conniventes, situated very near each other, from the neck to the contraction of the cystic duct. The first of these folds is broad and large, and almost circular; the next is more oblique and smaller in size, and the rest diminish in the same manner. Taken altogether, they form a kind of spiral flight, which may be seen through the neck on the outside, where it sometimes appears like a screw, especially when the neck is filled with any liquid.

By slitting the neck and duct, all these folds appear very distinctly, especially if examined in clear water. When they are viewed in any other manner, they may easily be mistaken for true valves, because of their transverse situation. They may, however, in some measure, supply the place of valves, by hindering the bile from running too fast into the duodenum, and the contents of the duodenum from entering this duct. The structure of the biliary ducts appears to be entirely membranous, covered externally with a thick cellular substance, and lined within by a kind of tunica villosa, which is pierced with numerous holes, that make it appear like a sieve. Through these a mucous humour flows, to defend the ducts from the action of the bile. And the internal surface of all the biliary ducts, that is, of the ductus hepaticus, cysticus, and choledochus, being examined through a microscope in water, appears to be nearly of the same structure through their whole extent. See Choledochus ductus, Bilis, and Liver.

GALL-SICKNESS, a popular name for the remitting fever occasioned by marsh miasmata in the Netherlands. Dr. Lind informs us, that at Middleburg, the capital of West Zealand, a sickness generally reigns towards the latter end of August, or the beginning of September, which is always most violent after hot summers. It commences after the rains which fall in the end of July; the sooner it begins the longer it continues, and it is only checked by the coldness of the weather. Towards the end of August and the beginning of September it is a continual burning fever, attended with a vomiting of bile, which is the *gall-sickness.* This fever, after continuing three or four days, intermits, and assumes the form of a double tertian; leaving the patient in a fortnight, or perhaps sooner. Strangers that have been accustomed to breath a dry pure air, do not recover so quickly. Foreigners in indigent circumstances, such as the Scots and German soldiers, who were garrisoned in the adjacent places, were apt, after those fevers, to have a swelling in the legs and a dropsy; of which many died.

These diseases are the same with the double tertians common within the tropics. Such as are seized with the gall-sickness have at first some flushes of heat over the body, a loss of appetite, a white foul tongue, a yellow tinct in the eyes, and a pale colour of the lips. Such as live well, drink wine, and have warm clothes and good lodgings, do not suffer so much during the sickly season as the poor people; however, these diseases are not infectious, and seldom prove mortal to the natives.

Sir John Pringle observes, that the prevailing epidemic of autumn in all marshy countries, is a fever of an intermitting nature, commonly of a tertian form, but of a bad kind; which, in the dampest places and worst seasons, appears as a double tertian, a remitting, or even an ardent fever. But however these may vary in their appearance, according to the constitution of the patient and other circumstances, they are all of a similar nature. For though, in the beginning of the epidemic, when the heat, or rather the putrefaction in the air, is the greatest, they assume a continued or a remitting form, yet by the end of autumn, they usually terminate in regular intermittents.

But although, in the *gall-sickness*, as we have already observed, there is both a redundance and a depravation of the bile, still the disease cannot with justice be said to originate wholly from that cause. It is certain, however, that the disease may be continued, and the symptoms aggravated, by an increased secretion and putrefaction of the bile occasioned by the fever. In proportion to the coolness of the season, or the height and dryness of the ground, this disease is milder, remits or intermits more freely, and removes further from the nature of a continued fever. The higher ranks of people in general are the least liable to the diseases of the marshes; for such countries require dry houses, apartments raised above the ground, moderate exercise, without labour in the sun or evening damps, a just quantity of fermented liquors, plenty of vegetables, and fresh meats. Without such helps, not only strangers, but the natives themselves are sickly, especially after hot and close summers. The hardiest constitutions are very little excepted more than others: and hence the British in the Netherlands have always been subject to fevers.

By this disease the British troops were harrassed throughout the whole of the war from 1743 to 1747. It appeared in the month of August 1743: the paroxysms came on in the evening, with great heat, thirst, a violent head-ach, and often a delirium. These symptoms lasted most of the night, but abated in the morning, with an imperfect sweat, sometimes with an hæmorrhagy of the nose, or a looseness. The stomach from the beginning was disordered with a nausea and sense of oppression, frequently with a bilious and offensive vomiting. If evacuations were either neglected, or too sparingly used, the patient fell into a continued fever, and sometimes grew yellow, as in a jaundice. When the season was further advanced, this fever was attended with a cough, rheumatic pains, and sizy blood. The officers, being better accommodated than the common men, and the cavalry who had cloaks to keep them warm, were not so subject to it: and others who belonged to the army, but lay in quarters, were least of all affected: and the less in proportion to their being little exposed to heats, night-damps, and the other fatigues of the service. In this manner did the remitting fever infest the army for the remaining years of the war; and that exactly in proportion to their distance from the marshy places, of which we have several notable instances in Pringle's observations.

GALL-STONE, or biliary calculus. This is not of the nature of the urinary calculi, being only the bile concreted into a hard lump. These stones are found in the gall-bladder, though they are often met with also in the *ductus choledochus*. *Gall-stones* often lie quiet in these situations; so that, until dissection after death, some are never known to exist: but when they are prevented from passing through the gall-ducts, they obstruct the passage of the bile into the intestines, and produce also many inconvenient symptoms, particularly the jaundice.

The diagnostics of this disorder are generally very obscure and uncertain; for other causes produce the same kind of symptoms as those which occur in this disease. Of this a decisive instance is given in Mr. White's Treatise on Bilious Disorders. The usual symptoms are, a loss of appetite, a sense of fulness in the stomach, sickness and vomiting, languor, inactivity, sleeplessness, and, if the obstruction continues for a time, there is a wasting of the flesh; yellowness of the eyes, skin, and urine; whitish stools; a pain in the pit of the stomach, whilst the pulse remains in its natural state. The pain excited by an obstruction of the gall-ducts, in consequence of gall-stones passing through them, and this not affecting the pulse, is considered as the leading pathognomonic symptom. This pain, in some, is extremely acute, in others there is only a slight uneasiness felt about the region of the liver; but its particular seat is in the gall-duct, just where it enters the duodenum. In some patients there is no yellowness of the skin; in others it exists for several months. There is no disease more painful than this in some instances; it is as frequent as any other affection of the liver; it admits of much relief from medicine, and is not immediately dangerous to the patient.

In the cure, pain is the first object of attention; and when it is considerable, opium is the only resource: a dose may be taken as soon as the patient perceives its approach, and repeated every hour or two until a remission is procured. The vomiting, which generally attends, is described by Mr. White as an effort of nature to dislodge these concretions: but it seems rather to be the effect of nervous sympathy between the parts suffering under mechanical irritation, and the stomach, as in the case of strangulated hernia Some, however, think it advisable to give a mild emetic, followed by an opiate, though probably the latter only, assisted by the warm bath, would answer a better purpose. Purging medicines may perhaps contribute to expel the stone. Of these, such as act with the most ease may be continued with the greatest safety, as sea-water, the waters of purging springs, neutral salts, &c. These may be repeated every other day for several months, without palling the appetite, or lessening the strength. A little calomel and rhubarb may also be taken now and then. Mr. White says, that he has found alcohol saturated with the *ol. tereb. æther.* produce advantageous effects in a short time. In like manner a late French writer, M. Durand, in hepatic complaints arising from biliary concretions, prescribes from ten to twenty drops of a mixture, consisting of equal parts of vitriolic ether and spirit of turpentine. This he directs to be taken several times in the course of the day; assisted by opium, laxatives, emollient clysters, &c. according to the circumstances of the case.

Gall-stones are a frequent cause of the jaundice; consequently they will come under consideration in the article Icterus.

GALLATU'RA, that part of the white of an egg which is more dense and close than the rest.

GA'LLÆ, galls. By this name is usually denoted, any protuberance or tumor, produced by the puncture of insects, on plants and trees of different kinds. These galls are of various forms and sizes, and no less different with regard to their internal structure. Some have only one cavity, and others a number of small cells communicating with each other. Some of them are as hard as the wood of the tree they grow on, whilst others are soft and spongy; the first being termed *gall-nuts*, and the latter *berry-galls* or *apple-galls*.

The gall is produced thus: An insect of the fly kind (the *cynips querci-folii)* is instructed by nature to take care for the safety of her young, by lodging her eggs in a woody substance, where they will be defended from all injuries: she, for this purpose, wounds the leaves or tender branches of a tree; and the lacerated vessels, discharging their contents, soon form tumors about the holes thus made. The external coat of this excrescence is dried by the air, and grows into a figure which bears some resemblance to the bow of an arch, or the roundness of a kernel. This little ball receives its nutriment, growth, and vegetation, as the other parts of the tree, by slow degrees, and is what we call the *gall-nut*. The worm that is hatched, finds, in the substance of the ball, which is as yet very tender, a subsistence suitable to its nature; gnaws and digests it till the time comes for its transformation to a nymph, and from that state changes into a fly. After this, it disengages itself and takes its flight. The case, however, is not similar with respect to the gall-nut that grows in autumn. The cold weather frequently comes on before the worm is transformed into a fly, or before the fly can pierce through its inclosure. The nut falls with the leaves; and the fly within, spends its winter in its warm house, which lying buried under a heap of leaves, remains till the first heats, when it gnaws its way through, and ranges at large.

Oak galls, in a very small quantity, put into a solution of vitriolated iron in water, though but a very weak one, give it a purple or violet colour, which, as it grows stronger, becomes black; and on this property depends the art of making our writing-ink, as also the arts of dyeing and dressing leather, and other manufactures.

The best galls come from Aleppo: these are not quite round and smooth like the other sorts, but have several tubercles on the surface. Galls have a very austere styptic taste, without any smell; they are very strong astringents; and, as such, have been sometimes made use of both internally and externally, but are not now much taken notice of by medical practitioners. Some recommend an ointment of powdered galls and hog's-lard as very effectual in certain painful states of the piles; and it is alleged, that the internal use of galls has cured intermittents, after the Peruvian bark has failed. A mixture of galls with bitters and aromatics has been proposed as a substitute for the bark. M. Poupart made the most extensive trials of this, but Dr. Cullen states the amount of his results only to be this: that, "in many cases the galls cured the intermittents, but that it failed also in many cases in which the Peruvian bark afterwards proved successful."

GA'LLÆ TU'RCICÆ. See Gallæ.

GALLIC ACID, a peculiar acid which is extracted from the nut-gall, that grows on the oak, in consequence of the puncture of an insect; but this acid is also found, in a greater or smaller quantity, in all sour or astringent vegetable substances. See Gallæ. According to the experiments of different chemists, but particularly the academicians of Dijon, the properties of this acid are the following: 1. That the products of distilled nut-galls become black with the solution of sulphate of iron. 2. That an ounce of this substance communicates to cold water a tincture, from which 3½ drachms of extract are obtained by evaporation. 3. That this infusion reddens turnsol and blue paper. 4. That the same principle is soluble in oils, alcohol, and ether. 5. That acids dissolve without altering it, and without depriving it of the property of producing a black precipitate of iron. 6. That its solution in water precipitates alkaline sulphures. 7. That it entirely decomposes all solutions of metals, and communicates a colour to the oxides by combining with them. 8. That it directly dissolves iron, and precipitates silver and gold, after separating them from their solvents. Mr. Scheele has since not only observed, that all sour, astringent plants exhibit marks of acidity, but has discovered and described a process by which this acid may be obtained pure and crystallized. It is this: Upon a pound of nut-galls in powder pour six pounds of distilled water; leave this mixture to macerate for the space of fifteen days, in the temperature of from 68 to 77 degrees; then filtrate the liquor, and put it in a stone pot, or a large capsule of glass; suffer it to evaporate slowly in the air; a mouldiness, and a thick and seemingly glutinous pellicle is then formed upon it, mucilaginous flakes are first precipitated in great abundance; the solution has no longer a very astringent taste, but is more sensibly acid than before. After it has been two or three months exposed to the air, there is observed on the sides of the vessels, and adhering to them, a brown plate, covered with granulated crystals, sparkling, and of a yellowish grey colour; the same crystals exist likewise in great abundance on the under side of the thick pellicle which covers the liquor. The liquor must now be decanted off, and hot alcohol be poured on the flaky sediment, the pellicle, and the crystalline crust: this solvent takes up all the crystallized salt, but affects not the mucilage. This spirituous solution is then evaporated, and the gallic acid is obtained from it pure, in small granulated crystals, of a grey colour, inclining a little to yellow, and brilliant. The gallic acid thus purified has a taste somewhat sour and astringent. It produces in solutions of sulphate, and of other salts of iron, a very fine and brilliant black precipitate. It gives a high red colour to the tincture of turnsol; when heated in contact with air, it swells and kindles, diffusing an agreeable smell, and leaves a coal, the incineration of which is very difficult. When distilled by a moderate fire, a part of it is dissolved in the water of its crystals, and ascends in that state; another part is sublimed, without being decomposed, in small silky crystals. A strong fire separates from it some drops of oil, carbonic acid gas, and carbonated hydrogenous gas. Nut-gall, when distilled entire, affords a small portion of concrete salt, resembling the sublimated gallic acid. The gallic acid requires 24 parts of cold water to dissolve it; but of boiling water only three parts. Repeated solution and crystallization do not whiten it in a sensible manner. Alcohol dissolves it much more efficaciously: four parts of this liquid, when cold, are sufficient to dissolve one of gallic acid; when boiling, it dissolves a quantity of the acid equal to itself in weight. This acid disengages the carbonic acid from earthy and alkaline bases, when its action is assisted by heat. With barytes, magnesia, and lime, it forms salts soluble in water, and especially when there is an excess of the base. Potass, soda, and ammonia, combine very readily with it, forming *gallates*, the properties of which are not well known. The nitric converts the gallic into oxalic acid. The gallic acid precipitates gold in a brown powder, and causes a part of the metal to appear on the surface of its solution in a brilliant metallic pellicle. In the solution of silver it produces a brown precipitate; and soon after the precipitation, a plate of reduced silver appears on the surface of the liquor. From mercury it produces an orange yellow precipitate; from copper a brown precipitate; from iron a beautiful glittering black precipitate; from bismuth a citron yellow precipitate. Solutions of platina, zinc, tin, cobalt, and manganese, suffer no alteration from the action of this acid.

These are the properties which Mr. Scheele gives to the gallic acid when prepared by his process, and they show it to be a peculiar acid, distinct from all others, but its intimate nature is not yet sufficiently known. Mr. De Morveau has obtained from it a resin which he supposes to be the acidifiable base, by the union of which with oxigene the acid is constituted.

GALLI'CUS MO'RBUS, the French disease, or lues venerea. See Lues venerea.

GALLINA'CEUS LAPIS, a glossy substance produced by volcanic fires, the same with the *lapis obsidianus* of the ancients. A kind of it is brought from Paris, of a beautiful black, resembling the colour of a large crow, in that country named *gallinaço*.

GALLI'NÆ, one of the six orders of birds, according to the classification of Linnæus. See Birds.

GALLINA'GINIS, CAPUT. See Caput gallinaginis.

GALLING, the same as excoriation. See Excoriation. Whether occasioned by friction or pressure, the cause is to be removed, and such lotions and other mild remedies are to be applied, as are likely to abate inflammation. To the nates of infants, excoriated by their own urine, starch powder, or moistened fuller's-earth may be properly applied, but by no means *ceruse*, or any of the preparations of lead, as these, being absorbed, are detrimental to health.

GALLON, a measure of capacity for liquids, containing eight pints, or four quarts. See Congius.

GALRE'DA, a name formerly given to a kind of jelly made by boiling the cartilaginous parts of animals. In Paracelsus it signifies an excrementitious mouldiness.

GALVANISM, (so named from *Galvani*, its first discoverer); a principle in nature, in many respects similar to electricity. The experiments of modern philosophers have shown, that certain convulsive motions on the nerves of living and dead animals, may be excited by the application of metallic or other conductors of electricity; but these motions may also be induced, by simply touching the animal fibre with two different metals, that are brought in contact with each other at the same moment. Whatever two metals be chosen, they will, with a few exceptions, produce those remarkable contractions, when applied in the manner hereafter described; but the most powerful are, zinc and silver, or zinc and gold; or in general, zinc, tin, or lead, when used in combination with gold, silver, molybdena, steel, or copper.

These singular phenomena take place in consequence of a mutual communication between any two points of contact, whether more or less distant, in a system of muscular and nervous organs. The extent of this communication may be considered as a complete circle divided into two parts, one of which, comprising the organs of the animal under the experiment, is called the *animal arc;* the other, which is formed by the metals or *Galvanic* exciters, is denominated the *excitatory arc;* and consists of more than one piece, of various kinds.

Besides the effects thus produced on the muscles, the impressions made on the organs of sense are equally remarkable. And as the experiments illustrating them may be easily repeated, we shall specify some of the most interesting. For instance, if a thin plate of zinc be placed on the upper surface of the tongue, and a half-crown, shilling, or silver tea-spoon, be laid on the lower surface of the tongue, and both metals after a short space of time be brought into contact, a peculiar sensation, similar to taste, will be perceived at the moment when the mutual touch happens. If the silver be put beneath, and the zinc upon the tongue, the same sensation will arise, but in a weaker degree, resembling diluted ammonia, from which it has been thought to derive its origin.

If a silver probe be introduced as far as convenient into one of the nostrils, and then be brought into contact with a piece of zinc placed on the tongue, a sensation not unlike a strong flash of light will be produced in the corresponding eye, at the instant of contact. A similar perception will result, both at the moment of contact and that of separation, if one of the metals be applied as high as possible between the gums and upper lip, and the other in a similar situation with the under lip, or even under the tongue.

Lastly, when a probe or rod of zinc, and another of silver, are introduced as far back as possible into the roof of the mouth, the irritations produced by bringing the external ends into contact, are very powerful; and that caused by the zinc is similar in taste to the sensation arising from its application to the tongue.

But it is on the *vast accumulation of this power* in Volta's apparatus (or *pile*, as it is called), that the discovery on which the application of Galvanism to medical purposes chiefly depends. It consists of a number of copper or silver plates (which last are preferable), together with an equal number of plates composed of tin, or still better of zinc, and a similar number of pieces of card, leather, or woollen cloth, the last of which substances appears to be the most suitable. These last should be well soaked in water saturated with common salt, muriate of ammonia, or more effectually, with nitre.—The silver or copper may be pieces of money, and the plates of zinc may be cast of the same size. A pile is then to be formed, by placing a piece of silver on a corresponding one of zinc, and on them a piece of wet cloth or card; which is to be repeated alternately, till the number required be arranged in regular succession. But, as the pieces are apt to tumble down, if their numbers be considerable, unless properly secured, it will be adviseable to support them by means of three rods of glass, or baked wood, fixed into a flat wooden pedestal, and touching the pieces of metal at three equi-distant points. Upon these rods may be made to slide a small circular piece of wood perforated with three holes, which will serve to keep the top of the pile firm, and the different layers in close contact. The moistened pieces should likewise be somewhat smaller than those of the metal, and gently squeezed before they are applied, to prevent the superfluous moisture from insinuating itself between the pieces of metal; (see a representation of this pile in Plate IV.) Thus constructed, the apparatus affords a perpetual current of the animal electric fluid, or Galvanic influence, through any conductor that communicates between the uppermost and lowest plate; and, if one hand be applied to the latter, and the other to the highest metal, a shock will be perceived, which may be repeated as often as the contact is renewed. This shock greatly resembles that given by the torpedo, or *gymnotus electricus:* and, according to the larger size of the metallic plates, the shock will be proportionably stronger. The intensity of the charge, however, is so low, that it cannot penetrate the *dry* skin; it will therefore be necessary to wet both hands, and to grasp a piece of metal in order to produce the desired effect. Its power may be considerably increased, both by an elevation of temperature, and by augmenting the number of pieces that compose the pile. Thus twenty pieces of each will emit a shock, that is very perceptible in the arms; if 100 be employed, a very severe but tremulous and continued sensation will extend even to the shoulders; and, if the surface of the skin be broken, the action of the Galvanic influence will be uncommonly painful.

The sensation of a flash or shock with this apparatus, does not materially differ from that produced by two simple plates; but it may be effected in various ways, especially if one or both hands be applied in a wet state to the lowest plate of the pile; or any part of the face be brought into contact with a wire communicating with the top piece. Further, if a wire be held between the teeth, so as to rest upon the tongue, that organ, as well as the lips, will become convulsed, the flash will appear before the eye, and a very pungent taste will be perceived in the mouth.

Many have supposed Galvanism and electricity to be influenced by the same principles. Mr. Wilkinson, a late writer on the subject, is of opinion, that, according to the present state of our knowledge, they may be thus distinguished:—" Galvanism," says he, " is the portion of electricity which forms a component part of the conducting body, in the act of undergoing a change in its capacity from a greater to a less state; while electricity is the result of a temporary change in non-conducting bodies, insomuch that their capacities become, by attrition, momentarily increased. Galvanism is never produced by any changes in non-conductors, while electricity is accumulated by them alone." We agree with the editors of the Edin. Med. and Phys. Journal, in doubting the accuracy of this distinction; at least there are some phenomena, commonly regarded as electric, which, by the terms of this definition, should arrange themselves under the Galvanic. Aqueous vapour, they observe for example, is a conductor, and, in passing to the state of water, its capacity is diminished; yet the electricity which is given out during this change has never been considered as Galvanic.

With regard to metals, a simple Galvanic series formed from them generally consists of two, the one more oxidable than the other, with a moist substance interposed, or of a single metal so placed as to have one surface only undergoing the process of oxidation. Now, whenever a metal becomes oxidated, its capacity for electricity is diminished, a portion of its combined electricity is given out, positive signs of electricity are evinced, and a sensible electrometer will be made to diverge with the same electricity as is produced by excited glass. In consequence of the oxidation of one of the surfaces of the metal, its natural electricity becomes disturbed, and the direction in which it will have a tendency to move will be towards that surface which is undergoing the change in capacity. " If a plate of zinc be supposed to be divided into a number of lamina or strata, the superior stratum being thrown into a state of readily parting with its combined electricity, and the successive strata being similarly acted on, the electricity in the plate will be thrown into motion, and the direction will be from the opposite side of the plate, towards the side which is undergoing a chemical change. In consequence of this disturbance, the side of the plate of zinc which is not exposed to moisture, or to the action of any fluid, will be in a negative state; or, in other words, will contain less than its natural quantity of the electric fluid, while the other will be in a positive state of electricity.

" When a conducting medium is placed between both sides of a plate of zinc, then an equallization is effected. The surface under the chemical action of the fluid being freed of its excess of electricity, and the other side recovering its original state, the oxidifying process again goes on, and thus continues, so long as the metallic ore completes the circuit between the sides.

" As zinc undergoes this change with so great a facility, in order to produce a perfect Galvanic combination, it is necessary to guard and defend one of its sides from any change by coating it with a metallic substance, the capacity of which for electricity is not so easily altered; such as gold, silver, copper, &c. These metals, when soldered to zinc, are not otherwise useful than because they are less acted on by the fluid than the zinc would have been; and hence, as to the state of electricity, they may be simply deemed to accord with the zinc surface with which they are united."

What we have here quoted from Mr. Wilkinson's work, will afford some notion of what may be called the *chemical theory of the Galvanic pile*, in opposition to the mechanical or moto-electric theory of Volta, which attributes the whole phenomena to the displacement of electricity by the simple contact of two dissimilar metals, and considers the interposed fluid in the pile as performing the office of a conductor merely.

During the action of the Galvanic pile, it is certain that the chemical changes to which the evolution of electricity, in the former theory, is referred, are constantly going on; and that the production of the electric fluid is nearly proportionate to these changes. A strong objection too, to the Voltaic theory, arises from the interesting discovery of Mr. Davy, Professor of chemistry of the Royal Institution, that two metals are not necessary to the construction of an efficient Galvanic series; that a series formed of plates of one metal only, so arranged that one side only of each plate shall suffer oxidation, while the other side is protected from change, sets the electric current equally in motion. On the other hand, it is established beyond the possibility of doubt, by the experiments of Volta, that if two dissimilar and insulated metallic plates be brought into contact, and afterwards separated, they will be found to be differently electrified, the one positively, the other negatively. If copper and zinc be the metals employed, the zinc positively, and the copper negatively, so that the developement of the electric fluid is proved to be quite independent of any humid conductor, and consequently of chemical change; when humid substances are interposed, it is also well known, that the oxidable metal is more rapidly oxidated in consequence of the displacement of the electricity, occasioned by the contact of the dissimilar metals, than it would be if exposed alone to the same chemical agent; and in every Galvanic series, that the quantity of oxidation is proportionate to the force of the electric current developed by the apparatus.

It must be confessed, indeed, that we have no means of determining satisfactorily the priority of these two events, in the Galvanic battery, the oxidation of the metallic plates, and the developement of the electric fluid, are so perfectly synchronous.

While we admit the evolution of the electricity as an effect of the oxidation of one side of the metallic plate, and consequent change of its capacity, we are induced, from the experiments of Volta, from the history of the doublers of electricity, and from the more rapid oxidation of zinc exposed to moisture, in contact with another dissimilar metal, than when exposed alone to the same moisture, to attribute the original displacement of electricity to the simple contact of dissimilar metals or dissimilar surfaces of the same metal, whereby the two metals, or the two sides of the same metal, become differently charged. This is certainly true, at least of dissimilar metals; but when the series is arranged with interposed humid substances by the oxidation of one of the metals, there is a greater developement of electricity, in consequence of this chemical change, so that the oxidation and the electrical current seem mutually to affect each other; a more rapid oxidation being caused by the electrical current, while the electricity itself is more rapidly evolved in consequence of the oxidation.

The opinion of Volta, therefore, in so far as it supposed the interposed fluid in the pile to act merely as a conductor, is now ascertained to be erroneous. Those fluids produce the most active effects, which most powerfully act upon and oxidate the metallic substance; and the evolution of electricity is proportionate to the oxidation.

But a part of the subject most essential to a work of this kind, is, the individual purposes to which Galvanism is applicable in the cure of diseases. On this head our sources of information are very limited. Dr. Augustin, of Berlin, in his pamphlet on Galvanism and its medical application, after giving a brief account of its phenomena, concludes with a description of the effects of Volta's pile on the human body, and points out the diseases in which it may be successfully employed.

He says—"When a pile is properly constructed, a most sensible stroke will be felt, on touching with wet hands, or by means of silver spoons, the upper and lower extremities of the pile; the sensation, however, does not extend itself, nor penetrate into the breast so much as from an electrical stroke; but when the chain is continued to be shut, the sensation becomes more permanent and disagreeable, which likewise takes place on putting each chain into a glass of water, and holding each hand in one of the glasses. These sensations, however, prove more lively when the pile is fresh constructed, but decrease the longer it stands, particularly when the ends of the pile have been combined with each other by the contact of the two chains. It is however singular, that the force of the pile may be renewed and restored by shaking the chains. The pungent pain perceived on touching both ends of the pile with wet fingers increases, if he, who touches them, is insulated. When several persons take hold of one-another by the hands, which must be wet, and when those at the two ends touch the two extremities of the pile, all of them receive a slight sensation, which is not so strong as in a single person, though it becomes stronger if they are insulated. The commotions become evidently more lively on moistening the fingers, with which the extremities of the pile are touched, with a solution of common salt, but they are the most forcible if a part of the touching finger is deprived of its epidermis. Galvanism, applied by means of Volta's pile, shows a most sensible effect on the organs of sense, and particularly on the eyes; for on applying the two wires of the zinc and silver side on the skin beneath the eye-lids, which has been previously moistened with salt water, a burning pain will arise, and the light be put into a vibrating motion alternately in both eyes, which continues as long as the wires remain at the above place. The same phenomenon appears, when we touch with one hand a wire that is placed in a glass of water, whilst we apply the wet eye-lid to the metallic plate of the upper extremity of the pile. The vibration of light, however, is particularly strong, on applying one wire on a spot above the eye-brow that has been previously deprived of its epidermis, and on putting the other wire into the nose or mouth; as the flashes of lightning and the strokes, which then extend themselves through the whole head, are frequently so violent and stupefying, as to cause lipothymia, when the pile consists of twenty or thirty strata. The other organs of sense are likewise evidently affected from Galvanism, by means of Volta's pile. On bringing, for instance, the wire *a*, fig. 8 (Pl. IV.), into the ear that has been previously moistened, whilst the other wire *b*, fig. 8, is held by the hand in a glass of water, a stroke and a strong sound will be perceived in the ear, which becomes more benumbed if the wire *b* is taken out of the water and applied to the other ear, so as to bring both into the connection of the chains. On twisting wire about the ears, moistened with salt water, so that the ends of the wire can be immersed into glasses of water, in which the chains fastened at the extremities of the pile are placed, a giddiness is occasioned, and most beautiful flashes of lightning will be seen. The sensations of sound, however, and tingling in the ear, become particularly strong when we put a conductor applied to the Eustachian tube in combination with a chain. On dipping a finger into one of the above glasses, and into the other a zinc bar, and touching this with the tongue, insupportable pains will be felt, a flash of lightning be seen, and a singular sourish taste remain some time after. These phenomena, however, are found to differ remarkably by the manner in which the chains are touched, whether by the silver side or by the zinc side of the pile, or whether they are connected or separated; because, in case of either shutting or disuniting the chains, the feelings arising from the silver side, and that from the zinc side, are always opposite to one another; and, what is most curious, the sensation which is occasioned on shutting the chains at the silver side is exactly the same as the zinc side, when the chains are disjoined, while the feeling at the silver side changes into that which was perceived on the zinc side when the chains were shut, and *vice versa*. Thus, for instance, in the strokes perceived in the fingers, the finger at the zinc wire *b*, of Volta's pile, feels a sensation as if a string was tied round it, whereas a disagreeable pungent feeling passes through the finger at the silver wire, from the point of contact in all directions; but, on disjoining the chain, this sensation changes, so that what the finger at the silver wire felt, is then felt by the finger of the zinc wire, and *vice versa.* When the circle or chain is formed, by means of the tongue, by bringing it into contact with the silver wire *b*, fig. 8, of the battery, whilst one end is applied to the zinc wire, a very strong shock will be perceived in the tongue, from which an impression remains at the spot where the shock took place. On forming the chain with the tongue, applied at the silver side, a very disagreeable shock is produced, which leaves behind it a feeling as if a hole were struck into the tongue. When the tongue is brought into contact with the zinc side, and the circle formed by another part of the body, a sensation of heat will be felt, together with the shock and the sourish taste; which, however, on disjoining the chains, is changed into the opposite sensation of cold, and *vice versa,* when the tongue is in contact with the silver side. The sensations produced in the nose differ likewise, according to the manner of applying the wire: when we apply the silver wire, an inclination to sneeze will arise, which is not the case with the zinc wire. On bringing the ear in contact with the zinc side of the battery, a clear sound is perceived, which becomes stronger when the ear is brought in contact with the silver side. The phenomena produced in the eyes differ also according to the different manner in which the eye is brought in contact with Volta's pile."

Mr. Wilkinson has collected several facts on this subject. In the first volume of his work, an account is given of the trials which have been made, by the continental physicians, of the use of Galvanism in the cure of diseases; and, in his concluding chapter, he gives us the following as the result of his own experience.

1. In cases of *paralysis from organic defect*, or from pressure on the brain, the stimulus of Galvanism is useless or prejudicial. But where loss of motion and sensation arises from defective energy, it may be used with benefit. Though Mr. Wilkinson confesses he has never succeeded in restoring the patient to his original sensibility, he has, in many instances, considerably assisted the powers of motion. In some very distressing cases, considerable relief has been obtained:—An individual, aged 67, residing in London, and well known as a clay figure-maker, had laboured under a paralytic attack nearly 18 months. All the usual remedies, as well as electricity, had been tried in vain, insomuch that, at the above period, he was so totally deprived of motion, that he could not rise from his chair without assistance. Having been brought to Mr. Wilkinson's house in a coach, for the space of about a quarter of an hour, he transmitted the power of about twelve plates, through the forehead and the back of the neck. This mode of application was continued for three or four days; and the fluid made to pass afterwards from the forehead through the affected arm. In less than a fortnight he had recovered the faculty of motion to such a degree as to be able to walk from his own to Mr. W.'s house, a distance of at least half a mile. In this state he remained in a manner stationary; and although the Galvanism was still continued for a month or six weeks, still no perceptible change was observed to take place.

2. In *deafness.* Where this proceeds from defective energy of the auditory nerve, or from a relaxation of the membrana tympani, Galvanism has had good effects. In all other cases it has done no good.

3. In *amaurosis and weakness of sight*, Mr. Wilkinson observes, that he cannot speak so favourably as in cases of deafness. He has tried it both in incipient amaurosis, and in the completely formed gutta serena, without any benefit whatever.

4. In *spasmodic affections*, and in cases where there is a defect of motion or want of action, Mr. Wilkinson has been more successful. He says—"In involuntary actions of the muscles, I know of no remedy so efficacious as Galvanism. In a contracted state of the fingers or hands, however clenched, on the application of this principle for the space of a few minutes, it rarely fails to induce a relaxation. In cases of cramp, if of long continuance, and even tetanus or locked jaw, it has afforded relief in a short space of time. In contractions of the joints, and in all cases of rigidity, it will be found a very advantageous stimulus, which will greatly contribute to the restoration of motion."

5. In *lameness from gout*, it has been attended with the happiest effects. Mr Wilkinson has also found it extremely useful in the discussion of indolent tumors and scrofulous swellings.

6. In cases of *mental derangement*, two instances of the good effects of Galvanism have been adduced by Aldini; but, in these diseases, Mr. Wilkinson himself does not appear to have had any experience.

7. In some distressing *female complaints*, nervous head-achs, and the like, he has derived, however, great advantage from the employment of Galvanism.

8. In *suspended animation*, the effects of Galvanism deserve to be tried, but in these cases experience seems still wanting.

From these satements it appears, how much the medical use of Galvanism deserves to be recommended, and that, notwithstanding the few practical observations which have hitherto been made on that subject, we are entitled to expect no inconsiderable advantages from so powerful and penetrating a stimulus. In employing it, however, for the cure of diseases, we should always consider the topical as well as the general state of irritability, in order to prevent any bad consequences which may arise from applying too strong a degree of this stimulus. A strong Galvanic shock generally occasions lassitude and a kind of lameness, which continues for a whole day, particularly if we have for any long time exposed ourselves to the action of the battery. Thus, Mr. Rutter, a gentleman to whose experiments we are indebted for many interesting explanations with respect to this subject, felt a general indisposition, attended with weariness and dulness in the head, after having exposed himself for a whole hour to the action of a strong battery, which consisted of 100 strata. Inflammations of the eyes after continued experiments with light, debilitated insensibility of the tongue, catarrhs after frequent experiments in the nose, vertigo and head-ach after violent strokes through the head, and tooth-ach, which always ensue after any experiment has been long continued at any of the above parts of the head, are the common consequences of Galvanising. These undoubtedly arise from this stimulus having acted too violently on the healthy degree of irritability. In diseases, therefore, where a great irritability prevails, attended with debility, we ought only to employ it in a weak degree; but in paralyses from indirect debility, we may immediately begin with violent commotions. Regard should also be had to the organ on which we intend to act. The weakest degree of Galvanism is produced by means of two small metallic plates, which are placed near each other, on any part of the body that has been previously deprived of its epidermis.

Dr. Grapengiesser's apparatus for employing Galvanism for the cure of deafness, and which, by a slight change in the arrangement of its parts, may be adapted to the application of this remedy in other diseases, is shown in Pl. IV. fig. 7. Is a machine for fastening the conductors in the ears, by which the conductors can be turned in all directions. It consists of a hoop of whalebone, *a*, *b*, which is fastened to a strap of leather, taffety, or velvet, which can be buckled round the head, *c*, *c*, *c*. From each end of that hoop an arm of brass, with double joints, ending in a case, in which a glass pillar, *g*, *h*, moves up and down: at the end of the glass pillar is another case, *k*, through which passes a glass tube with the conductor.

Fig. 8. This machine applied to the head of a person, after being brought in contact with the pile.

Fig. 9. A conducting plate from which the chains proceed.

GAMA'NDRA. See Gambogia.

GAMBIE'NSE GUMMI. See Kino.

GAMBOGE. See Gambogia.

GAMBO'GIA, (from *Cambaja*, where it is procured); *Gambogium; Gummigutta; Gamandra;* Gamboge. The tree from which this gummi-resinous juice is obtained, constitutes, according to Kœnig, a physician, who resided many years at Tranquebar, a new genus, which is called *Stalagmitis*. Gamboge is chiefly brought to us in large cakes or rolls, from Cambaja, in the East Indies. The best sort is of a deep yellow or orange colour; breaks shining and free from dross: it has no smell, and very little taste, unless kept in the mouth for some time, when it impresses a slight sense of acrimony. It immediately communicates to spirit of wine a bright golden colour, and almost entirely dissolves in it; Geoffroy says, except the sixth part. Alkaline salts enable water to act upon this substance powerfully as a menstruum: the solution made by their means is somewhat transparent, of a deep blood-red colour, and passes the filter: the dulcified spirit of sal ammoniac (sp. ammon.) entirely dissolves it, and takes up a considerable quantity; and, what is pretty remarkable, this solution mixes either with water or spirit, without growing turbid. As a medicine, gamboge evacuates powerfully both upwards and downwards: and some condemn it as acting with too great violence. Geoffroy seems particularly fond of it, however, and informs us, that he has frequently given from two to four grains, without its proving at all emetic; but this account is not to be depended on. It has been used in dropsy with cream of tartar, to correct its operation. It is also recommended by some, joined with an equal quantity of vegetable alkali, to destroy the tape-worm. This is said to be the remedy alluded to by Van Swieten, which was employed by Dr. Herenschward, and with him proved so successful in the removal of the tænia lata. See Tænia.

GAMBO'GIUM. See Gambogia.

GANGLION, (of the Gr. γαγγλιον, *a knot*), in anatomy, a tumor or knot frequently found in the course of the nerves, and which is not morbid: for wherever any nerve sends out a branch, or receives one from another, or where two nerves join together, there is generally a ganglion or plexus; as may be seen at the beginning of all the nerves of the medulla spinalis, and in many other parts of the body. Some have thought the ganglions of nerves to be glandular, and to perform a secretion. Others, from their firm texture, suppose them to be muscular, and to serve to accelerate the motion of the liquor in the nerves which proceed from them; but as no proof is offered of either of these opinions, Dr. Monro says, they cannot be maintained. Others would make them serve, 1. To divide a small nerve into many nerves, and by these means to increase the number of nervous branches. 2. To make nerves come conveniently by different directions to the parts to which they belong. 3. To re-unite several small nervous fibres into one large nerve. Since no proof is brought that these three things cannot be done without the interposition of a ganglion, but, on the contrary, we see them performed where there are no ganglions, we must continue to acknowledge our ignorance concerning the uses of these knots.

GANGLION, in surgery, a hard turbercle, of the encysted kind, usually seated in the bursæ mucosæ, or sheaths of the tendons which belong to the extremities. They are most frequently met with over the tendons upon the back of the wrist, and often likewise about those of the ancle and other parts of the extremities. When pressed, they are found to possess a considerable degree of elasticity, from which, and from their situation, they may generally be distinguished from other encysted tumors. They seldom arrive at any great bulk, are not often attended with pain, and commonly the skin retains its natural appearance. On being laid open, they are found to contain a tough, viscid, transparent fluid, resembling the white of an egg.

They are generally *produced by sprains*, or contusions of the joints, or by rheumatism. In many instances, they go off insensibly, without any assistance from art; but as this is often not the case, means ought to be used for removing them. For this purpose, moderate friction frequently repeated, or gentle compression applied to them by means of thin plates of lead, &c. sometimes remove them. In some instances they have been removed by the application of blisters; but the most certain method is, to make a small puncture into the sac, and to draw a cord through it; or, after the puncture is made, to press out the contents, and then inject some gently stimulating fluid, as port wine and water, heated blood-warm. Sometimes, in tumors of this kind, bodies of a cartilaginous nature, and of different shapes and sizes, are found; some quite smooth, others with peduncles; by which they are supposed, by Dr. Monro, in his work upon bursæ mucosæ, to have been attached to the bursæ. As these cannot be removed by any remedy with which we are yet acquainted, it is found necessary to discharge them. But as the parts may sometimes suffer from inflammation, when the tumor is laid fully open, it may be punctured at each end; and, after pressing out the contents, a silk cord may be introduced. Afterwards gentle pressure may be applied, with a compress and bandage over the course of the tumor. The cord, however, should not be continued so long as to induce any great degree of inflammation, for it has been found that a slight degree of this sufficiently answers the purpose.

GANGRENE, (*gangrœna*; *γαγγραινω*, from *γαινω*, *to feed upon*); one of the consequences of inflammation, indicating its progress to its ultimate termination in mortification. See MORTIFICATION. When the colour of an inflamed part changes to a dark red, when blisters arise on it containing an ichorous fluid, we know that it has become *gangrenous*; but when it has become black, flaccid, and insensible, has lost its heat, and acquired a putrid smell, it has proceeded to complete mortification. A gangrene seldom attacks those who enjoy a good habit of body, though, even in them, it may be brought on accidentally by whatever destroys the texture of a part, as contusion, long-continued pressure, or whatever deprives it of its nourishment. In like manner, cold, by putting a stop to the circulation, may produce gangrene, and frequently does so in cold climates. This comes on suddenly, without any pain or previous inflammation; and the patient himself is frequently insensible of it, till he is informed of his situation by some other person. See FROST.

A defect in the circulation, in extreme old age, frequently occasions mortification in the extremities, and more especially in the toes and feet; but the first state of gangrene is less conspicuous perhaps in this, than in common cases. The late Mr. Pott, was the first who noticed the distinction to be made between this and other species of mortification. He says, it is very unlike the mortification from inflammation, or even that from external cold, from ligature, or bandage; or indeed that proceeding from any known and visible cause, as well in its attack as in its progress. In some few instances it makes its appearance with little or no pain; but, in by much the majority of these cases, the patients feel great uneasiness, through the whole foot and joint of the ancle, particularly in the night, even before these parts show any mark of disease, or before there is any other than a small discoloured spot on the end of one of the little toes. It generally makes its first appearance on the inside, or at the extremity, of one of the smaller toes; by a small black, or bluish spot: from this spot the cuticle is always found to be detached, and the skin under it to be of a dark red colour. Its progress in different subjects, and under different circumstances, is different; in some it is slow and long in passing from toe to toe, and from thence to the foot and ancle: in others its progress is rapid, and horridly painful. It generally begins on the inside of each small toe, before it is visible either on its under or upper part; and when it makes its attack on the foot, the upper part of it first shows its distempered state, by tumefaction, change of colour, and sometimes by vesication; but wherever it is, one of the first marks of it is a separation or detachment of the cuticle. These external changes, whilst accompanied with *sensibility in the part*, probably mark the state of *gangrene* in this peculiar affection. Other circumstances belonging to it, fall more properly to be considered under the article MORTIFICATION.

There are some instances of what is called *dry gangrene*, in which the parts continue totally mortified for a great length of time, without turning very flaccid, or running into dissolution. But such cases never occur from inflammation: they happen commonly from the flow of blood to such parts being put a stop to by compression of one kind or another, tumors, ligatures, or other similar causes, obstructing the principal arteries which used to supply them; which, when the stoppage of the circulation is complete, always occasions a very slow, tedious mortification; and as the parts in such instances are no longer supplied with fresh quantities of fluids, while a considerable evaporation must still be going on, such a degree of humidity cannot, therefore, possibly occur, as does in other cases of gangrene. Hence that species of the disorder has, perhaps, with propriety enough, been termed the *dry gangrene*.

There is another variety of the disease termed *white gangrene*; in which the parts supposed to be mortified do not turn black, but retain nearly their former colour, &c. Whether such a complaint, however, can with propriety be denominated *gangrene* or not, may probably be doubted: but as it is chiefly that species of the disorder which succeeds inflammation, that is here particularly treated of, and in which no such varieties are ever observed, it is not necessary to carry the enquiry farther.

In every case of gangrene, the event is doubtful at first, as, even in the slightest cases, the patient may suffer from the spreading of the disease; but slight cases, from external injuries, are more favourable than those which arise from internal causes, though no person can be considered safe till the diseased parts are separated. When inflammation happens round a mortified part, more especially if pus be formed, we may pretty certainly pronounce that the mortified part will be thrown off.

When there is reason to suspect, from the violence of the fever and great heat of the inflamed part, that it will terminate in gangrene, blood-letting, and whatever may have a tendency to moderate the inflammation, may check its progress. But as the patient in such cases is sometimes apt to sink afterwards, nothing more ought to be done than is merely necessary to moderate the present symptoms. If an inflamed surface put on a gangrenous appearence when the patient is weak, and the pulse low, we must have recourse to whatever may invigorate the system, viz. a nourishing diet, with the free use of wine. Peruvian bark likewise is to be given *in as great quantities as the stomach of the patient will bear.* When the stomach cannot bear enough in substance, which is the best form of exhibiting it, it may be given either in form of tincture or joined with aromatics. Nor must the internal use of *musk* and *volatile ammonia*, spoken of under the head Gun-shot wounds, be forgotten. External applications also, though not such as are of a very stimulating nature, may likewise be useful.

In the case of gangrene *arising from cold*, the part must be immersed in very cold water, or rubbed with snow; for if any thing warm be applied, or the patient be brought near a fire, it certainly mortifies. If the whole body has become torpid with cold, the practice must be followed that is directed under the article Frost.

Notwithstanding the greatest attention, however, a mortification sometimes takes place, and in some instances very suddenly: as in the case of carbuncle, where, after an inflammation has continued for scarcely twenty-four hours, the parts become black, and end in real mortification.

The *treatment of gangrene* is nearly that required for *mortified parts;* for as, in the last, the powers of the constitution are to be excited by a copious use of the bark, with a view to prevent the progress of a mortification already begun, so, in the former, we are to endeavour, by the same methods, to prevent it from taking place at all. A variety of external applications have been pointed out, and particularly those of the antiseptic kind; such as the *fermenting poultice* (see Poultice), or bread poultices containing one fourth part of finely powdered charcoal, which corrects the fœtor very effectually. Some have improperly used the warm gums and balsams, ardent spirits, and even alcohol; and to admit of their nearer application to the sound parts, with a view to the preservation of these from putrefaction, deep scarifications through the diseased, and into the sound parts, have been rashly recommended. But although such methods may be of use in preserving *dead* animal substances from corruption; yet, that they will prove serviceable in the same manner in *living* bodies, is plainly very much to be doubted.

All the advantages commonly expected from the great variety of applications recommended for gangrene, are obtained with more ease, and generally with more certainty, from the use of aq. ammon. acetat. as a lotion; or of some gentle stimulating embrocation, which, by exciting a slight irritation upon the surface, may tend to preserve life in the part. With this latter view, a weak solution of ammon. mur. in vinegar and water has been said to answer exceedingly well.

℞ Ammoniæ muriatæ drach. j. ad drach. ij.
Aceti unc. ij.
Aquæ distillatæ unc. vj.
Fiat solutio.

This forms a mixture of a very proper strength for every purpose of this kind; but the degree of stimulus, can be easily either increased or diminished, according to circumstances, by using a larger or smaller proportion of the salt.

GA'NGUE; the stony matter, crystallized or uncrystallized, calcareous or vitrifiable, which, Beaumé says, does not mineralize the metal found in it; but is only interposed between the metallic particles, whether mineralized or not.

GA'RAB, an Arabic name for the disorder called Ægilops.

GARCI'NIA MANGOSTA'NA; the systematic name of the mangosteen tree. See Mangostana.

GARGARI'SMA, (from γαργαριζω, *to wash the mouth)*, a gargle; a liquid form of medicine used for washing the mouth and throat, when inflamed or ulcerated, &c. A small quantity is taken into the mouth, moved briskly about, and then spit out; or, if the patient cannot do this to any advantage, the liquor is sometimes injected by a syringe. When gargles are required, their use should be more frequently repeated than occurs in common practice. Dr. Willich recommends the following simple forms. He says, we may easily and expeditiously prepare a gargle for softening and cleansing the mouth and gums, by mixing a small quantity of barley-water and honey, acidulated with a little vinegar. An *attenuating gargle* may be made, consisting of six ounces of water, half an ounce of honey, and a drachm and a half of nitre. This will be of considerable service in inflammatory fevers and quinsies, and also for cleansing the tongue and mouth. Or, a decoction of sage, sweetened with honey and sharpened with vinegar, is well calculated to answer a similar purpose. With the same intention, the late Sir John Pringle recommended a decoction of figs in milk and water, with the addition of a little muriated ammonia, as an excellent gargle, especially for strangulations in the fauces. In putrid sore throats, where the symptoms are urgent, the tendency to putrefaction great, and the patient's breath offensive, Dr. Willich says, the following composition will be found serviceable. Into twelve ounces of boiling barley-water, throw six ounces of bruised contrayerva-roots. The liquor is then to be strained off, and two ounces of vinegar, one ounce of tincture of myrrh, and six drachms of honey, are to be added. If the parts surrounding the gullet happen to be affected to such a degree as to render it painful for the patients to employ this composition themselves, it may be applied by means of a bit of muslin tied to a stick. Other formulæ of this nature occur under the article Cynanche parotidœa.

GARGLE. See Gargarisma.

GARLIC. See Allium.

GARNET, a very beautiful gem, of a red colour, with some admixture of blue. When pure and free from blemishes, it is little inferior in appearance to the oriental ruby, though only of a middle degree of hardness between the sapphire and common crystal. It is found of various sizes, from that of a pin's head to an inch in diameter.

GAROU BARK. See Thymalæa.

GARROTI'LLO; the Spanish name for the *Cynanche Maligna*, or ulcerated sore throat.

GARTER, a ligature employed for fastening or tying up stockings. Dr. Willich says, though the use of garters be sanctioned by custom and fashion, it is by no means to be recommended, either above or below the knee; for the parts compressed acquire an unnatural hardness; and every exertion, either in walking or riding, is attended with increased fatigue in consequence of the obstruction they give to the blood's circulation. Dropsies of the legs and thighs also frequently arise from this unsuspected cause: hence, likewise, many persons stumble, fall, and dislocate, or otherwise materially injure the knee-joint. These inconveniencies might, however, be easily prevented, Dr. Willich thinks, by simply fastening the stockings to the wasteband, by means of tape. Trifling, he says, as this alteration may probably appear, it is is of real importance to all, especially to those who are troubled with swelled or ulcerated legs, as well as to invalids and valetudinarians in general.

GAS, (from the German *gascht* or *gast*, signifying an irruption of wind, or the ebullition attending the expulsion of the elastic fluids from substances in a state of fermentation or effervescence); a general name for all fluids of the aërial kind, except the common atmosphere. The term *gas* or *gaz* was originally given by Van Helmont to the vapour of charcoal, the same with the fluid afterwards called *fixed-air* (now *carbonic acid)*, and also to some other factitious airs. From him the term gas has been employed by modern philosophers as a general one for all the elastic fluids about which aërology is conversant.

From a variety of facts and experiments, it is evident that caloric, in its combination with bodies, is capable of volatilizing many of them, and of reducing them to the aëriform state. Their permanence in this state in the temperature of the atmosphere, constitutes aëriform fluids or gases. It is necessary therefore, in order to reduce a substance to the state of gas, to dissolve it in caloric. This substance combines with various bodies, with greater or less facility; and there are several which, at the temperature of the atmosphere, are constantly in the state of gas: there are others likewise which pass to this state at some degrees higher, and these are called volatile or evaporable substances. They differ from fixed substances, because these last are not volatilized but by the application and combination of a large portion of caloric. It is clear, then, that all bodies do not indiscriminately require the same quantity of caloric to assume the gaseous state; and it will be found that the proportion may be deduced from the fixation and concretion of these gaseous substances. In order to reduce any substance to the state of gas, the application of caloric may be made in different ways. The most simple method consists in placing the body in contact with another body which is heated. In this situation, the heat on one hand diminishes the affinity of aggregation or composition, by separating the constituent principles to a greater distance from each other; and on the other hand, the heat unites to the principles with which it has the strongest affinity, and volatilizes them. This process is according to the method of simple affinities; for in fact it consists of the exhibition of a third body, which, presented to a compound of several principles, combines with one of them, and carries it off. The method of double affinity may likewise be used to convert any substance into the gaseous form; and this is what happens when we cause one body to act upon another to produce a combination, in which a disengagement of some gaseous principles takes place. If, for example, the sulphuric acid be poured upon the oxid of manganese, the acid combines with the metal, while its caloric seizes the oxigen, and rises with it. This circumstance takes place not only in this instance, but on all other occasions wherein, an operation being performed without the application of heat, there is a production of vapour or gas. The various states under which bodies present themselves to our eyes, depend almost entirely upon the different degrees of combination of caloric with those same bodies. Fluids do not differ from solids, but because they constantly possess, at the temperature of the atmosphere, that quantity of caloric which is requisite to maintain them in that state; they congeal and pass to the concrete state with greater or less facility, accordingly as the requisite quantity of caloric is more or less in proportion. In respect to solid bodies, they are all capable of passing to the gaseous state; and the only difference which exists between them in this respect is, that a quantity of caloric is required for this purpose, which is governed by the following circumstances: by the affinity of aggregation, which connects their principles, retains them, and opposes itself to a new combination; by the weight of the constituent parts, which renders their volatilization more or less difficult; and by the agreement and attraction between the caloric and the solid body, which is more or less strong or powerful.

It is likewise observable, that all bodies, whether solid or liquid, when they come to be volatilized by heat, appear in two states, either that of vapour, or of gas. In the first case, these substances lose, in a short time, the caloric which raised them, and again appear in their original form the moment the caloric finds colder bodies to combine with; but it is seldom that bodies thus divided resume their original consistence. This state is that of vapour. In the second instance, the combination of caloric with the volatilized substance is such, that the ordinary temperature of the atmosphere is insufficient to overcome the union. This is the state which constitutes the gases, or aëriform fluids. When the combination of caloric with any substance is such that a gas is produced, these invisible substances may be managed at pleasure, by the assistance of suitable apparatus which have been appropriated to these uses. The pneumato-chemical apparatus generally employed, consists of a japanned iron vessel, usually of an oval form, filled with water. Two or three inches beneath the upper edge, there is formed a groove, in which a wooden plank slides, having a hole in the middle, and a notch in one of its sides; the hole is made in the center of an excavation formed in the shelf, of the figure of a funnel, a similar vessel, filled with mercury, is sometimes required by the nature of the gases to be operated upon; for some, which easily combine with water, require to be received over mercury. An improved apparatus of this sort, is described under the article Chemical apparatus.

It is very well known that gases may be extracted in various ways. When they are disengaged by fire, a recurved tube is adapted to the neck of the retort, one extremity of which is plunged in the water or the mercury of the pneumato-chemical vessel, and opens beneath the aperture in the shelf, which is in the form of a funnel. The junction of the tube with the neck of the retort is secured with the usual lute; a vessel filled with the liquid of the cistern is inverted upon the shelf over the aperture. When the gas is disengaged from the materials in the retort, it appears in the form of bubbles, which rise, and gain the superior part of the inverted vessel. When all the water is displaced, and the bottle is full of gas, it is withdrawn, by adapting a glass plate to its orifice to prevent its dissipation: it may then be poured from one vessel to another, and subjected to a variety of experiments, in order to ascertain its particular nature and properties. But when the gases are disengaged by means of acids, the mixture which is designed to afford them is put into a bottle with a recurved tube fitted to its neck; and this tube is plunged in the cistern in such a manner, that the bubbles of gas may pass, as in the former experiment, through the aperture of the funnel in the shelf of the vessel.

The processes which are employed at present to extract the gases, and to analyse them, are simple and convenient; circumstances which have highly contributed to the acquisition of the knowledge of aëriform substances. Accounts of the different gases will be seen under their names, viz. Hydrogen, Oxigen, Nitrogen, &c.

GAS, CARBONIC ACID. See Carbonic acid.

GAS, HEPATIC. See Sulphurated hydrogen gas.

GAS, HYDROGEN; inflammable air. See Hydrogen.

GA'STER, (of the Gr. *γαστηρ, venter*); the belly. By old writers it is sometimes used for the whole abdomen, at others only for the stomach, and sometimes for other cavities, particularly the uterus.

GASTRIC JUICE; *succus gastricus;* a fluid separated by the capillary exhaling arteries of the stomach, which open upon its internal coat. The œsophagus also affords a small quantity of this liquor, especially in the inferior part of it. Modern philosophers have paid great attention to this fluid, and from their various experiments it is found to possess the following properties: it is the principal agent of digestion, (see Digestion), and changes the aliments into chyme, a kind of uniform soft paste. It acts on the stomach after the death of the animal, as Mr. Hunter has shown. Its effects prove that it is a solvent, but of that peculiar nature, that it dissolves animal and vegetable substances uniformly, and without exhibiting a stronger affinity for the one than for the other. It is far from being of the nature of a ferment, as many of the older writers have supposed; for it is one of the most powerful antiseptics with which we are acquainted. From the experiments of *Spallanzani, Scopoli, Carmianti,* and others, its nature appears to be essentially different in the several classes of animals, as they have proved by analysis. The gastric juice of the human subject, when healthy, is inodorous, of a saltish taste, and limpid, like water, unless it be a little tinged with the yellow colour of some bile, that has regurgitated into the stomach. In quantity it is very considerable, as must be evident from the extent of the surface of the stomach, and its continual secretion; but it is the most copious when solicited by the stimulus of food. Besides the properties of this fluid before mentioned, it has others which have induced some to exhibit it for the cure of dyspepsia and intermittent fever, though we cannot but consider this as fanciful practice. Applied externally, alone or in form of a poultice, it has been found useful in the cure of putrid and scrophulous ulcers; and it is perhaps to be regretted that its utility is not more generally enquired into.

GA'STRICÆ ARTE'RIÆ; the *gastric arteries.* The right, or greater gastric artery, is a branch of the hepatic; the left, or lesser, a branch of the splenic. See Hepatica and Splenica.

The coronary artery of the stomach goes first to the left side of that organ, a little beyond the superior orifice; round which orifice it throws branches, and also to every part of the stomach near it; and these branches communicate with those which run along the bottom of the stomach to the pylorus. Afterwards it runs on the right side of the superior orifice, along the small curvature of the stomach, almost to the pylorus, where it communicates with the arteria pylorica; and running towards the small lobe of the liver, it gives off some branches to it. Then it advances, under the ductus venosus, to the left lobe of the liver, in which it loses itself near the beginning of the last-mentioned duct, having first given off some small branches to the neighbouring parts of the diaphragm and omentum.

GASTRICO-EPIPLO'ICA ARTE'RIA, the *gastrico-epiploic* artery. It is a branch of the greater gastric artery that runs to the epiploon.

GASTRI'TIS, (*γαϛριτις*, from *γαϛηρ, the stomach*); an inflammation of the stomach. It is a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ* of Cullen. Of this there are two species: 1. *Gastritis phlegmonoidea*, with an inflammatory tumor. 2. *Gastritis erysipelatosa*, when the inflammation is of a creeping or erysipelatous nature.

GASTRI'TIS PHLEGMONODE'A; the *genuine gastritis*, or *inflammation of the stomach.* This affection is attended with great heat and pain in the epigastric region, extreme anxiety, an almost continual and painful hiccough, with a most painful vomiting of every thing taken into the stomach. Sometimes a temporary madness ensues; and there is an instance, in the Edinburgh Medical Essays, of the disorder being attended with an hydrophobia. The pulse is generally more sunk than in other inflammations, and the fever inclines to the nature of a typhus. The disorder is commonly of the remitting kind, and during the remissions the pulse frequently intermits. During the height of the disease, a mortal phrenitis frequently supervenes. The disease terminates on the fourth, seventh, ninth day, or from the eleventh to the fifteenth; and is more apt to end in a gangrene than pneumonic inflammation, and more frequently in a scirrhus than in an abscess.

The inflammation of the stomach may arise from any acrid substance taken into it; from a vehement passion; too large draughts of cold liquor, especially when the person is very hot; from a surfeit; a stoppage of perspiration; repulsion of the gout; inflammations of the neighbouring viscera; or from external injuries, such as wounds, contusions, &c. It affects chiefly those of a plethoric habit and hot bilious constitution.

This disease is always very dangerous, and the event doubtful, which also must be in proportion to the severity of the symptoms. A cessation of pain, coldness about the præcordia, great debility with a languid and intermitting pulse, with an abatement of the hiccough, denote a gangrene and speedy death. From the sensibility of the stomach also, and its great connection with the rest of the system, it must be obvious, that an inflammation of it, by whatever causes produced, may be attended with fatal consequences; particularly, by the great debility it produces, it may prove suddenly fatal, without running through the usual course of inflammation. Its tendency to admit of resolution may be known by its having arisen from no violent cause, by the moderate state of the symptoms, and by a gradual remission of these symptoms in the course of the first, or at most of the second week of the disease. The tendency to gangrene may be suspected from the symptoms continuing with unremitting violence, notwithstanding the use of proper remedies; and a gangrene already begun may be known by the symptoms abovementioned, particularly great debility and sudden cessation of pain. The tendency to suppuration may be known by the symptoms continuing but in a moderate degree for more than one or two weeks, and by a considerable remission of the pain while a sense of weight and anxiety still remain. When an abscess has been formed, the frequency of the pulse first abated: but soon after it increased, with frequent cold shivering, and an exacerbation in the afternoon and evening; followed by night-sweats, and other symptoms of hectic fever. These at length prove fatal, unless the abscess open into the cavity of the stomach, the pus be evacuated by vomiting, and the ulcer soon heal; events which seldom occur.

It appears from dissections, that the stomach may very often be inflamed, and the characteristic marks of it may not appear; and therefore we are often exposed to much uncertainty in the cure. But when we have sufficient evidence that a state of active inflammation has taken place in the stomach, the principal object to be aimed at is to obtain a resolution. Before, however, this can be accomplished, it will often be necessary to employ measures with the view of obviating urgent symptoms. When the symptoms appear in the manner above described, the cure is to be attempted by *large and repeated* bleedings, employed *early* in the disease; and from these we are not to be deterred by the weakness of the pulse, for it will commonly become fuller and softer after the operation. A very large blister ought also to be applied to the region of the stomach; and the cure will be assisted by fomentations of the whole abdomen, and by frequent and copious emollient and laxative clysters.

The irritability of the stomach in this disease will admit of no medicines being thrown into it; and if any can be supposed necessary, they must be exhibited in clysters. Diluting drinks may be tried; but they must be of the very mildest kind, and given in very small quantities at a time. Opiates, in whatever manner exhibited, cannot be retained in the stomach during the first days of the disease; but when the violence of the disease shall have abated, and when the pain and vomiting recur at intervals only, opiates, given in clysters, may frequently be employed with advantage; and after bleeding and blisters, no remedy is more effectual either in allaying the pain or vomiting.

As soon as the stomach will retain medicine, laxative, gentle refrigerant cathartics, taken by the mouth, such as the soda phosphorata, soda tartarisata, or the like, are productive of great benefit. A tendency to gangrene in this disease is to be obviated only by the means just now mentioned; and when it does actually supervene, it admits of no remedy. A tendency to suppuration is to be obviated by the same means, employed early in the disease. After a certain period it cannot be prevented by any means whatever; and, when actually begun, must be left to nature; the only thing that can be done by art being to avoid all irritation.

GASTRITIS ERYSIPELATOSA; the *erysipelatous gastritis*. This species of inflammation takes place in the stomach much more frequently than that producing *gastritis phlegmonoidea*. From dissections, it appears that the stomach has been often affected with inflammation, when neither pain nor fever had given any notice of it; and such is justly looked upon to have been of the erysipelatous kind. This kind of inflammation also is especially to be expected from acrimony of any kind applied to the stomach; and would certainly occur much more frequently, were not the interior surface of this organ every where defended by mucus exuding in large quantity from the numerous follicles placed immediately under the villous coat. On many occasions, however, the exudation of mucus is prevented, or the liquid poured out is of a less viscid kind, so as to be less fitted to defend the subjacent nerves; and it is in such cases that acrid matters may readily produce an erysipelatous affection of the stomach.

In many cases, however, this kind of inflammation cannot be discovered, as it takes place without pain, pyrexia, or vomiting: but in some cases it may; namely, when it spreads into the œsophagus, and appears on the pharynx and on the whole internal surface of the mouth. When therefore any erisypelatous inflammation affects the mouth and fauces, and there shall be at the same time in the stomach an unusual sensibility to all acrids, and also a frequent vomiting, there can be little doubt of the stomach's being affected in the same manner. Even when no inflammation appears in the fauces, if some degree of pain be felt in the stomach, if there be a want of appetite, an anxiety and frequent vomiting, an unusual sensibility with regard to acrids, some thirst, and frequency of pulse, there will then be room to suspect an inflammation in the stomach; and such symptoms, after some time, have been known to discover their cause by the inflammation rising to the fauces or mouth. Inflammation of this kind is often disposed to pass from one place to another on the same surface, and, in doing so, to leave the place it had at first occupied. Such an inflammation has been known to spread successively along the whole tract of the alimentary canal; occasioning, when in the intestines, diarrhœa, and in the stomach, vomitings; the diarrhœa ceasing when the vomitings came on, and the vomitings on the coming on of the diarrhœa.

An erysipelatous inflammation may arise from acrid matters taken into the stomach; or from some internal causes not yet known. It frequently occurs in putrid diseases, and in those recovering from fevers.

When the disease is occasioned by acrid matters, and these may be supposed still present in the stomach, they are to be washed out by drinking a large quantity of warm and mild liquids, and exciting vomiting. At the same time, if the nature of the acrimony and its proper corrector be known, this should be thrown in; as in the case of mineral poisons, which an alkali will decompose. Or if a specific corrector be not known, some general demulcents should be employed, such as *lac amygdalæ*, solutions of starch or gum arabic, either alone or mixed with milk.

These measures, however, are more suited to prevent than to cure inflammation after it has taken place. When this last may be supposed to have actually happened, if it be attended with a sense of heat, with pain and pyrexia, according to the degree of these symptoms, the measures proposed for the cure of the other kind are to be more or less employed. When an erysipelatous inflammation of the stomach has arisen from internal causes, if pain and pyrexia occur, bleeding may be employed in persons not otherwise weakened; but in case of its occurring in putrid diseases, or where the patients are already debilitated, bleeding is inadmissible; all that can be done being to avoid irritation, and only throwing into the stomach what quantity of acids and acescent aliments it shall be found able to bear; or the fermenting draught, consisting of kali and lemon juice, in as nice proportions as can be ascertained. In some conditions of the body in which this disease is apt to occur, cold infusions of the Peruvian bark and colombo may seem to be indicated; but an erysipelatous state of the stomach will seldom allow them to be used.

Ulceration is sometimes a consequence of antecedent inflammation, either phlegmonous or erysipelatous. For an instance of this, see the article Stomach.

GASTROCE'LE, (*γαστροκηλη*, from *γαστηρ*, *the stomach*, and *κηλη*, *a tumor)*; a hernia of the stomach, occasioned by a protrusion of that viscus through the abdominal parietes. See Abdomen.

GASTROCNE'MII, (*γαστροκνημιος*, from *γαστηρ*, *the stomach*, and *κνημη*, *the leg)*; those muscles of the foot which form the calf or belly of the leg. There are two, the *gastrocnemius externus*, and *internus*. Both have the same use, viz. that of extending the foot, by drawing it backwards and forwards.

GASTROCNE'MIUM, (*γαστροκνημιον*, from *γαστηρ* and *κνημη*, *tibia*, the leg); signifies the whole calf of the leg; and hence its muscles are called *gastrocnemii.*

GASTROCNE'MIUS EXTERNUS; a muscle, situated immediately under the integuments, at the back part of the leg, which is sometimes called *gemellus*: indeed this latter name is adopted by Albinus. Winslow describes it as two muscles, which he calls *gastrocnemii*; and Douglas has considered this and the following as a *quadriceps*, or muscle with four heads, to which he gave the name of *extensor tarsi suralis*. The gastrocnemius externus arises by two distinct heads. The first, which is the thickest and longest of the two, springs by a strong thick tendon from the upper and back part of the inner condyle of the os femoris, adhering strongly to the capsular ligament of the joint, between which and the tendon is a considerable *bursa mucosa*. The second head arises by a thinner and shorter tendon, from the back part of the outer condyle of the os femoris. A little below the joint their fleshy bellies unite in a middle tendon, and below the middle of the tibia they cease to be fleshy, and terminate in a broad tendon, which, a little above the lower extremity of the tibia, unites with that of the gastrocnemius internus, to form one great round tendon, called by some anatomists *chorda magna*, but more commonly *tendo Achillis*.

GASTROCNE'MIUS INTERNUS; a muscle, situated immediately under that last described. By Albinus and Winslow it is sometimes named *soleus*, on account of its shape, which resembles that of the sole-fish. It arises by two heads; the first of which springs, by tendinous and fleshy fibres, from the posterior part of the head of the fibula, and for some way below it. The second head rises from an oblique ridge at the upper and posterior part of the tibia, which affords origin to the inferior edge of the popliteus, continuing to receive fleshy fibres from the inner edge of the tibia for some way down. This muscle is narrow at its origin, but spreads wider as it descends, as far as its middle; after which it becomes narrower again, and grows tendinous, but its fleshy fibres do not entirely disappear till it has almost reached the extremity of the tibia, a little above which it unites with the gastrocnemius externus, to form the *tendo Achillis*. This thick tendon is inserted into the lower and posterior part of the os calcis, after sliding over a cartilaginous surface on that bone, to which it is connected by a tendinous sheath, that is furnished with a large *bursa mucosa*.

GASTRODY'NIA, (*γαστροδυνια*, from *γαστηρ*, *the stomach*, and *οδυνη*, *pain)*; a pain in the stomach, usually consequent on dyspepsia. See Dyspepsia.

GASTRORA'PHIA, (*γαστροραφια*, from *γαστηρ*, *the belly*, and *ραφη*, *a suture)*; *gastroraphy*, or the sewing of wounds of the abdomen. In performing this, our first care must be, after having tied up any vessel which bleeds to a considerable degree, to bring the edges of the wound as close together as possible, and retain them in that position, by means of the twisted or interrupted sutures. Having provided several long and flat threads, well waxed, with a needle upon each end, and having threaded as many needles as we think necessary, the patient is to be laid upon his back, with the breech and shoulders somewhat raised, so that we may relax, as much as possible, all the muscles. The protruded intestines are then to be reduced; the surgeon is to introduce the fore-finger of his right hand about half an inch within the wound. He then introduces the point of the needle immediately on the outside of the peritonæum, pushing it forward between that membrane and the muscles, for about three quarters of an inch from the external edge of the wound. Having thus carefully introduced all the ligatures, both on the one side of the wound and the other, he must cause the assistant to support the sides of it in close contact with each other, while the surgeon ties each ligature with a running knot, through the whole extent of the wound, keeping about three quarters of an inch between the stitches; after which, a large pledget, spread with emollient ointment, is to be laid over the whole wound, keeping the parts all firm by means of a bandage of thin flannel. See WOUNDS.

GASTROTO'MIA, (from γαστηρ and τεμνω, *seco*, to cut), gastrotomy; the dissection of the bowels.

GAUBIUS (Hieronymus David), a celebrated physician of Holland. He studied under the illustrious Boerhaave, and became so much the favourite of his professor, that he resigned the chemical chair in his favour. He taught at Leyden, with great applause, for 40 years. In the year 1775 he laid down his office, as being no longer able to support the fatigues of it. He was succeeded by John David Hahn, then professor at Utrecht. His reputation was extended all over Europe by several valuable publications, particularly by his *Institutiones Pathologiæ Medicinalis* and his *Adversaria*, which contributed not a little to the improvement both of the theory and practice of medicine. He died at Leyden, 29th November, 1780, in the 76th year of his age.

GAULE. See MYRTUS BRABANTICA.

GAZ, (from *gascht*, German, an eruption of wind). See GAS.

GE'CCO, a name given by the Indians to their terrible poison, which kills when mixed with the blood in ever so small a quantity. They say that this *gecco* is a venomous froth or humour, vomited out of the mouths of their most poisonous serpents; which they procure of this fatal strength, by hanging up the creatures by their tails, and whipping them to enrage them. They collect this in proper vessels, as it falls; and, when they would use it, they either poison a weapon with it, or, wounding any part of the flesh, introduce the smallest quantity imaginable into it; and this is said to produce immediate death.

GELATINE; the modern technical name for jelly. See JELLY.

GELATINOUS, any thing approaching to the consistency of a jelly, whether animal or vegetable in its nature. Thus a decoction of bread in water may be reduced into a jelly, for the use of the sick.

GEM, a common name for all precious stones; of which there are two classes, the *pellucid* and *semipellucid*. The bodies composing the class of pellucid gems are bright, elegant, and beautiful, fossils; naturally and essentially compound, ever found in small detached masses, extremely hard, and of great lustre. The bodies composing the class of semipellucid gems are stones naturally and essentially compound, not inflammable nor soluble in water, found in detached masses, and composed of crystalline matter, debased by earth: however, they are but slightly debased, and are of great beauty and brightness, of a moderate degree of transparency, and are usually found in small masses.

The following Table shows the component parts of gems, according to the analysis of Bergman, and M. Achard; the letter B prefixed to each denoting Bergman's analysis, and A that of Achard.

	Argil.	Silic.	Calc.	Iron.
Red oriental ruby, ...	B 40	39	9	10
Ditto, ...	A 37.5	42.5	9	11
Blue oriental sapphire, ...	B 58	35	5	2
Ditto, ...	A 58	33	6	3
Yellow topaz from Saxony,	B 46	39	8	6
Green oriental emerald, ...	B 60	24	8	6
Ditto, ...	A 60	23	10	7
Yellow-brown oriental hyacinth, ...	B 40	25	20	13
Ditto, ...	A 42	22	20	16
Tourmalin from Ceylon,......	B 39	37	15	9
Ditto from Brasil, ...	B 50	34	11	5
Ditto from Tyrol, ...	B 42	40	12	6
Garnet from Bohemia, ...	A 30	48	11	10

The *chrysophrase* from Koseinitz, in Silesia, was likewise analysed by M. Achard, who found that it contained 456 grains of siliceous earth, 13 of calcareous, 6 of magnesia, 3 of copper, and 2 of iron. "This (says Magellan) seems to be the only gem that contains no argillaceous earth."

GEME'LLUS, (from *geminus*, double; having a fellow). See GASTROCNEMIUS and GEMINI.

GE'MINI, the *Gemellus* of Winslow; a muscle that has been the subject of dispute among anatomists since the days of Vesalius. Some describe it as two distinct muscles, and hence is derived its name of *gemini*. Others contend that it ought to be considered as a single muscle. However, the truth is, that it consists of two portions, which are united together by a tendinous and fleshy membrane; and these afford a passage, between them, to the tendon of the *obturator internus* muscle, which they inclose, as it were, in a purse. These two portions are placed under the *glutæus maximus*, between the ischium and the great trochanter. The superior, which is the shortest and thickest portion of the two, arises fleshy from the external surface of the spine of the ischium; and the inferior, from the tuberosity of that bone, and likewise from the posterior sacro-ischiatic ligament. Both are inserted, tendinous and fleshy, into the cavity at the root of the great trochanter. Between the two portions of this muscle, and the termination of the obturator internus, there is a small *bursa mucosa*, connected to both, and to that part of the capsula of the joint which lies under the gemini. This muscle assists in rolling the os femoris outwards, and prevents the tendon of the obturator internus from slipping out of its place, while that muscle performs its office.

GE'MMA, or BUD, in botany; a compendium or epitome of the plant, seated upon the stem and branches, and covered with scales, in order to defend the tender rudiments inclosed, from cold and other external injuries, till, their parts being unfolded, they acquire strength, and render any further protection unnecessary. Buds, together with bulbs, which are a species of buds generally seated upon or near the root, constitute that part of the herb called, by Linnæus, *hybernacula;* that is, the winter-quarters of the future vegetable; a very proper appellation, as it is during that severe season that the tender rudiments are protected in the manner just mentioned. Plants, considered in analogy to animals, may properly enough be reckoned both viviparous and oviparous. Seeds are the vegetable eggs; buds, living fetuses, or infant-plants, which renew the species as certainly as the seed. Buds are placed at the extremity of the young shoots, and along the branches, being fixed by a short footstalk upon a kind of brackets, the remainder of the leaves, in the wings or angles of which the buds in question were formed the preceding year. They are sometimes placed single; sometimes two by two, and those either opposite or alternate; sometimes collected in greater numbers in whorls or rings.

With respect to their construction, buds are composed of several parts, artificially arranged. Externally, we find a number of scales that are pretty hard, frequently armed with hairs, hollowed like a spoon, and placed over each other like tiles. These scales are fixed into the inner plates of the bark, of which they appear to be a prolongation. Their use is to defend the internal parts of the bud; which, being unfolded, will produce, some, flowers, leaves, and stipulæ; others, footstalks and scales. All these parts, while they remain in the bud, are tender, delicate, folded over each other, and covered with a thick clammy juice, which is sometimes resinous and odoriferous, as in the tacamahac-tree. This juice serves not only to defend the more tender parts of the embryo-plant from cold, the assaults of insects, and other external injuries, but likewise from excessive perspiration, which, in its young and infant state, would be very destructive. It is conspicuous in the buds of horse-chesnut, poplar, and willow trees.

In general, we may distinguish three kinds of buds; that containing the flower, that containing the leaves, and that containing both flower and leaves. The first, termed *gemma florifera*, and by the French *bouton à fleur* or *à fruit*, contains the rudiments of one or several flowers, folded over each other, and surrounded with scales. In several trees, this kind of bud is commonly found at the extremity of certain small branches, which are shorter, rougher, and less garnished with leaves, than the rest. The external scales of this species of bud are harder than the internal; both are furnished with hairs, and in general more swelled than those of the second sort. The bud containing the flower too is commonly thicker, shorter, almost square, less uniform, and less pointed; being generally terminated obtusely. It is called by Pliny *oculus gemmæ*, and is employed in that species of grafting called *inoculation* or *budding*. The second species of bud, viz. that containing the leaves, termed *gemma folifera*, and by the French *bouton à feuilles* or *à bois*, contains the rudiments of several leaves, which are variously folded over each other, and outwardly surrounded by scales, from which the small stipulæ that are seated at the foot of the young branches are chiefly produced. These buds are commonly more pointed than the former sort. In the hazel-nut, however, they are perfectly round; and in horse-chesnut, very thick. The third sort of bud is smaller than either of the preceding, and produces both flowers and leaves, though not always in the same manner. Sometimes the flowers and leaves are unfolded at the same time. This mode of the flower and leaf bud is termed by Linnæus *gemma folifera & florifera.* Sometimes the leaves proceed or emerge out of this kind of bud upon a small branch, which afterwards produces flowers. This mode of the flower and leaf bud is termed by Linnæus *gemma folifera-florifera*, and is the most common bud of any. Such buds as produce branches adorned only with leaves, are called *barren;* such as contain both leaves and flowers, *fertile.* From the bulk of the bud we may often, with ease, foretel whether it contains leaves only, or leaves and flowers together, as in cherry and pear trees.

Neither the buds produced on or near the root, called by some authors *turiones*, nor those produced on the trunk, and from the angles or wings of the leaves, contain, in strict propriety, an entire delineation of the plant; since the roots are wanting, and in various buds, as we have seen, shoots are contained with leaves only, and not with flowers: but as a branch may be considered as a part similar to the whole plant, and, if planted, would, in process of revegetation, exhibit or produce roots and flowers, we may in general allow, that the bud contains the whole plant, or the principles of the whole plant, which may be unfolded *ad libitum*, and thus resembles the seed, in containing a delineation of the future plant in embryo: for although the bud wants a radicle or plumula, of which the seed is possessed, yet it would undoubtedly form one if planted in the earth. But as the medullary part adhering to the bud is too tender, and by the abundance of juice flowing into it from the earth would be disposed to putrefaction, the buds are not planted in the soil, but generally inserted within the bark of another tree; yet placed so that the production of the marrow or pith adhering to them may be inserted into the pith of the branch in which the fissure or cleft is made; by which means there is a large communication of juice. This propagation by gems or buds, called *inoculation*, is commonly practised with the first sort of buds above described.

From the obvious uses of the buds, we may collect the reason why the supreme Author of Nature has granted this sort of protection to most of the trees that are natives of cold climates, and, on the other hand, denied it to such as, enjoying a warm benign atmosphere, have not the tender parts of their embryo shoots exposed to injuries and depredations from the severities of the weather. Of this latter kind are the plants of the following list, some of them very large trees, others smaller woody vegetables, of the shrub and undershrub kind: Citron, orange, lemon, cassava, mock-orange, blad-apple, shrubby swallow-wort, alaternus, shrubby geraniums, berry-bearing alder, Christ's-thorn —Syrian mallow, baobab or Ethiopian sourgourd, justicia, mild sena, the acacias and sensitive plant, coral-tree, stinking bean-trefoil, medicago, oleander, viburnum, sumach, ivy, tamarisk, heath, Barbadoes cherry, lavatera, rue, shrubby night-shades, Guinea henweed, cypress, lignum vitæ, and savine a species of juniper.

On annual plants, whose root as well as stalk perishes after a year, true buds are never produced: in their stead, however, are protruded small branches, like a little feather, from the wings of the leaves, which wither without any farther expansion if the plants climb and have no lateral branches; but if, either by their own nature, or from abundance of sap, the plants become branched, the ramuli just mentioned obtain an increase similar to that of the whole plant. The same appearance obtains in the trees of warm countries, such as those enumerated in the above list, in which a plumula or small feather sends forth branches without a scaly covering; as in such countries this tender part requires no defence or protection from cold. A scaly covering then is peculiar to buds, as it protects the tender embryo inclosed from all external injuries. When we, therefore, speak of trees having buds that are naked or without scales, our meaning is the same as if we had said, that they have no buds at all. The buds that are to be unfolded the following year break forth from the evolved buds of the present year, in such a manner as to put on the appearance of small eminences in the wings or angles of the leaves. These eminences or knots grow but little during the summer, as in that season the sap is expended on the increase of the parts of the plant: but in autumn, when the leaves begin to wither and fall off, the buds placed on the wings increase, and the embryo-plant contained in the bud is so expanded, that the leaves and flowers, the parts to be evolved the following year, are distinctly visible. Thus in horse-chesnut the leaves, and in cornel-tree the flowers, are each to be observed in their respective buds.

As each bud contains the rudiments of a plant, and would, if separated from its parent vegetable, become every way similar to it, Linnæus, to show the wonderful fertility of nature, has made a calculation, by which it appears, that, in a trunk scarce exceeding a span in breadth, 10,000 buds (that is, herbs) may be produced. What an infinite number then of plants might be raised from a very large tree!

GEMMA'TIO, (from *gemma*, a bud); a term used by Linnæus, expressive of the form of the buds, their origin, and their contents. It includes both those properly called *buds*, and those which are seated at the roots, styled *bulbs*. Buds are originally formed either of the footstalks of the leaves, of stipulæ, or of scales of the bark. Their contents have been already discovered, in the preceding article, to be either flowers, leaves, or both.

GE'NERA PLANTA'RUM; the second subdivision in the Linnæan system of botany. It comprehends an assemblage of species similar in their parts of fructification, under the same class and order. See Botany.

GENERATION, (from *genero*, to beget), in physiology, the act of begetting another of the same species. Many of the causes which contribute to the formation of a living body, have hitherto eluded human research, may in all probability never be discovered, and, perhaps, are beyond human comprehension. Some philosophers, considering the extreme divisibility of matter, and learning from the microscope that transformation is but the development of certain parts that previously existed, have thence imagined that generation is somewhat analogous; that all regularly organised bodies received their form at the beginning; that the first of every genus and species contained by involution the numerous millions of succeeding generations; and that the union of the two sexes gives only a stimulus, and brings into view forms that had existed since the world began.

This hypothesis has attempted to explain a thing that is unknown, by what must for ever remain incomprehensible to the human mind in its present state. It appeals absurdly from observation to conjecture; and supposes that bodies which are originally brought into view, which are daily augmented, frequently repaired, and sometimes renewed by organic action, do nevertheless, in their first formation, require an effort superior to what Omnipotent Power is able to perform by secondary agents.

Had the supporters of this hypothesis considered, that many herbaceous plants produce new flowers when the first set are untimely cut off, that lobsters and many a species of insect renew their limbs, and that certain polypes can raise so perfect vegetable forms as to puzzle the naturalist, whether or not he should class them under plants; they would surely not have prescribed such bounds to Omniscient Wisdom and Almighty Power, or declared with such confidence what the Author of Nature, to speak with the vulgar, must necessarily perform by his own hands, or what he may intrust to secondary causes, regulated by his laws.

These philosophers will find it difficult to account, in a very satisfactory manner, for monstrous productions, and for those changes of structure and of form which for a while continue hereditary, from the influence of habit. They object to others, that all the parts of a living body are mutually dependent on one another, and that they must necessarily have been coeval or existed at once. But though every attempt that has yet been made, to ascertain which of the vital organs are prior and which posterior, in a living body, has proved unsuccessful, it has not been demonstrated, that either themselves or their functions are coeval. It may, on the contrary, be plainly demonstrated, from observation, that the lungs and the stomach do not begin to perform their functions so early as the heart and the vascular system; that the heart and its system perform their functions, even with some considerable changes, immediately after birth; that the vegetable tribes are without nerves; and that brain and nerves, in the animal kingdom, perform more and more of their functions as the system approaches towards maturity. It has even been shown that bones will unite, and the limbs of an animal continue to be nourished without nerves; that there is a principle of life in the blood; that the heart will act under other stimuli besides that of nerves; and that sound logic does by no means require us to suppose, that the first actions of the fœtal heart, or the punctum saliens, are owing to the influence of stimuli from the brain, or that the brain must have existed when the heart first moved.

Although the minuteness and transparency of the parts may prevent us from seeing the first gradual formation of the embryo, yet every observation corroborates the opinion that it is formed by secondary causes, and through the medium of organic powers.

It has been asked, whether or not is the embryo formed by the joint operation of the two sexes? or is it formed entirely by the one, and brought into action by a stimulus from the other? The former of these questions supposes that each of the sexes has a seminal fluid; that some mixture takes place in the uterus, and produces an embryo, in the same manner that a neutral salt assumes a certain and determinate form. The notion implies some general and confused idea of chemical combination; but does not bespeak a very clear head, profound reflection, or much acquaintance with the nature and properties of living bodies.

For a long time past the most rational physiologists have generally agreed that the embryo is formed gradually and slowly in one or other of the two sexes, not by chemical combination and mixture, but by a system of organs, directed by laws and prompted by stimuli, with many of which we are yet unacquainted. From the great Hippocrates downwards to Aquapendens and Harvey, the credit of furnishing the fœtal embryo was almost universally given to the females of those animals which are named oviparous. Among the viviparous, appearances were such, that the female was left to contest it with the male. At last the eclat of Leeuwenhoek's discoveries seemed to put an end to all doubts entertained upon the subject. He very plainly saw, through his microscope, that very great profusion of particles that move to and fro, with amazing rapidity, in the male semen. Upon this he embraced the doctrine of Hamme, who had seen them before, and supposed, from their motions, that these particles were not only animalcules, but the principles or rudiments of that animal in whom they were formed, and that they were deposited in the uterus of the female only to be nourished and augmented in size.

What raised suspicions against this theory, were the numerous animalcules discoverable by the microscope in other fluids, and that vast profusion of young embryos in those cases where never more than one or two arrive at maturity. It was an objection to it, that some females had been impregnated where the hymen remained unbroken, and where the vulva had been shut so closely as to leave only a passage for the urine. The male semen, in these instances, could have reached only the mouth of the uterus. It was another, that in all birds which have no intrant penis, the male semen is never sent farther than the mouth of the vulva, and that a single act of the male impregnates the whole eggs of the ovarium. A third objection is the pollen of flowers, which is not applied immediately to the seed, but often to a distant part of the vessel in which it is contained. A fourth may be taken from frogs and fishes, and all those animals whose eggs are impregnated after emission. And lastly, Haller had observed the pullet completely formed in those eggs that were not fecundated.

Supposing animalcules in every kind of prolific semen, yet it frequently happens that this semen undergoes a change before it can be applied to the embryo. The semen of the frog is dissolved in water; and that which is injected disappearing suddenly after coition, would seem to intimate, that in those animals which have been examined, it had met with a solvent somewhere in the uterus, and produced its effect after the change. It is now, we believe, pretty generally known, that the embryo does not commence its existence in the cavity of the uterus. De Graaf observed it on its passage down the Fallopian tube; he saw the place where it first began in the testicle of the female; and cases have occurred where it has missed the Fallopian tube, where it has fallen into the abdomen, where the placenta has been formed, and the fœtus has grown among the viscera of the lower belly.

From these facts it has been concluded, notwithstanding some feeble objections, that the female testicles are real ovaries, containing eggs; that these eggs are brought into action by the stimulating power of the male semen, which is sometimes thrown into the cavity of the uterus, sometimes applied only to its mouth, and sometimes sprinkled over the eggs after emission. The principal difference, therefore, that occurs between oviparous and viviparous animals, considered as such, appears to be this: the former are accustomed to eject their embryo before it escapes from the membranes of the egg; the latter retain it long in the uterus until it acquires a considerable size, until the membranes can hold it no longer, and then eject it when the membranes are burst. A plant is oviparous when it yields seed; viviparous when it produces a gem, a bud, a bulb, or an eyed root. The membranes of the seed being removed, an incipient embryo is seen through the microscope.

Some animals, according to the season, eject the embryo inclosed in its membranes, or retain it in the uterus till the membranes are broken. These are the animals which are said to be oviparous at one period and viviparous at another. The spider-flies retain their young till they are as large as the natural size of their own bodies, and have undergone all their transformations within the expansile membranes of the egg, and an uterus as expansile as the stomach of a serpent.

In most cases, generation requires a temporary union of two sexes: but it has been said, that in Senegal there is a species of shell-fish among whom this operation is the joint work of three individuals. In our own country, too, three frogs are frequently observed adhering together, though the labours of the third have been thought more officious than necessary. In some animals the sexual union is almost instantaneous. It constitutes nearly the business of life in the last stage of the ephemeron; and the male both of the frog and toad often continues on the back of the female, not for hours and for days only, but for some weeks. Upon examination it has been found, that with his fore-feet he assists the female to protrude the eggs through the windings of the oviduct; and when they at last arrive at the anus, a species of the toad has been observed to draw them out with his hind legs. These animals were probably the first of the masculine gender who practised this art. But due honour has not been ascribed to the discoverers. In former days, the generous and grateful spirit of the ancients made them ready to acknowledge their obligations to different animals for the arts of bleeding, clystering, and purging: but such is the degeneracy of modern times, that many write only to claim the discoveries of others. On this account we ought not to wonder that many accoucheurs, in publishing encomiums on their own merit, have invidiously concealed the superior pretensions of the obstetrical toad.

Among all living bodies the two sexes are generally similar; and the male sex generally distinguished by superior strength, beauty, and courage. The law, however, does not hold universally. The females of some carnivorous animals, that are left by the male to provide for their offspring, are larger, stronger, and more ferocious than he. Among some insects the male and female have no similarity even in them. The male of the glow-worm is a beetle, which flies in the dark, and is attracted not by the form, but by the brilliancy of his mistress. The female gall-insect is a large mass, like a vegetable excrescence, without loco-motion; the male a small fly, full of activity. The one is as unlike to the other as a Harpy to a Venus, and as disproportioned, in point of bulk, as a horse to an elephant.

In many animals, the distinctions of sex are concealed in the body. When any of their parts are placed externally, or protruded occasionally, the male parts are usually prominent, and the female hollow, in order to receive them. In the acari, however, in many flies, and a few hornets, the case is reversed; the female parts suffer erection, and the male parts are open and hollow for their reception.

The external situation of these parts is very much varied in different animals. In many worms it is near to the head. It is often upon the side of the snail; near to the breast in the female of the dragon-fly. It is at the extremity of the antennæ in the male spider. The vulva enters from the rectum in birds. Its common situation, in most animals, is well known. The male penis, where there is one, is sometimes found to enter the vulva, sometimes not: it is sometimes imperforated, sometimes forked, sometimes double, sometimes fleshy, sometimes bony, sometimes straight, sometimes winding spirally like a screw, sometimes with a knob, and sometimes with a point at its extremities, according to the kinds and varieties of animals.

Few individuals have more than one sex. Many snails, however, are androgynous, and have two. In copulation they perform the office of two sexes, and are mutually impregnated. This circumstance has often led the sensualist to wish that he were a snail. With equal reason the epicure might wish to be one of those worms that imbibe by absorbents, and suck in nourishment by a thousand mouths. The organs employed may be more in number, the continuance of their function may be much longer, and yet the gratification may be less. The discreet beauty can afford a million of pleasures to her lover, which no snail or sensualist enjoys, and which prostitution can never yield.

The male and female parts of the vegetable are sometimes both on the same flower, sometimes on separate flowers, and sometimes even on different plants of the same species. Besides the flower, another organ of generation is found in vegetables. This is the corona, from which the buds and branches proceed. It is a substance between the pith and the ligneous circles, and from which the diametral insertments diverge.

The corona is most conspicuous at the time when it sends forth shoots. The flower comes forth only at the time when the seed is to be formed; and the testicles and ovaries of those animals which procreate only at stated periods are diminished in size, and sometimes disappear till the genial season. Even some females, when they cease to be prolific, as the pheasant, for instance, assume many marks of the other sex, as if their former sex had been assumed only for a while, and to answer some temporary purpose.

In all animals the incipient embryos are perhaps neuters, and the sex determined according to the predominancy of the male or female stimulus on the parts. It would not a little confirm this opinion, were the observation to be well founded, that certain bulls are very apt to beget males and others females, and certain cows which have females always when they are young bring forth males when they grow old. The different proportions of males and females in different climates might also serve to illustrate this doctrine. It is no objection to it that the order of male and female births in the same family is often irregular. The proportional force of the two stimuli will naturally be different at different times. It may depend on the quantity or quality of the fluid secreted, upon the difference of ardour in the parties, on the fancy, the passions, the particular state of the system at the time, and a thousand circumstances, besides the age, and the usual or general habit of the body. We mean only to infer at present, that wherever a male or female is produced, the stimulus of that particular sex, whatever was the cause, had during the time of coition and conception acquired the ascendency over the parts that were to become sexual in the embryo. We cannot so readily answer the question, Why the offspring should possess the form and dispositions of one parent, and the sex of the other? In this case, the different stimuli may have acted differently on different parts: in the case of hermaphrodites, which are very common in the horse, the ass, the cow, and the sheep, the two parents seem to divide the form, the sex, and the dispositions, equally between them.

The particular cause which excites the orgasmus in the female organs is not ascertained. That viscous fluid which young lascivious females eject when fond of the male, is chiefly a secretion from the glands of the vagina, the mouth of the uterus, and the neighbouring parts. In some respects it appears to be similar to those periodical discharges of females which frequently assume the erect posture; and these discharges being usually discontinued during the times of pregnancy and suckling, we must suppose that it is a portion of that fluid, which nature has prepared for the use of the fœtus. These discharges are always a proof that the female has arrived at the age of puberty; that her ovary is now performing its office; and that she is disposed to propagate her kind. Whatever be the cause of the female orgasmus, it is often so strong as to counteract the natural effects of the seminal fluid, and prevent impregnation. For this reason, few young and lascivious females conceive immediately after marriage; and after coition therefore, in cattle, it is sometimes a practice to beat the female, to plunge her in water, to weary her with running, and to use other means to prevent the return of the sexual desire.

In man, and some of the nobler animals, the influence of fancy over the organs of generation is unquestionably great; but the extent and mode of its agency is not defined. Those who allow it so much power in impressing marks, and altering the form and colour of the fœtus, support their opinion rather by the number than the strength of their arguments. Many of the stories which they adduce as a sort of proofs are evidently fabulous, and have brought the truth of the whole into question. The reports, however, of the French commissioners who were appointed to examine the nature of animal magnetism, ought to deter the candid inquirer from drawing very hasty conclusions. The queries of Fienus, in his small work entitled *De Viribus Imaginationis Tractatus*, concerning the powers of this mental faculty are important and curious, and might be of use in directing our researches; but they ought to be answered by accurate experiments, and not by acute metaphysical reasoning and historical anecdotes that are ill authenticated.

To prevent a confusion of genera and species, animals are generally restricted by propensity to their own kind; and the seminal fluids, besides, being various in various animals, they cannot indiscriminately act as a stimulus on all female organs of generation. The changes of form induced by habit, which is owing itself to the influence of stimuli, will partly explain the manner in which the progeny is made to resemble the male. As the irritability of different parts is of different kinds, the stimulus will have different effects on different organs; and in these cases, where either genera or species are mixed, the parts which are most and least affected by the stimulus of the male will be obvious in the shape and form of the offspring.

We have hitherto spoken of generation as being performed by the temporary intercourse of two sexes; but the puceron is an instance where sexual distinctions are not always necessary. Even where they exist they are daily dispensed with in the vegetable kingdom. Plants grow from the gem, the bulb, the leaf, or the root. They propagate by slips, by suckers, and by layers; and some of them, as the house-leek and some grasses, multiply by spontaneous separation. In many animals the distinctions of sex are totally unknown. It has been observed, that infusory animalcules multiply their species by continual divisions and subdivisions of their own body; that some polypes, by spontaneous separation, split transversely, some longitudinally, and that some send off shoots. When experiments have been made upon these animals, it has been discovered that the numerous and artificial divisions of their body or their head, produce entire animals. Trembley learned that they might be engrafted upon one another, and produce monsters as wild and extravagant as poet or fabulist has ever dreamed of.

It was noticed before, that the alimentary canal of some animals distributed nourishment through the whole body without the intervention of circulating vessels, and that the vital organs of vegetables were generally diffused through the whole system. The case is the same in polypes as in plants. Every part is a miniature of the whole. It is found to have similar organs of digestion, of respiration, of circulation, and of generation. In perfect animals all the parts are more dependent on one another; the vital organs have distinct situations, and their powers are concentrated in distinct places. The arm of a man has no heart: it has no lungs; it has no stomach, and no organs of generation; but the branch of a tree has as complete a system of organs as the trunk itself, and is as independent of that body from which it grew as the graft is independent of the stock.

The several parts of perfect animals all contribute to make one whole; the several parts of a plant or polype, when united together, form only a congeries of living bodies. These facts contribute to explain the principal phenomena in this mode of propagation.

GENERATION, FEMALE ORGANS OF. The parts subservient to generation in a woman are divided into external and internal. The external parts are the mons veneris, the labia, the perinæum, the clitoris, and the nymphæ. To these may be added the meatus urinarius, or orifice of the urethra. The hymen may be esteemed the barrier between the external and internal parts. That soft fatty prominence which is situated upon the ossa pubis, extending towards the groins and abdomen, is called the mons veneris; its use seems to be chiefly that of preventing inconvenience or injury in the act of coition. If a line be drawn across the anterior angle of the pudendum, all that part above it which is covered with hair has been called *mons veneris*. Below it the *labia* commence, which being of a somewhat similar, though looser texture, appear like a continuation of the mons veneris, passing on each side of the pudendum, which indeed they chiefly compose. After proceeding downwards and backwards, the labia again unite, and the perinæum is formed. The space between the posterior angle of the pudendum and the anus is called the perinæum; the external covering of which is the skin, as the vagina is the internal. Included between them, is a quantity of cellular and adipose membrane, and the lower part of the sphincter ani. The extent of the perinæum is generally about an inch and a half; yet in some subjects, it is not more than an inch, and in others nearly three inches. The thin anterior edge forms the *frænum labiorum.* Below the anterior angle of the pudendum the *clitoris* is placed, which arises by two crura, from the upper part of the rami of the ischia. The external part or extremity of the clitoris is called the *glans*, which has a prepuce or thin covering to which the nymphæ are joined. The clitoris, is supposed to be the principal seat of pleasure, and to be capable of a small degree of erection in the act of coition. The *nymphæ* are two small spongy bodies or doublings of the skin, rising from the extremities of the prepuce of the clitoris, less in size, but resembling in their form the labia. They pass on each side of the pudendum, within the labia, to half its length, when they are gradually diminished till they disappear. Immediately below the inferior edge of the symphysis of the ossa pubis, between the nymphæ, is the *meatus urinarius*, or termination of the urethra, which is about an inch and a half in length, and runs to the bladder in a straight direction, along the internal surface of the symphysis pubis, to which, and to the vagina, it is connected by cellular membrane. On each side of the meatus urinarius are small lacunæ, which discharge a mucus for the purpose of preserving the external parts, from any injury to which they may be liable from the acrimony of the urine. There is a very great difference in the appearance of all these parts in different women, especially in those who have had many children, and in the same women at various periods of life. In young women they are firm and elastic, but in the old, these, together with the internal, become flaccid and withered. The labia and nymphæ, and even the clitoris (see Clitoris), are liable to elongation, to excrescences, and to the production of scirrhous tumors, which, in some instances, grow to an enormous size, especially in hot climates. It is not unusual for one of the labia or of the nymphæ to be larger or more pendulous than the other; but these enlargements or elongations are not regarded as diseases, till some inconvenience is produced by them. —The internal parts of generation are the *vagina* and *uterus* and its appendages. Of these and the parts already mentioned, more minute descriptions are given under their several names. See Vagina, Uterus, &c.

GENERATION, MALE ORGANS OF. These are of different kinds; some of them being wholly contained in the abdomen, and others lying on the outside. They may be noticed in the following order: The *testes* are seated in a loose external membranous bag called the *scrotum*. Their office is to separate the semen from the blood. They are said to have four coats, two common, and two proper. The common are the outer skin and a loose membrane or muscle immediately underneath, called *dartos.* The first of the proper is the *tunica vaginalis.* It is continued from the peritoneum to the testicle, which it incloses with all its vessels, but is divided by an adhesion or *septum* immediately above the testicle, so that no fluids can pass out of that part of this membrane, which incloses the testicle. The other proper coat is the *tunica albuginea*, which is very strong, and which immediately invests the testicles. The testes receive each one artery from the aorta, a little below the emulgents. These, unlike all other arteries, arise small, and dilate in their progress, that the velocity of the blood may be sufficiently abated for the secretion of so viscid a fluid as the semen. The right testicle returns its vein into the cava, and the left into the emulgent vein on the same side, both because it is the readiest course, and because, as authors say, this spermatic vein would have been obstructed by the pulse of the aorta, if it had crossed that vessel to go to the cava. On the upper part of the testicles, are hard bodies called *epididymi;* which are evidently formed of the *vasa deferentia.* These may without difficulty be unravelled backward, in single vessels, and then into more and smaller, like the excretory vessels of some other glands.

The *vasa deferentia* are excretory ducts to carry the secreted semen into the *vesiculæ seminales.* They pass from the epididymi of the testicles, along with the blood-vessels, till they have entered the muscles of the abdomen; and then they pass under the peritonæum, directly through the pelvis, to the vesiculæ seminales.

The *vesiculæ seminales* are two bodies that appear like irregular vesicles. They are seated under the bladder, near its neck. They may be each of them unfolded into one single duct, which discharges into the urethra, by the sides of the *caput gallinaginis*, which is an eminence in the under side of the urethra near the neck of the bladder. In these vesicles or ducts, the semen is deposited preparatory to the time of coition; but in dogs there are no vesiculæ seminales, therefore nature has given them a large bulb in the penis, which keeps them coupled, seemingly against their inclination, till the seed can be secreted and emitted into the uterus of the female. The semen passes from these vesiculæ, in men, in time of coition, through the prostate glands into the urethra, and is thence emitted.

The *prostatæ* are two glands, or rather one, about the size of a nutmeg. They lie between the vesiculæ seminales and penis, under the ossa pubis, almost within the pelvis. They separate a liquid glutinous humour which is carried into the urethra by several ducts, that enter near those of the prostatæ. This liquor seems designed to be mixed with the semen in the time of coition, in order to make it flow more easily through two short passages, which open into the urethra close to a little eminence called *verumontanum.*

The *penis* is the vehicle or active organ of procreation. It is composed of two columns, the *corpora cavernosa* and *corpus spongiosum.* The former, which constitute the greatest part of the penis, are two cylindrical ligamentous tubes composed of minute cells of a spongy texture, which communicate with each other.

These two bodies are of a very pliant texture, and capable of considerable distension; and being united laterally to each other, occasion by this union a space above and another below. The uppermost of these spaces is filled by the blood-vessels, and the lower one, which is the largest, by the urethra and its corpus spongiosum. These two cavernous bodies are at first only separated by a partition of tendinous fibres, which allow them to communicate with each other; but they afterwards divaricate from each other like the branch of a tree, and diminishing gradually in size, are attached, one on each side, to the inferior portion of the os pubis. The *corpus spongiosum penis*, begins as soon as the urethra has passed the prostate, with a thick origin almost like a heart, first under the urethra, and afterwards above it, becoming gradually thinner, and surrounding the whole canal of the urethra, till it terminates in a considerable expansion, and constitutes what is called the *glans penis*, which is exceedingly vascular, and covered with papillæ like the tongue. The penis is invested by the common integuments, but the cutis is reflected back from the glans, and covering it in a relaxed state, is called *prepuce*.---The prepuce is tied down to the under part of the glans by a small ligament called *frœnum*, which is in fact only a continuation of the cuticle and cutis.

The *urethra* is a membranous canal, passing from the bladder through the whole extent of the penis. It affords a conveyance to the semen, which we have before observed is occasionally discharged into it from the vesiculæ seminales. The direction of this canal being first under and then before the pubis, occasions a winding in its course from the bladder to the penis, not unlike the turns of the letter *S*.

The penis has three pairs of muscles, the erectores, acceleratores, and transversales. Its arteries are chiefly derived from the internal iliacs. Some of them are supposed to terminate by the pabulous orifices within the corpora cavernosa and corpus spongiosum; and others in veins. Its nerves are large and numerous. They arise from the great sciatic nerve, and accompany the arteries in their course through the organ. The penis being of a spongy texture, the blood is constantly passing into its cells through the small branches of the arteries which open into them, and is from thence as constantly returned by the veins, so long as the corpora cavernosa and corpus spongiosum continue to be in a relaxed and pliant state. But when, through the influence of desire, the erectores penis, &c. contract, the veins undergo a degree of compression, and the passage of the blood through them is so much impeded, that it collects in them in a greater proportion than they are enabled to carry off. Hence the penis gradually enlarges; and being more and more forcibly drawn up against the os pubis, the vena magna itself is at length compressed, and the penis becomes erect.

For more circumstantial accounts of the parts composing the organs of generation in men, see their several names.

GENERIC, an epithet used to signify all the species of natural bodies which agree in certain essential and peculiar characters, and as being therefore all of the same family or kind; so that the word used as the *generical name* equally expresses every one of them, and some other words expressive of the peculiar qualities or figures of each are added, in order to denote them singly, and make up what is called the *specific name*. Instances of this occur in botany, zoology, &c.

GENE'VA, or GIN, an ordinary and unwholesome malt spirit; distilled a second time, with the addition of some juniper berries. Originally the berries were added to the malt in the grinding; so that the spirit thus obtained was flavoured with the berries from the first, and exceeded all that could be made by any other method. At present they leave out the berries entirely, and give their spirits a flavour by distilling them with a proper quantity of oil of turpentine; which, though it nearly resembles the flavour of juniper-berries, has few of their valuable qualities. This liquor, so generally drank by the lower orders of the people, is the bane of health and morals among them. Such, however, is the prevalence of habit, that *gin-drinking* will never be effectually abolished, or at least re-banished to the apothecaries' shops, which formerly enjoyed the exclusive privilege of selling that liquor, till the duties imposed on it become so heavy as to preclude its disposal in *drams*.

GENI'CULI, are the knots which appear in stems; therefore botanists call those so marked *geniculate*.

GE'NIO, (from γενειον, *the chin*). The anatomical names which are compounded of this word, belong to muscles which are attached to the chin.

GE'NIO-HYO-GLOSSUS, (of the Gr. γενειογλωσσος; from γενειον, *the chin*, and γλοςςα, *the tongue*); a muscle so called from its origin in the chin, and insertion into the tongue. This forms the fourth muscular layer between the lower jaw and the os hyoides. It arises from a rough protuberance in the inside of the middle of the lower jaw; its fibres spread out like a fan, forwards, upwards, and backwards, and are inserted into the top, middle, and root of the tongue, and base of the os hyoides, near its cornu. This muscle draws the tip of the tongue backwards, into the mouth, the middle downwards, and so renders its back concave. It also draws its root and the os hyoides, forwards, and thrusts the tongue out of the mouth.

GE'NIO-HYOIDE'US, (γενειουοειδαιος, from γενειον, *the chin*, and υοειδης, the *os hyoides*); a muscle so called from its origin in the chin, and its insertion in the os hyoides. It constitutes the third layer between the lower jaw and the os hyoides. It is long, thin, and fleshy; arising tendinous from a rough protuberance at the inside of the chin, and growing somewhat broader and thicker as it descends backward to be inserted, by very short tendinous fibres, into both the edges of the base of the os hyoides. It draws the latter forwards to the chin.

GE'NIPI ALBUM. The plant so called in the pharmacopæias is the *artemisia rupestris; foliis pinnatis, caulibus adscendentibus; floribus globosis, cernuis; receptaculo papposo*, Linn. It has a grateful smell, and is used, in some countries, in the cure of intermittents and obstructed catamenia, but with us it is unnoticed.

GE'NIPI VERUM. The plant directed in the foreign pharmacopœias, for medical purposes, under this title, is the *Achillea; foliis pinnatis, pinnis simplicibus, glabris, punctatis*, of Haller. It has a very grateful smell, and a very bitter taste, and is exhibited in Switzerland in the epilepsy, diarrhæa, and dyspepsia.

GENI'STA, (from *genu*, a knee; so called from the inflection and angularity of its twigs); the common broom. *Spartium scoparium; foliis ternatis solitariisque, ramis inermibus angulatis*, of Linnæus. Class, *Diadelphia*. Order, *Decandria*. The tops and leaves of this indigenous plant, are the parts that are mostly employed medicinally: these have a bitter taste, and are recommended for their purgative and diuretic qualities, in hydropic cases. Much has also been said of the seeds, bruised, and given, in such cases, with large quantities of olive oil. Dr. Mead relates the case of a dropsical patient that was cured by taking half a pint of a decoction of green broom tops, with a spoonful of whole white mustard-seed, every morning and evening. The patient had been tapped three times, and tried the usual remedies before. The seeds, or an infusion of them, drank freely, have been said to produce similar good effects; but these are to be expected in very few instances. A drachm and a half of them, powdered, will operate, in most cases, as a mild purgative.

GENI'STA CANARIE'NSIS; the systematic name of the tree whose wood is called rhodium. See Rhodium lignum.

GENITAL, a term applied to any thing that concerns generation, and particularly to the distinct parts of males and females.

GENSING, or Ginseng. See Ginseng.

GENTIA'NA, (from *Gentius*, king of Illyria, who first used it), also called *Gentiana rubra;* gentian, or *felwort*. The gentian that is met with in the shops is the root of the *Gentiana lutea; corollis subquinquefidis rotatis verticillatis, calycibus spathaceis*, of Linnæus. Class, *Pentandria*. Order, *Digynia*. This is imported from Switzerland and Germany. It is a perennial plant, which grows upon the Alps, Pyrenees, Appenines, and other mountainous situations in the temperate parts of Europe. The roots are long, thick, externally of a brown colour, and wrinkled; internally spongy, and of a yellow colour, without any remarkable smell, but surpassing in bitterness all other European vegetables. Alcohol dissolves only the bitter extractive; water, both the extractive and mucilage. Neumann got from 960 grains 390 alcoholic, and afterwards 210 insipid watery extract, and inversely 540 watery, and only 20 alcoholic.

The root of gentian possesses the general virtues of bitters in an eminent degree, and it is totally devoid of astringency. On dead animal matter it acts as an antiseptic. If taken into the stomach, it proves a powerful tonic, and in large doses it evacuates the intestines. It is useful in dyspepsia and debility of the stomach, in general debility, and in gouty affections. When combined with astringents it has cured intermittents. Externally, it is applied to putrid ulcers with advantage. It furnishes the following officinal preparations:—*Infus. gen. comp.* Edin. Lond. Dubl. *Tinct. gen. comp.* Edin. Lond. *Vin. gent. comp.* Edin. *Extract. gent.* Edin. Lond. Dubl. *Tinct. rhei cum. gent.* Edin.

GENTIA'NA ALBA; the *Laserpitium latifolium; foliis cordatis, inciso-serratis*, Linn. The root of this plant possesses stomachic, corroborant, and deobstruent virtues, but it is little used in this country.

GENTIA'NA CENTAU'RIUM; the systematic name of the lesser centaury. See Centaurium.

GENTIA'NA LU'TEA; the systematic name of the officinal gentian. See Gentiana.

GENTIA'NA RUBRA. See Gentiana.

GE'NU (*γονυ; ϖαρα το εις γην νευειν, because by it the body is bent towards the earth)*; the knee. See Knee.

GEOFFRÆ'A, (so named in honour of Dr. Geoffrey). The bark so called is the produce of the *Geoffroya inermis*, of Swatz. *Geoffroya inermis, foliolis lanceolatis*, Linn. Class, *Diadelphia*. Order, *Decandria*. A native of Jamaica, where it is distinguished by the name of *cabbage-bark tree*, or *worm-bark tree*. This bark is of a grey colour externally, but black and furrowed on the inside. It has a mucilaginous and sweetish taste, and a disagreeable smell. It is given in cases of worms, in form of powder, decoction, syrup, and extract. The decoction is preferred, and is made by slowly boiling an ounce of the fresh dried bark in a quart of water, till it assumes the colour of Madeira wine. This, sweetened, is the syrup; evaporated, it forms an extract. It commonly produces some sickness and purging; sometimes violent effects, as vomiting, delirium, and fever. These last are said to be owing to an over-dose, or to drinking cold water; and are relieved by the use of warm water, castor oil, or a vegetable acid. It should always be begun in small doses. But when properly and cautiously administered, it is said to operate as a very powerful anthelmintic, particularly for the expulsion of the lumbrici, which are a very common cause of disease in the West India islands; and there it is very frequently employed: but it has, we believe, been but little used in Britain. See Anthelmintica.

GEOFFROY'A JAMAICE'NSIS; the systematic name of the bastard cabbage-bark tree. See Cortex Geoffroya Jamaicensis.

GEOFFROY'A SURINAME'NSIS; the systematic name of the tree whose bark is esteemed as an anthelmintic. See the articles Geoffræa and Anthelmintica.

GERANI'TES, (from *γερανος, a crane)*; an appellation given to such of the semipellucid gems as are marked with a spot resembling a crane's eye.

GERA'NIUM, (*γερανιον*, from *γερανος*, *a crane*, so called because its pistil is long like the bill of a crane); the herb crane's-bill, formerly in some reputation for medicinal purposes, but now neglected.

GERA'NIUM BATRACHIOIDES, or crow-foot crane's-bill; the *geranium pratense* of Linnæus. This also possesses astringent virtues, but in a slight degree only.

GERA'NIUM COLUMBI'NUM, dove's-foot; the

geranium rotundifolium, Linn. This plant possesses slightly astringent virtues like the preceding.

GERA'NIUM MOSCHA'TUM. The astringent properties of this plant has induced some practitioners to exhibit it in cases of debility and profluvia; but its powers are not considerable.

GERA'NIUM PRATE'NSE; the systematic name of the crow-foot crane's-bill. See Geranium batrachioides.

GERA'NIUM ROBERTIA'NUM; stinking crane's-bill, or herb Robert. This common plant was formerly much esteemed as an external application in superficial erysipelatous inflammations, cancer, mastodynia, and old ulcers; but it is now deservedly fallen into disuse.

GERA'NIUM ROTUNDIFO'LIUM; the systematic name of the dove's-foot. See Geranium columbinum.

GERA'NIUM SANGUINA'RIUM, bloody crane's-bill; the *geranium sanguineum*, Linn. The astringent virtues ascribed to this plant do not appear to be considerable, nor is it regarded by the practitioners of the present day.

GERA'NIUM SANGUI'NEUM; the systematic name of the *geranium sanguinarium*.

GERARDE (John), a surgeon in London, and the greatest botanist of his time, was many years chief gardener to Lord Burleigh, who was himself a great lover of plants, and had the best collection of any nobleman in the kingdom, among which were a great number of exotics, introduced by Gerarde. In 1597 he published his *Herbal*, which was printed at the expence of J. Norton, who procured the figures from Franckfort. In 1663, Thomas Johnson, an apothecary, published an improved edition of Gerarde's book, which met with such approbation by the University of Oxford, that they conferred on him the degree of doctor of physic; and it is still much esteemed. The descriptions in the herbal are plain and familiar; and both these authors have laboured more to make their readers understand the characters of the plants, than to inform them that they themselves understood Greek and Latin.

GERCO'MIA, (from γερων, *an aged person*, and κομεω, *to be concerned about*); that part of medicine that prescribes to old age.

GERMA'NDER. See Chamædris.

GERMANDER, WATER. See Scordium.

GERM. See Germen.

GE'RMEN, in botany, the seed-bud; defined by Linnæus to be the base of the pistillum, which contains the rudiments of the seed, and, in the progress of vegetation, swells and becomes the seed-vessel. In assimilating the vegetable and animal kingdoms, Linnæus denominates the seed-bud the *ovarium* or *uterus* of plants, and affirms its existence to be chiefly at the time of the dispersion of the male dust by the antheræ; as, after its impregnation, it becomes a seed-vessel. See Botany. Germen, by Pliny and the ancient botanists, is used to signify a bud containing the rudiments of the leaves. See Gemma.

GERMINATION, in botany, comprehends the precise time which the seeds take to rise after they have been committed to the soil. The different species of seeds are longer or shorter in rising, according to the degree of heat which is proper to each. Millet, wheat, and several of the grasses, rise in one day; blite, spinach, beans, mustard, kidney-beans, turnips, and rocket, in three days; lettuce and dill, in four; cucumber, gourd, melon, and cress, in five; radish and beet, in six; barley, in seven; orach, in eight; purslane, in nine; cabbage, in ten; hyssop, in thirty; parsley, in forty or fifty days; peach, almond, walnut, chesnut, pæony, horned-poppy, hypecoum, and ranunculus falcatus, in one year; rose-bush, cornel-tree, hawthorn, medlar, and hazel-nut, in two. The seeds of some species of orchis, and of some liliaceous plants, never rise at all. Of seeds, some require to be sown almost as soon as they are ripe, otherwise they will not sprout or germinate: of this kind are the seeds of coffee and fraxinella. Others, particularly those of the pea-bloom flowers, preserve their germinating faculty for a series of years. Mr. Adanson asserts, that the sensitive plant retains that virtue for 30 or 40 years.

Air and water are the agents of germination. The humidity of the air alone makes several seeds to rise when exposed to it. Seeds too are observed to vegetate in water, without the intervention of earth; but water without air is insufficient. Mr. Homberg's experiments on this head are decisive. He put several seeds under the exhausted receiver of an air-pump, with a view to establish something certain on the causes of germination. Some of them did not rise at all; and the greatest part of those which did, made very weak and feeble productions. Thus it is for want of air that seeds which are buried at a very great depth in the earth, either thrive but indifferently, or do not rise at all. They frequently preserve, however, their germinating virtues for many years within the bowels of the earth; and it is not unusual, upon a piece of ground being newly dug to a considerable depth, to observe it soon after covered with several plants, which had not been seen there in the memory of man. Were this precaution frequently repeated, it would doubtless be the means of recovering certain species of plants which are regarded as lost; or which, perhaps, never coming to the knowledge of botanists, might hence appear the result of a new creation. Some seeds require a greater quantity of air than others. Thus purslane, which does not rise till after lettuce in the free air, rises before it *in vacuo;* and both prosper but little, or perish altogether, while cresses vegetate as freely as in the open air.

GESNER (Conrad), a celebrated physician and naturalist, was born at Zurich in 1516. Having finished his studies in France, he travelled into Italy, and taught medicine and philosophy in his own country with extraordinary reputation. He was acquainted with the languages, and excelled so much in natural history, that he was surnamed the *Pliny of Germany*. He died in 1564, leaving many works behind him, the principal of which are, 1. A history of animals, plants, and fossils; 2. *Bibliotheca Universalis;* a Greek and Latin lexicon. This author is, by Boerhaave, emphatically styled *monstrum eruditionis*, a prodigy of learning. Those indeed (as Mr. Coxe observes, in his Letters on Switzerland) "who are conversant with the works of this great scholar and naturalist, cannot repress their wonder and admiration at the amplitude of his knowledge in every species of erudition, and the variety of his discoveries."

GESTATION, (*gestatio*, from *gesto*, to bear); exercise in a coach or other carriage. See EXERCISE. Also the time of a woman's going with child. The latter case is usually termed *utero-gestation*. See PREGNANCY and GRAVID UTERUS.

GE'UM RIVA'LE. The *radix gei rivalis*, is the part directed for medicinal uses; of this species there are varieties, with red and with yellow flowers. It is inodorous, and imparts an austere taste. In North America it is in high estimation in the cure of intermittents, and is said to be more efficacious than the Peruvian bark. Diarrhœas and hæmorrhages are also stopped by its exhibition, which circumstance demonstrates its astringent properties.

GE'UM U'RBANUM. See CARYOPHYLLATA.

GIANT, a person of extraordinary bulk and stature. The romances of all ages have furnished us with so many extravagant accounts of giants of incredible bulk and strength, that the existence of such people is now generally disbelieved. It is commonly thought, that the stature of a man has been the same in all ages; and some have even pretended to *demonstrate* the impossibility of the existence of giants mathematically. Of these Mr. M'Laurin has been the most explicit, yet his arguments are by no means conclusive. In the scriptures we are told of *giants*, who were produced from the marriages of the *sons of God* with the *daughters of men*. This passage indeed has been differently interpreted, so as to render it doubtful whether the word translated *giants* does there imply any extraordinary stature. In other parts of scripture, however, giants with their dimensions are mentioned in a manner that we cannot possibly doubt; as in the case of Og, king of Basan, and Goliath. In a memoir read before the Academy of Sciences at Rouen, M. Le Cat gives the following account of giants that are said to have existed in different ages.

"Profane historians have given seven feet of height to Hercules their first hero; and in our days we have seen men eight feet high. The giant who was shown in Rouen in 1735 measured eight feet some inches. The emperor Maximin was of that size; Shenkins and Platerus, physicians of the last century, saw several of that stature; and Goropius saw a girl who was ten feet high. The body of Orestes, according to the Greeks, was eleven feet and a half; the giant Galbara, brought from Arabia to Rome under Claudius Cæsar, was near ten feet; and the bones of Secondilla and Pusio, keepers of the gardens of Sallust, were but six inches shorter. Funnam, a Scotsman, who lived in the time of Eugene II. king of Scotland, measured eleven feet and a half; and Jacob le Maire, in his voyage to the straits of Magellan, reports, that on the 17th of December, 1615, they found at Port Desire several graves covered with stones; and having the curiosity to remove the stones, they discovered human skeletons of ten and eleven feet long. The chevalier Scory, in his voyage to the Peak of Teneriffe, says, that they found, in one of the sepulchre caverns of that mountain, the head of a Guanche which had eighty teeth, and that the body was not less than fifteen feet long. The giant Ferragus, slain by Orlando nephew of Charlemagne, was eighteen feet high. Rioland, a celebrated anatomist, who wrote in 1614, says, that some years before, there was to be seen in the suburbs of St. Germain, the tomb of the giant Isoret, who was twenty feet high. In Rouen in 1509, in digging in the ditches near the Dominicans, they found a stone tomb, containing a skeleton whose skull held a bushel of corn, and whose shin-bone reached up to the girdle of the tallest man there, being about four feet long, and consequently the body must have been seventeen or eighteen feet high. Upon the tomb was a plate of copper whereon was engraved, "In this tomb lies the noble and puissant lord, the chevalier Ricon de Vallemont, and his bones." Platerus, a famous physician, declares, that he saw at Lucerne, the true human bones of a subject which must have been at least nineteen feet high. Valence, in Dauphiné, boasts of possessing the bones of the giant Bucart, tyrant of the Vivarais, who was slain by an arrow by the count De Cabillon his vassal. The Dominicans had a part of the shin-bone, with the articulation of the knee, and his figure painted in fresco, with an inscription, showing that this giant was twenty-two feet and a half high, and that his bones were found in 1705 near the banks of the Moderi, a little river at the foot of the mountain of Crussol, upon which (tradition says) the giant dwelt.

"January 11, 1613, some masons digging near the ruins of a castle in Dauphiné, in a field which (by tradition) had long been called the *giant's field*, at the depth of eighteen feet discovered a brick tomb thirty feet long, twelve feet broad, and eight feet high; on which was a grey stone, with the words *Teutobochus Rex* cut thereon. When the tomb was opened, they found a human skeleton entire, twenty-five feet and a half long, ten feet wide across the shoulders, and five feet deep from the breast-bone to the back. His teeth were about the size each of an ox's foot, and his shin-bone measured four feet. Near Mazarino in Sicily, in 1516, was found a giant thirty feet high; his head was the size of an hogshead, and each of his teeth weighed five ounces. Near Palermo, in the valley of Mazara, in Sicily, a skeleton of a giant thirty feet long was found, in the year 1548; and another of thirty-three feet high, in 1550; and many curious persons have preserved several of these gigantic bones.

"The Athenians found, near their city, two famous skeletons, one of thirty-four and the other of thirty-six feet high. At Totu in Bohemia, in 758, was found a skeleton, the head of which could be scarce encompassed by the arms of two men together, and whose legs, which they still keep in the castle of that city, were twenty-six feet long. The skull of the giant found in Macedonia, September 1691, held 210 pounds of corn.

"The celebrated Sir Hans Sloane, who treated this matter very learnedly, does not doubt these facts; but thinks the bones were those of elephants, whales, or other enormous animals. Elephants' bones indeed may be shown for those of giants to the vulgar; but they can never be imposed on anatomists as such. Whales, which, by their immense bulk, are more proper to be substituted for the largest giants, have neither arms nor legs; and the head of that animal has not the least resemblance to that of a man. If it be true, therefore, that a great number of the gigantic bones which we have mentioned have been seen by anatomists, and by them have been reputed real human bones, the existence of giants is proved."

With regard to the credibility of all or any of these accounts, it is difficult to determine any thing. If, in any castle of Bohemia, the bones of a man's leg twenty-six feet in length are preserved, we have indeed a decisive proof of the existence of a giant, in comparison of whom most others would be but pigmies. Nor indeed could these bones be supposed to belong to an elephant; for an elephant itself would be but a dwarf in comparison of such a monster. But if these bones were really kept in any part of Bohemia, it seems strange that they have not been frequently visited, and particular descriptions of them given by the learned who have travelled into that country. It is certain, however, that there have been nations of men considerably exceeding the common stature. Thus all the Roman historians inform us, that the Gauls and Germans exceeded the Italians in size; and it appears that the Italians in those days were of much the same stature with the people of the present age. Among these northern nations, it is also probable, that there would be as great differences in stature as there are among the present race of men. If that can be allowed, we may easily believe that some of these barbarians might be called *giants*, without any great impropriety. Of this superiority of size, indeed, the historian Florus gives a notable instance in Teutobochus, abovementioned, king of the Teutones; who, being defeated and taken prisoner by Marius, was carried in triumph before him at Rome, when his head reached above the trophies that were carried in the same procession.

But whether these accounts are credited or not, we are very certain that the stature of the human body is by no means absolutely fixed. We are ourselves a kind of giants in comparison of the Laplander; nor are these the most diminutive people to be found upon the earth. The abbe La Chappe, in his journey into Siberia in order to observe the last transit of Venus, passed through a village inhabited by people called *Wotiacks*, neither men nor women of whom were above four feet high. The accounts of the Patagonians also, which cannot be easily discredited, render it very probable, that somewhere in South America there is a race of people very considerably exceeding the common size of mankind, and consequently that we cannot altogether discredit the relations of giants handed down to us by ancient authors; though what degree of credit we ought to give them, is not easy to be determined.

GIBBOUS, a term in surgery, denoting any protuberance or convexity of the body, by which a person becomes hunched or hump-backed. An incurvated state of the spine, arising from a preternatural softness of the bones, is very common in scrophulous and rickety children. See SPINE, DISTORTED.

GILEAD, BALSAM. See BALSAMUM GILEADENSE.

GILL GO-BY-GROUND. See HEDERACEA.

GILLIFLOWER. See CARYOPHYLLUS RUBER.

GINGER. See ZINZIBER.

GINGER-BREAD, a composition prepared of flour, and sugar or treacle, to which is added a certain proportion of ground ginger, whence it has received its name. Dr. Willich says, ginger-bread, well baked, may occasionally be of service to travellers, if a small portion of it be taken early in the morning, on an empty stomach; but it ought seldom, or very sparingly, to be given to children, whose stomachs it materially injures; especially when ornamented with *leaf-gold*, as it is erroneously called, though the glittering bait consists of *Dutch gold*, that is, brass or *copper* reduced to the fineness of gold-leaf, and which is one of the most injurious poisons. From this fruitful source arise gripes, obstipations of the bowels, obstructions of the mesenteric glands, and other fatal disorders that frequently torment infants, and which, there is great reason to fear, have carried many helpless victims of indulgence to an untimely grave.

GINGI'DIUM. See CHÆREFOLIUM.

GINGI'VÆ, (from *gigno*, to beget, because the teeth are, as it were, *born* in them); the gums. See GUMS.

GI'NGLYMUS, (from *γιγγλυμον, a hinge)*; the hinge-like joint; a species of *diarthrosis* or moveable connexion of bones, which admits of flexion and extension, instanced in the knee-joint, &c. Of this species of articulation there are three sorts. The first is, when the end of a bone has two protuberances, and one cavity: and the end of a bone which is articulated with it has two cavities and one protuberance; as the humerus and the ulna. The second is, when a bone at the extremity receives another bone, and at its other extremity is received by the same bone, as the radius and ulna. The third sort is, when a bone at one end receives another bone, and at the other end is received by a third bone, as the vertebræ do.

GINSENG, (GINSENG, Ind.) The plant from which this root is obtained is the *Panax quinquefolium; foliis ternis quinatis*, Linn. Class, *Polygamia.* Order, *Dioecia.* See PANAX. It is imported into this country scarcely the thickness of the little finger, about three or four inches long, frequently forked, transversely wrinkled, of a horny texture, and both internally and externally of a yellowish white colour. To the taste it discovers a mucilaginous sweetness, approaching to that of liquorice, accompanied with some degree of bitterness, and a slight aromatic warmth. The Chinese ascribe extraordinary virtues to the root of ginseng, and have no confidence in any medicine unless in combination with it: so valuable indeed is it with them, as to be sold for many times its weight in silver. In Europe, however, it is very seldom employed; seldomer, perhaps, than it ought to be.

GLADI′OLUS, (dim. of *gladius*, a sword, so named from the sword-like shape of its leaf); the herb corn-flag.

GLADI′OLUS LU′TEUS. See IRIS PALUSTRIS.

GLAND, (*glandula*, dim. of *glans*, a gland); an organic part, chiefly composed of a convolution of one or more arteries of a considerable length, from whose sides arise a vast number of excretory ducts. But though the larger secretions are made by visible glands, yet unconvolved arteries may also have excretory ducts for the same purpose. In this way, probably, secretions are made from all the membranes that line cavities, as well as in some other instances. There also arise from the arteries which enter into the composition of a gland, lymphatic vessels, whose use seems to be that of taking off the thinner parts of the blood, in those cases where a thick fluid is to be secreted. For lymphatics are found in greatest plenty, in such glands as separate the thickest fluids; as in the testicles and liver; and it is observable, that, where the thickest secretions are made, the velocity of the blood is the least, as if nature intended to give those seemingly more tenacious parts more time to be separated from the blood. The arteries that compose different glands are convolved in different manners; but whether or no their different secretions depend at all upon that, is somewhat difficult to determine. The excretory ducts arise from the arteries, and unite in their progress, as the roots of trees do from the earth; whilst the ducts, opening into different glands, separate from the same mass of blood their different juices. What these different secretions, however, depend on, whether the peculiar economy of the parts, or the different attractions, of which they are rendered capable, we are unable to say; although this subject has employed the attention of several ingenious anatomists.

Dr. Hooper arranges glands according to their fabric, in four classes, viz. 1. Simple glands. 2. Compounds of simple glands. 3. Conglobate glands. 4. Conglomerate glands. According to their fluid contents, they are more properly divided into, 1. Mucous glands. 2. Sebaceous glands. 3. Lymphatic glands. 4. Salival glands. 5. Lachrymal glands. Simple glands are small hollow follicles, covered with a peculiar membrane, and having a proper excretory duct, through which they evacuate the liquor contained in their cavity. Such are the mucous glands of the nose, tongue, fauces, trachea, stomach, intestines, and urinary bladder, the sebaceous glands about the anus, and those of the ear. These simple glands are either dispersed here and there, or are contiguous to one another, forming a heap in such a manner that they are not covered by a common membrane, but each has its own excretory duct, which is never joined to the excretory duct of another gland. The former are termed solitary simple glands, the latter aggregate or congregate simple glands. The compound glands consist of many simple glands, the excretory ducts of which are joined in one common excretory duct; as the sebaceous glands of the face, lips, palate, and various parts of the skin, especially about the pubes. *Conglobate*, or, as they are also called, lymphatic glands (see LYMPHATICS), are those into which lymphatic vessels enter, and from which they go out again: as the mesenteric, lumbar, &c. They are composed of a texture of lymphatic vessels, connected together by cellular membrane; having no excretory duct: they are largest in the fœtus. *Conglomerate* glands are composed of a congeries of many simple glands, whose excretory ducts open into one common trunk: as the parotid gland, thyroid gland, pancreas, and all the salival glands. Conglomerate glands differ but little from the compound glands, yet they are composed of more simple glands than the compound. The excretory duct of a gland is the duct through which the fluid of the gland is excreted. The vessels and nerves of glands always come from the neighbouring parts, and the arteries appear to possess a higher degree of irritability. The use of the glands is to separate a peculiar liquor, or to change it. The use of the conglobate glands is unknown. For an account of particular glands, see their distinguishing names; as PAROTID, SUBLINGUAL, &c.

GLA′NDULA LACHRYMA′LIS. See LACHRYMAL GLAND.

GLA′NDULA PITUITA′RIA, the pituitary gland; a small spongy body lodged in the sella turcica, between the sphenoidal folds of the dura mater. It is a peculiar kind of substance, and seems to be neither medullary nor glandular. On the outside it is partly greyish and partly reddish, but white within. It is transversely oval or oblong; and on the lower part, in some subjects, it is divided by a small notch into two lobes, like a kidney-bean. It is covered by the pia mater as by a bag, the opening of which is the extremity of the infundibulum; and it is surrounded by the small circular sinuses which communicate with the sinus cavernosi.

GLA′NDULÆ MYRTIFO′RMES, also called *Carunculæ myrtiformes;* those small glandiform bodies, situated at the entrance of the vagina in women. They are the remains of the hymen, which is ruptured into several parts during the first coition with the male sex.

GLA′NDULÆ PACCHIO′NIÆ, (from *Pacchioni*, the name of the discoverer). These are a number of small, oval, fatty substances, not yet ascertained to be glandular, situated under the dura mater, about the sides of the longitudinal sinus. Their use is not known to the anatomists of the present day.

GLANS PENIS; the head, nut, or rounded extremity of the penis. See PENIS. The spongy substance of the urethra having reached the extremity of the corpora cavernosa, forms a large head, called the *glans*, which crowns the three spongy pillars; with this difference, however, that it is a continuation of the spongy substance of the urethra, and only adheres to the extremity of the corpora cavernosa, without any direct communication. It is for this reason, that if we blow into the spongy substance of the urethra (see CORPUS SPONGIOSUM URETHRÆ), the glans is presently inflated, and no air passes into the corpora cavernosa; but when we blow into one of these bodies, the air passes immediately into the other, the urethra and glans remaining as they were.

The figure of the glans is that of a rounded cone, a little flattened at the lower part, and with an oblique prominent basis, the circumference of which is something greater than that of the corpora cavernosa. The spongy substance of the glans is thick and uniform, next the corpora cavernosa; but next the urethra it is perforated by a continuation of that canal, and is there no thicker than the urethra before the formation of the glans. Therefore the canal of the urethra does not lie in the middle of the glans, but continues its direct course through the lower flat side of it, all the way to the extremity, where it terminates by an oblong orifice.

All the convex surface of the glans is covered by a fine villous substance, and that again by a fine membrane, resembling the red part of the lips. The circumference of the basis of the glans has a double row of small papillæ, which may be reckoned sebaceous glands, from which a cheesy matter is discharged.

GLANS UNGUENTA'RIA. See Ben nux.

GLASS. This substance is sometimes employed by surgeons, when finely powdered, as an escharotic to opacities of the cornea. See Cornea.

GLASS OF ANTIMONY. See Antimonium vitrificatum.

GLASS-WORT, SNAIL-SEEDED. See Kali.

GLAUBER (John Rodolphus), a celebrated German chemist, who flourished about the year 1646. He wrote a great number of different treatises on chemistry, some of which have been translated into Latin and French. All his works have been collected into one volume, entitled, *Glauberus concentratus*, which has been translated into English, and was printed at London, in folio, in 1689. This eminent man was the inventor of *the purging salts*, long called by his name, but since by the London College, *natron vitriolatum*. See that article.

GLAUBER'S SALT. See Natron vitriolatum.

GLAUCO'MA, (γλαυκωμα, γλαυκος, *blue*, because of the eye becoming of a blue or sea-green colour); an opacity of the vitreous humour, very difficult to ascertain. It is only to be known by a very attentive examination of the eye, and when known to exist admits of no remedy that we are acquainted with.

GLECO'MA, (γληχωμα; from γληχων, the name of a plant in Dioscorides); ground-ivy.

GLECO'MA HEDERA'CEA; the systematic name of the ground-ivy. See Hedera terrestris.

GLEET, called by Dr. Swediaur, *blennorrhagia*. See Blennorrhagia. Dr. Cullen distinguishes this by making it synonimous with *gonorrhœa mucosa*, which name he gives to a discharge from the urethra, after the virulence of an impure gonorrhœa is destroyed. See Gonorrhœa. Whatever method has been used in the cure of a venereal gonorrhœa, it often happens that the formation of pus continues, and often proves more difficult of cure than the original disease. For, as Mr. Hunter has observed, the venereal inflammation is of such a nature as to go off of itself, or to wear itself out; or, in other words, it is such an action of the living powers as can subsist only for a certain time. But this, he says, is not the case with a gleet, which seems to take its rise from *a habit of action* which the parts have contracted, and as they have no disposition to lay aside this action, it of course is continued; for in those gonorrhœas which are tedious in their cure, that this habit is more rooted than in those which go off soon. A gleet, however, has not always the disposition to go on, for it often appears to stop of itself, even after every method has been ineffectually used; owing to some accidental changes in the constitution.

Mr. Hunter suspected that there was something of a scrofulous action in some gleets. A derangement of the natural actions of a part will be the cause of its falling into some new diseased action, to which there may be a strong tendency in the constitution. For instance, a cold falling on the eyes produces a scrofulous weakness in those parts, with a considerable discharge; and there are often scrofulous swellings in the tonsils, from the same cause. Hence it is, perhaps, that sea-bathing cures more gleets than the common cold-bath, or any other mode of bathing. Mr. Hunter found diluted sea-water, used as an injection, cure some gleets, though it did not always succeed.

A gleet is generally understood to arise from a weakness; but the treatment founded on this idea is so far from answering in all cases, that it often does harm, and a contrary practice is successful.

A gleet differs from a gonorrhœa, first because, though a consequence of the latter, it is perfectly uninfectious; and secondly, when a true gleet, it is generally different in some of the constituent parts of the discharge, which consists of globular bodies involved in a slimy mucus instead of a serum. But the urethra is so circumstanced as easily to fall back into the formation of pus, and this commonly happens upon the least increase of exercise, eating or drinking indigestible food, or any thing which increases the circulation, or heats the patient. Whether the virus returns or not, Mr. Hunter is not certain, for there are cases that make it very doubtful. Gleets do not in all cases arise from preceding gonorrhœas, but sometimes from other diseases of the urethra. A stricture in the urethra is almost always attended with a gleet (see Stricture); and the latter sometimes arises also from a disease in the prostate gland. See Prostate gland. When a gleet does not arise from any evident cause, nor can be supposed to be a return of a former gleet, in consequence of a gonorrhœa, one of the two last mentioned causes is to be suspected; and inquiry should be made into the circumstances of making water, whether the stream is smaller than common? whether there be any difficulty in voiding it? and whether the calls to make it are frequent? If there should be such symptoms, a bougie, of a size rather less than the common, ought to be used, which will, if there is a stricture, stop when it reaches it; and, if it passes on to the bladder with tolerable ease, the disease is probably in the prostate gland, which should be next examined, by the finger, per anum.

With regard to the cure, as the discharge has no specific quality in a gleet, but depends upon the constitution of the patient, or on the nature of the parts themselves, there can be no certain or fixed method pointed out; and as it is very difficult to find out the true nature of different constitutions, or of parts, it becomes equally difficult to prescribe with certainty the medicines which will best suit this disease; for so great is the variety in constitutions, that what in one case proves a cure, will in another aggravate the complaint. The cure would appear to depend upon a change being produced in the action of the parts, and that change may be produced in a great many ways, in different constitutions, each having a mode of action peculiar to itself, which cannot certainly be known at first. Whatever method is followed, it will probably be a continuation of that which was put in practice towards the latter end of the cure of the gonorrhœa, and which was meant as a prevention of gleet. If such methods have not been already used, they may then be tried now, and varied according to circumstances.

There are two ways of attempting the cure of this complaint; to wit, constitutional, and local.

1. When *medicines* are taken into the constitution with this view, they may be supposed to act in three ways; as strengtheners, as astringents, and as producing specific effects on the parts affected, as when turpentines, cantharides, &c. are taken inwardly. The specific power of internal medicines upon those parts, Mr. Hunter considers not very great; yet we find some of them, such as those just mentioned, are of use, especially in slight cases. He thinks he had ascertained this fact, that when the balsams, turpentines, or cantharides, are of service, they are almost immediately so; therefore, if upon trial they are not found to lessen, or totally to remove, the gleet in five or six days, he never chose to continue them longer. And even where they either lessened or removed the gleet in that time, it would often recur upon leaving them off; for which reason they should be continued for some time after the symptoms have disappeared. Cases have occurred, where the gleet has disappeared immediately upon taking *balsamum copaivæ*, and recurred upon leaving it off; and Mr. Hunter also speaks of instances where that medicine has kept it off for more than a month, and yet it has recurred immediately upon laying it aside, and stopped again as quickly, upon having recourse to it. In such cases the other methods of cure, he says, should be tried. The balsams may either be given alone, or mixed with mucilage of gum arabic, and other substances, so as to make them less disagreeable to the palate.

The general strengtheners of the habit need only be given when the parts act merely as parts of that habit. By disposing the whole to act properly, these parts are also disposed to act in the same way. Such are the cold-bath, sea-bathing, the bark, preparations of iron, &c. Astringents taken into the constitution have no great powers, and if they had, they might be very improper; as any thing that could act with powers in the constitution, equal to what would be necessary in such a case, might very much affect many natural operations in the animal economy. The astringent gums, and vitriolated iron, are commonly given by practitioners.

2. The second mode of cure is by *local applications.* These Mr. Hunter divides into four kinds; viz. specifics, astringents, irritating medicines, and such as act by derivation.

The specifics applied locally, may be reasonably supposed to have greater effect than when given internally, because they may be applied stronger than can safely be done by the latter mode. Those commonly used are, the decoction of cinchona, vitriolated zinc, alum, and the preparations of lead. The *aqua vitriolica cœrulea*, of the former London Dispensatory, diluted with eight times its quantity of water, makes a very good astringent injection. What was said of the specifics is applicable to the class of astringents; Mr. Hunter supposes they act nearly in the same manner, and have the same effect, but what their mode of action is, it is not easy to say.

When either of the foregoing methods have been used, and have had the desired effect, they should be continued for a considerable time after the symptoms have disappeared, and this time must be in proportion to the duration of the complaint, or the frequency of its returns. If it has been of long standing, we may be sure that the disposition for such a complaint is strong; and if it has returned frequently, upon the least increase of circulation, we may expect the same thing to happen again; therefore to correct the pernicious habit, it is necessary to continue the medicines for a considerable time after all appearances have ceased.

3. Irritating methods are, either injections or bougies, simple, or medicated with irritating medicines; violent exercise may be considered also as having the same effect. Such applications should never be used till the other methods have been fully tried and found unsuccessful. They differ from the others, in producing at first a greater discharge than the one they are intended to cure; and the increased discharge may or may not continue as long as the application is used. It becomes therefore necessary to enquire how long they are to be used to produce a cure of the gleet. That time will generally be in proportion to the violence used, and the nature of the parts which form the matter; and according to the disposition being strong or weak, joined to its duration, and the greater or less irritability of the parts. If the parts are either weak or irritable, or both, an irritating injection should not be used; if strong, and not irritable, it may be used with safety. In this last case, if it be an injection that *stimulates very considerably*, perhaps using it twice, or thrice, may be sufficient. Mr. Hunter speaks of a gentleman who injected, for a gleet of two years standing, *Goulard's extract of lead undiluted*, which produced a most violent inflammation, but when this inflammation went off, the gleet was cured. Two grains of hydarg. muriat. to eight ounces of water, is spoken of as a very good irritating injection.

"If it is a gleet of old standing," says Mr. Hunter, "it may require a week or more to remove it, even with an irritating injection; and if the injection is less irritating, so as to give but little pain, and increase the discharge in a small degree, it may require a fortnight. But one precaution is very necessary, respecting the use of irritating injections; it should first be known, if possible, that they will do no harm. To know this may be difficult in many cases, but the nature of the parts is to be ascertained as nearly as possible, that is, whether they had ever been hurt before by such treatment; whether they were so susceptible of irritation, as that the irritation would run along the urethra, and produce symptoms in the bladder; for, in such cases, I think irritating applications do not answer, but, on the contrary, often produce worse disorders than those they were meant to cure."

Bougies, he says, may be classed with the irritating applications, and in many cases they act very violently. They appear to be more efficacious than injections, but require a longer time to produce their full effect. "A simple, or unmedicated bougie, is in general sufficient for the cure of a gleet, and requires a month or six weeks application before the cure can be depended on. If they are made to stimulate otherwise than as extraneous bodies, then a shorter time will generally be sufficient; probably the best mode of medicating them would be, by mixing a little turpentine, or a little camphire, with the composition, so as to act specifically on the parts; but *great care should be taken not to irritate too much.* The size of the bougie should be smaller than the common, and need only be five or six inches long, as it seldom happens that a greater extent of the urethra has the disposition for gleet; although no harm will arise from passing a bougie of the common length through the whole length of the urethra."

In the cure of a gleet by the bougie, we have no certain rule to direct us when it should be left off; as the discharge will often continue as long as the bougie is used. If, upon leaving off the bougie after having used it for several weeks, the running stops, then we may hope there is a cure performed; but if it should not be in the least diminished, it is more than probable that bougies will not effect a cure, and therefore it is hardly necessary to have recourse to them again; yet if the gleet is in part diminished, it will be right to begin again, and probably it may be proper to increase the irritating quality of the bougie, to suit it to the diminished irritability of the parts.

4. The last mode of cure is by sympathy, or by producing an irritation in another part of the body, which shall destroy the mode of action in the urethra. Mr. Hunter speaks of a case of obstinate gleet, attended with very disagreeable sensations in the urethra, especially at the time of making water, which ceased on the appearance of two chancres upon the glans: the patient had taken all the usual medicines, and even the bougie, without any benefit. Gleets have also been cured by blistering the underside of the urethra, and several of old standing, after having baffled all common attempts, yielded to electricity. In these different methods of cure, the disposition of the part is altered by the remedy applied.

In whatever way the cure is attempted, however, Mr. Hunter says, rest, or quietness, in most cases, is of great consequence; for exercise itself is often a cause, not only of its continuance, but of its increase and return. Yet, he says, this idea is not to be too rigidly adhered to, especially in cases which have been treated unsuccessfully; as some persons have got immediately well, by riding on horseback, after having long disused that exercise. Moderation in eating and drinking should be particularly attended to, for irregularities of this kind either hinder the cure or cause a relapse.

Venereal connections also often cause a return, or increase of the disease, and give suspicion too of a fresh infection; but, Mr. Hunter believes, the difference between this and a fresh infection, is, that "the return will follow the connection so close, as to be almost immediate, and that circumstance joined with the other symptoms, will, in general, ascertain the nature of the discharge."

Gleets are more frequent in women than in men, or at least a discharge from the vagina is very common in them, and this, when following a venereal taint, will be thought a gleet, though only the fluor albus. The cure is nearly the same as in men, except in the use of what Mr. Hunter calls *specifics* to the parts; for as the gleet in women is principally from the vagina, this part is not more affected by the turpentine than the other parts are. Neither can we use the bougie in cases of gleet in the vagina; and when the discharge is only from the urethra, it is rarely attended to in females.

GLENOID CAVITY, (*cavitas glenoides*; γληνοειδης, from γληνη, *a cavity*, and ειδος, *resemblance*); the articular cavity of the scapula. See Scapula.

GLIMMER, a name for Mica. See Mica.

GLISSON (Francis), a learned English physician, in the 17th century, was educated at Cambridge, and was made regius professor of that university. In 1634 he was admitted a fellow of the college of physicians in London. During the civil wars, he practised physic at Colchester, and afterwards settled in London. He greatly improved physic by his anatomical dissections and observations, and made several new discoveries of singular use towards establishing a rational practice. He wrote, 1. *De rachitide*, &c. 2. *De lymphæductis nuper repertis*; with the *Anatomica prologomenta, & Anatomia hepatis*. 3. *De naturæ substantia energetica; seu de via vitæ naturæ, ejusque tribus primis facultatibus*, &c. quarto. 4. *Tractatus de ventriculo & intestinis*, &c. The medical world is obliged to him for the *capsula communis*, or *vagina portæ*.

GLISTER. See Clyster.

GLOBATE GLAND, in opposition to conglobate; a simple lymphatic gland. See Gland.

GLOBULA'RIA ALYPHUM: a plant used in some parts of Spain for the cure of the venereal disease. The leaves of it is said to act also as a powerful but safe cathartic.

GLOBULES, such small particles of matter as are of a globular or spherical figure; as the red particles of the blood, which swim in transparent serum, and are easily discovered by the microscope. See Blood.

GLO'BUS HYSTERICUS; the air rising in the œsophagus, and prevented by spasm from reaching the mouth. It is so called by medical authors, because it mostly attends hysteria; and gives the sensation of a ball ascending in the throat. See Hysteria.

GLOMERATE GLAND, (of *glomer*, Lat. a clue of thread); a gland formed of a glomer of sanguineous vessels, having no cavity, but furnished with an excretory duct; as the lachrymal and mammary glands are.

GLO'SSO, (from *γλωςςα, the tongue).* The anatomical names that are compounded with this word, belong to muscles, nerves, or vessels; from their being attached or going to the tongue.

GLOSSOCO'MON, (*γλωσσοκομον*, from *γλωσσα, a tongue*, and *κομεω, to guard)*, an instrument or case for containing a fractured limb, described by the old writers.

GLOSSOPE'TRA, the fossil teeth of the white shark; to which the superstitious and uninformed have formerly attributed great medical virtues. Even now, the Germans rank them amongst their cordial, sudorific, and alexipharmic remedies; and the people of Malta, where they are extremely plentiful, hang them about their children's necks, to promote dentition; no doubt with the *same degree of success* as attends that ridiculous imposture known by the name of the *anodyne-necklace*.

GLO'SSO-PHARYNGEAL NERVES; the ninth pair of nerves. They arise from the processes of the cerebellum, which run to the medulla spinalis, and terminate by numerous branches in the muscles of the tongue and pharynx.

GLOSSO-PHARYNGE'US MUSCULUS, (*γλωςςοφαρυγγαιος*, from *γλωςςα, the tongue*, and *φαρυγξ, the pharynx)*; a muscle so named from its origin in the tongue, and its insertion in the pharynx. See Constrictor pharyngis superior.

GLOSSO-STAPHILI'NUS MUSCULUS, (*γλωςςοϛαφυλινος*, from *γλωςςα, the tongue*, and *ϛαφυλινος, the staphylinus)*; a muscle so named, because it is fixed in the tongue, and terminates in the staphylinus. See Constrictor isthmi faucium.

GLO'TTIS, (*γλωττις*, from *γλωττα, the tongue)*; the superior opening of the larynx at the bottom of the tongue, covered by the *epiglottis*.

GLUCINE, a peculiar earth, for the discovery of which we are indebted to Vauquelin, who found it, in 1795, in the aigue-marine or *beryl*, a transparent stone of a green colour, and in the emerald of Peru. It exists combined with silex, argil, lime, and oxid of iron in the one; and with the same earths, with oxid of chrome, in the other. It has also been discovered in the *gadolinite*, by Mr. Ekeberg. Its name is taken from the Greek word, *γλυκυς*, which signifies sweet or *saccharine*, because this earth gives a sweetish taste to the salts it forms. Mr. Accum describes the following as the properties of glucine. He says, it is white, light, and soft to the touch. It is insipid, and adheres to the tongue; and is infusible by itself in the fire. Its specific gravity is 2 967. It is soluble in alcalies and their carbonates, and in all the acids, except the carbonic and phosphoric, and forms with them saccharine and slightly astringent salts. It is exceedingly soluble in sulphuric acid, used to excess. It is fusible with borax, and forms with it a transparent glass. It absorbs one-fourth of its weight of carbonic acid. It decomposes sulphate of alumine. It is not precipitated by the hydrosulphurets, nor by prussiate of potass, but by all the succinates. Its affinity for the acids is intermediate between magnesia and alumine.

To obtain glucine, reduce some beryl to an impalpable powder, fuse it with three times its weight of potass, and dissolve the mass in muriatic acid. Separate the silex by evaporation and filtration, and decompose the remaining fluid, by adding carbonate of potass; re-dissolve the deposit, when washed in sulphuric acid, and, by mingling this solution with sulphate of potass, sulphate of alumine will be obtained which crystallizes. Then mix the fluid with a solution of carbonate of ammonia, which must be used in excess; filter and boil it, and a white powder will gradually fall down, which is glucine.

GLUE, a well-known tenacious matter, obtained by dissolving the sinews, skins, &c. of animals, and drying the product in proper frames or moulds. A glue that will hold against fire or water, it is said, may be made by boiling a handful of quicklime with four ounces of linseed oil, to a good thickness, and then spreading it to dry on tin-plates. It will become extremely hard, but may be easily dissolved over a fire, as common glue, and may be then applied in the usual manner. Neumann observes, that glue dissolved in a solution of lapis calaminaris in spirit of nitre, and afterwards inspissated, forms an extremely slippery tenacious mass, which might be of use for entangling flies, caterpillars, and other insects, if it was not too expensive. Glue smeared on linen is a useful plaster.

GLU'MA, in botany, a *glume;* a species of calyx, consisting of two or three membranous valves, which are often pellucid at the edges. This kind of calyx belongs to the grasses.

GLUTEAL ARTERY; a branch of the internal iliac artery. It passes out of the pelvis, in company with the sciatic nerve, through the upper part of the great sinus of the os innominatum, below the musculus pyriformis; and is distributed in a radiated manner, to the three glutæi muscles, and neighbouring parts.

GLU'TEN; an elastic, ductile, seemingly fibrous, or membranous substance, insoluble in water, and putrefiable like animal matter. Its taste is insipid. It is slightly soluble in alcohol. It is dissolved by alcalies. Dried gently, it becomes semi-transparent, hard, and breaks with a noise and smooth fracture. It may be obtained by working or kneading flour repeatedly with water, the insoluble mass remaining is gluten. It may be obtained from the expressed juice of scurvy-grass, cresses, &c. by merely suffering it to stand exposed to the air, in order to separate the colouring matter, and then boiling it briskly for a few minutes. The gluten will coagulate, and may be separated by percolation. It consists, according to the analysis of Mr. Accum, of hydrogen, carbon, and nitrogen; and differs from the preceding vegetable principles, by containing a much larger portion of nitrogen.

GLUTE'US MAXIMUS, (*gluteus*, from γλȣτος, the buttocks), the *Gluteus magnus* of Albinus, and *Glutæus major* of Cowper; a broad radiated muscle, which is divided into a number of strong fasciculi, covered by a pretty thick aponeurosis derived from the *fascia lata*, and situated immediately under the integuments. It arises fleshy from the outer portion of somewhat more than the posterior half of the spine of the ilium, from the ligaments that cover the two posterior spinous processes; from the posterior sacro-ischiatic ligament; and from the outer sides of the sacrum and os coccygis. From these origins the fibres run towards the great trochanter of the os femoris, where they form a broad and thick tendon, between which and the trochanter there is a considerable *bursa mucosa*. This tendon is inserted into the upper part of the *linea aspera*, for the space of two or three inches downwards; and sends off fibres to the fascia lata, and to the upper extremity of the vastus externus muscle. The gluteus maximus extends the thigh, by pulling it directly backwards; at the same time it draws it a little outwards, and thus assists in its rotatory motion. Its origin from the coccyx seems to prevent that bone from being forced too far backwards.

GLUTE'US ME'DIUS, a muscle which, in shape, greatly resembles the gluteus maximus. The posterior half of it is likewise covered by the latter; but the anterior and upper part only by the integuments, and by a tendinous membrane which belongs to the fascia lata. It arises fleshy from the outer lip of the anterior part of the spine of the ilium, from part of the posterior surface of that bone, and likewise from the fascia that covers it. From these origins its fibres run towards the great trochanter, into the outer and posterior part of which, it is inserted by a broad tendon. Between this tendon and the trochanter there is a small thin *bursa mucosa*. The uses of this muscle are nearly the same with those of the gluteus maximus; but it is not confined, like that muscle, to rolling the os femoris outwards, its anterior portion being capable of turning that bone a little inwards. It has no origin from the coccyx, and therefore can have no effect on that bone.

GLUTE'US MI'NIMUS; the *Glutæus minor* of Albinus; likewise a radiated muscle, and situated under the gluteus medius. In adults, commonly, and especially in old persons, its outer surface is tendinous. It arises fleshy between the two semicircular ridges to be observed on the outer surface of the ilium; and likewise from the edge of its great nich. Its fibres run in different directions towards a thick flat tendon, which adheres to the capsular ligament of the joint, and is inserted into the fore and upper part of the great trochanter. A small *bursa mucosa* may be observed between the tendon of this muscle and the great trochanter. This muscle co-operates with the two former in drawing the thigh backwards and outwards, and in rolling it. Dr. Hooper thinks it may likewise serve to preserve the capsular ligament from being pinched in the motions of the joint.

GLYCI'PICROS, (γλυκυπικϱος from γλυκυς, *sweet*, and πικϱος, *bitter*, so called from its bitterish sweet taste); the woody nightshade. See DULCAMARA.

GLYCYRRHI'ZA, (*Glycyrrhiza*, γλυκυρριζα; from γλυκυς, *sweet*, and ριζα, *a root*), liquorice; the sweet root of the *Glycyrrhiza glabra leguminibus glabris, stipulis nullis, foliolo impari petiolato* of Linnæus. Class, *Diadelphia*. Order, *Decandria*. It is a perennial plant, and a native of the south of Europe, but cultivated in considerable quantities in England for medical purposes. The roots which are produced in this country, are preferred to those imported from abroad, which are very frequently mouldy and spoiled. This is extremely apt to be the case when liquorice is not well preserved in a moderately dry place. The roots are very long, about an inch thick, flexible, fibrous, externally of a brown colour, internally yellow, and, when fresh, juicy. Their taste is very sweet, combined with a slight degree of bitter, when long kept in the mouth. They are prepared for use by peeling them, cutting away all the fibres and spoiled or mouldy parts. The powder of liquorice usually sold, is often adulterated with flour, and perhaps also with substances not quite so wholesome: the best sort is of a brownish yellow colour, the fine pale yellow being generally sophisticated; and it is of a very rich sweet taste, much more agreeable than that of the fresh root. Neumann got from 960 parts of dried liquorice, 300 parts of alcoholic extract, and afterwards 210 watery; and inversely, 540 watery, and only 30 of alcoholic. The original alcoholic extract is the sweetest.

The predominant constituents of this root being saccharine and mucilaginous matter, its only action is that of a mild demulcent, and as such it is frequently used in catarrh, and in some stomach-complaints, which seem to arise from a deficiency of the natural mucus, which should defend the stomach against the acrimony of the ingesta, or of the fluids secreted in it. Liquorice, on account of its bulk, is rarely exhibited in substance; but more frequently in infusion, or decoction, or extract. As the latter is never prepared by the apothecary, but commonly imported from other countries, the Edinburgh college have inserted it in their list of materia medica. It is prepared from the fresh roots by expression, decoction, and inspissation, in Catalonia; but it is not so pure or so agreeable as the *refined liquorice* sold in the shops in small cylindrical pieces.

The officinal preparations in which liquorice is included, are too generally known to require particular mention.

GLYCYRRHI'ZA ECHINA'TA; an inferior species of liquorice, which is substituted, in some places, for the root of the *glabra*.

GLYCYRRHI'ZA GLA'BRA; the systematic name of the officinal liquorice. See GLYCYRRHIZA.

GLYSSON'S CAPSULE. See CAPSULE OF GLYSSON.

GNAPHA'LIUM, γναφαλιον from γναφαλον, *cotton*, so named from its soft downy surface); the herb cotton-weed. The *flores gnaphalii* of the pharmacopœias, called also *flores hispedulæ; seu pedes cati* are the produce of the *Gnaphalium dioicum*, Linn. As a medicine they are now quite obsolete, but were formerly used as astringents, and recommended in the cure of hooping-cough, phthisis pulmonalis, hæmoptysis, and some other complaints.

GNAPHA'LIUM ARENA'RIUM. The flowers of this plant are, as well as those of the *gnaphalium stœchas*, called in the pharmacopœias, *flores elichrysi.* See ELICHRYSUM.

GNAPHA'LIUM DIO'ICUM; the systematic name of the *pes cati.* See GNAPHALIUM.

GNAPHA'LIUM STŒ'CHAS; the systematic name of Goldilocks. See ELICHRYSUM.

GOAT'S-RUE. See GALIGA.

GODDARD (Jonathan), an eminent physician and chemist, and one of the first promoters of the Royal Society, was born about the year 1617. He was elected a fellow of the college of physicians in 1646, and appointed reader of the anatomical lecture in that college in 1647. As he took part against Charles I. accepted the wardenship of Merton-college, Oxford, from Oliver Cromwell when chancellor, and sat sole representative of that university in Cromwell's parliament, he was removed from his wardenship in a manner disgraceful to him by Charles II. He was however then professor of physic at Gresham college, to which he retired, and continued to attend those meetings that gave birth to the Royal Society; upon the first establishment of which, he was nominated one of the council. Being fully persuaded that the preparation of medicines was no less the physician's duty than the prescribing them, he constantly prepared his own; and in 1668 published a treatise recommending his example to general practice. He died of an apoplectic fit in 1674; and his memory was preserved by the drops that bore his name, otherwise called *Guttæ Anglicanæ*, the secret of which he sold to Charles II. for 5000l. and which Dr. Lister assures us, was only the volatile spirit of raw silk rectified, with oil of cinnamon or some other essential oil. But he claims more particular regard, if what bishop Seth Ward says be true, that he was the first Englishman who made the telescope.

GOGGLES, in surgery, are instruments used for curing squinting, or that distortion of the eyes which occasions this disorder. See SQUINTING. They are short conical tubes, composed of ivory stained black, with a thin plate of the same ivory fixed in the tubes near their anterior extremities. Through the center of each of these plates is a small circular hole, about the size of the pupil of the eye, for the transmission of the rays of light. These goggles must be continually worn in the day-time, till the muscles of the eye are brought to act regularly and uniformly, so as to direct the pupil straight forward; and by these means the cure will be sooner or later effected.

GOLD; the most perfect, the most ductile, most tenacious, and most unchangeable, of all the known metals. Its specific gravity is very considerable; but it has neither smell nor taste. It is of a yellow colour, which varies according to the purity of the metal.

This metal when exposed to the fire becomes red-hot before it melts, and when melted suffers no alteration: but during the time of fusion, if a strong heat be applied, it appears of a beautiful green colour. Both Kunckel and Boyle kept it in a glass-house furnace for several months without change. But Homberg has observed, that this metal, exposed to the focus of the lens of Tschirnaus, smoked, was volatilized, and even vitrified in part; and Mr. Macquer has verified this observation by the mirror of Mr. De Trudane; he observed the gold fume become volatilized, and covered with a dull pellicle, which constituted a violet-coloured oxid towards the middle. This metal is not attacked by the sulphuric acid, but the nitric acid appears to have a real action upon it. The solution of gold by this acid was first noticed by Brandt; and his experiments were made in the presence of the king of Sweden, and verified by his academy. Both Scheffer and Bergman have, by their trials, confirmed the results of the Swedish chemists; and Mr. Sage has since published a series of experiments on the same subject. Mr. Chaptal is also convinced, from experiments several times repeated, that the purest nitric acid attacks gold in the cold, and is capable of dissolving a sixty-fourth part of a grain of it. When very pure nitric acid is boiled upon gold equally pure, the solution may be ascertained in three ways, viz. by the diminution of the weight of the metal, by the evaporation of the acid, in which case a purple spot remains at the bottom of the evaporatory vessel, and by the parting operation, which is by means of a plate of silver put into the liquor. In this case black flocks are in a short time disengaged, which consist of the gold itself. These phenomena appear to announce a true solution; and not a simple division or suspension, as has been supposed. The quantity of gold dissolved appeared to the above chemist to vary according to the strength of the acid, the time of the ebullition, and the thickness of the metallic body.

But the nitro-muriatic acid, and the oxigenated muriatic acid, are the true solvents of gold; and these acids attack it with greater energy in proportion as they are more concentrated, and as the surface of the gold is larger. The solution may likewise be accelerated by heat. This solution has a yellow colour, is caustic, and tinges the skin of a purple colour; and if it be properly concentrated, it affords yellow crystals, resembling topazes, which affect the form of truncated octahedrons. These crystals are a true muriate of gold, according to the experiments of Bergman, Sage, and some other chemists. If the solution of gold be distilled, a red liquor is obtained, which consists of the muriatic acid, coloured by a small quantity of gold which is carried over. This is the fluid which was distinguished by the *adepts* under the name of *Red Lion.* Gold may be precipitated from its solution of several colours, according to the nature of the substances employed to make the precipitation. It is precipitated by lime and magnesia in a yellow powder, in which the gold exists nearly in the metallic state; a slight degree of heat only being necessary to convert it to that state. The alkalis likewise precipitate gold in the form of a yellowish powder; and the precipitate is soluble in the sulphuric, nitric, and muriatic acids. These solutions when concentrated suffer the gold to precipitate, but crystals have not been obtained from them. If ammoniac be poured on a yellowish solution of gold, the colour disappears; but at the end of a certain time, small flocks are disengaged, which become more and more yellow, and gradually subside to the bottom of the vessel. This precipitate, being dried in the shade, forms the powder which is known by the name of *aurum fulminans* or *fulminating gold*.

In order to produce the property of detonating in this precipitate, it is absolutely necessary that ammonia be employed in its preparation. It has been shown, that, by gently heating fulminating gold in a copper tube, one extremity of which is plunged in the pneumato-chemical apparatus by the assistance of a syphon, alkaline gas may be obtained, and the precipitate be deprived of its fulminating property: this fine experiment was made by Mr. Berthollet. Mr. Bergman has also observed that, by exposing fulminating gold to a gentle heat, incapable of causing it to fulminate, it becomes deprived of that property. When the gold is made to fulminate, in tubes, the extremities of which are inserted under a vessel filled with mercury, the product is nitrogene gas, and some drops of water. Triturating fulminating gold with oily substances also deprives it of its property of fulminating. It is evident from these established facts, that fulminating gold is a mixture of ammonia and oxid of gold. When this mixture is heated, the oxigen is disengaged at the same time with the hydrogene of the alkali. These two gases take fire by simple heat, detonate, and produce water; the nitrogene gas then remaining alone. On these principles it ought to follow, that oily substances which combine with the oxigen, acids which seize the alkali, or a gentle and long-continued heat, which volatilizes the two principles without inflaming them, ought to deprive this preparation of its property of fulminating.

It is evident that the nitrous sulphur which Mr. Baumé supposed to be formed, in his explanation of this phenomenon, does not exist; for the solution of the oxid of gold by the sulphuric acid, when precipitated by ammonia, affords a fulminating precipitate. This metal is precipitated from its solution by several metals, such as lead, iron, silver, copper, bismuth, mercury, zinc, and tin. This last precipitates it instantly in the form of a powder, distinguished by the name of the *Purple powder of Cassius*, which is much used in porcelain manufactories. Gold may likewise be precipitated from its solution by ether: this liquor seizes the gold in a moment, and sometimes instantly revivifies it. The gold has been observed to form a stratum at the surface of the liquor, when the two fluids no longer contained a particle.

This metal is completely dissolved by the sulphures of alkali. For this purpose nothing more is necessary than quickly to fuse a mixture of equal parts of sulphur and potass with one-eighth of the total weight of the gold in leaves. This substance may then be poured out, pulverized, and dissolved in hot water. The solution has a yellowish green colour. It has been supposed by Stahl, that Moses dissolved the *golden calf* by a similar process.

Gold unites with most of the metals. Arsenic as well as bismuth, nickel, and antimony, render it brittle and also white and *eager*. It likewise unites very well with tin and lead, but these metals deprive it of its ductility. With this metal iron forms a very hard alloy, which can be employed to much greater advantage than pure gold, for many purposes. Copper renders this metal more fusible, and communicates a reddish colour to it. It is from this alloy that money, gold plate, and toys are formed. Silver makes it very pale; and this alloy constitutes the green gold of the goldsmiths.

Gold, notwithstanding the pretensions of the ancient alchymists, has added nothing to the materia medica; nor is it ever administered in diseases.

GOLD-BEATER'S SKIN; the intestinum rectum of an ox, which gold-beaters lay between the leaves of their metal while they beat it, whereby the membrane is reduced thin, and made fit to apply to cuts, or small fresh wounds, as is now the common practice.

GOLD-CUP; the vulgar name for many species of *Ranunculi*.

GOLD, FULMINATING. See Gold.

GOLDEN-ROD. See Virga aurea.

GOLDILOCKS. See Elichrysum.

GOMPHO'SIS, (*γομφωςις*; from *γομφοω*, *to drive in a nail)*; a species of synarthrosis, or immoveable connexion of bones, in which one bone is fixed in another, like a nail in a board, as the teeth in the alveoli of the jaws.

GONORRHŒ'A, (*γονορροια*, from *γονη*, *semen*, the seed, and *ρεω*, *fluo*, to flow); anciently used for any involuntary emission of seed, but now only for a discharge from the urethra, or the vagina, produced there either by laxity or irritation. Dr. Cullen places this disease in the class *locales* and order *apocenoses*; and defines it "a preternatural flux of humour from the urethra in men; with or without a desire of venery." The species he enumerates are the following: 1. Gonorrhœa *pura*, in which, without any impure venery having preceded, a humour resembling pus, without dysuria or propensity to venery, flows from the urethra. 2. Gonorrhœa *impura*, in which, after impure venery, a humour like pus flows from the urethra, with dysuria. The consequence of this is, 3. Gonorrhœa *mucosa*, in which, after an impure gonorrhœa, a mucous humour flows from the urethra, with little or no dysuria. 4. Gonorrhœa *laxorum*, in which a humour for the most part pellucid, without any erection of the penis, but with a propensity to venery, flows from the urethra while the person is awake. 5. Gonorrhœa *dormientium*, in which the seminal liquor is thrown out, with erection and desire of venery, in those who are asleep and have lascivious dreams

Dr. Swediaur observes, that this name is improperly applied to the disease known by it. He proposes, if a Greek word is necessary, to name it Blennorrhagia, from *Βλεννος*, *mucus*, and *ρεω*, *to flow*, i. e. *mucifluxus activus*; and thus he distinguishes it from the real gonorrhœa, and from gleets, to which latter he gives the name *blennorrhœa mucifluxus passivus*, i. e. *without phlogistic symptoms*.

Some reckon three species only of this disorder. 1. The *simple gonorrhœa*, called also *benign*, and popularly, *gleet*. 2. The *virulent* or venereal gonorrhœa. 3. The efflux of a limpid secretion from the urethra, in consequence of a venereal gonorrhœa. The first may be said to arise from an irritation which is not venereal; the second from the stimulus of syphilitic virus; and the third is a redundant secretion which the numerous glands of the urethra have acquired from habit. See GONORRHŒA BENIGNA, and GONORRHŒA VIRULENTA.

GONORRHŒ'A BENI'GNA, a disease which is defined by Dr. Fordyce, to be "an increased secretion from the mucous glands of the urethra, without infection." In this species the matter discharged is whitish and mild, producing no excoriation or other disorder, on the parts through which it passes, or on which it falls. A discharge originating in the application of any irritating matter (not venereal) to the urethra, and one that remains after a venereal infection has been removed, are usually considered and treated as cases of gonorrhœa benigna. After all the other symptoms have given way, a copious discharge of purulent *mucus* sometimes remains. Sometimes it arises from inflammation and excoriation of the urethra, but frequently when obstinate, it is found to arise from a stricture, or to be the effect of an enlargement and diseased state of the prostate gland. In each of these cases, as the gleet is the effect of irritation, the cure will depend on the removal of the local disease that occasions it. But there is another species of gleet, that seems to depend on relaxation; and is most common in those who have had long and frequent gonorrhœas. It is likewise the effect of a debilitated habit, from severe purging, or a long continued use of mercurials. A discharge of this kind is more frequent in women than in men; or, at least, the *fluor albus*, after a gonorrhœa, will often be mistaken for it. For the cure, in common cases, when there is no reason to suspect remaining infection, astringent injections will be of the greatest service. It will be necessary at the same time, to attend to the health of the patient, by employing the Peruvian bark, chalybeate waters, cold bathing, and such other remedies as will tend to strengthen the system: and indeed by the use of these, particularly by the Peruvian bark, such runnings are often successfully combated in those who, from apprehensions of dangerous consequences, cannot be prevailed upon to employ injections. When there is no tendency to inflammation, balsam of copaiva may be prescribed with advantage in moderate doses. Dr. Simmons says he once saw a complaint of this sort removed by applying a blister to the perinæum, after it had resisted a variety of other remedies. In the Medical Observations also we have an account of a gleet and incontinence of urine removed at once by a blister to the os sacrum. In general, however, the other methods abovementioned will be sufficient to remove it, though sometimes it will continue for a long time in spite of all our endeavours to check it.

GONORRHŒ'A VIRULE'NTA; the virulent or infectious gonorrhœa. The first symptoms of this disease in men are commonly a sensation at the end of the penis not unlike a flea-bite, together with a fulness of the lips of the urethra, and some degree of tension in the penis, the urinary canal feeling as if tightened, and the urine flowing in a small and unequal stream: a little whitish mucus is to be seen about the orifice of the urethra, and oozing from it when lightly pressed, especially if the pressure be made on the spot where the soreness is most felt. The discharge soon increases in quantity, and varies in its colour according to the degree of inflammation. The patient feels a sensation of heat and pain in evacuating his urine, particularly at certain spots of the urethra, and above all towards its orifice; and the involuntary erections to which he is subjected from the stimulus, particularly when warm in bed, occasions a distortion or curvature of the penis, attended with exquisite pain. When the inflammation is violent, the glans appears tumid and transparent, the tension extends through the whole of the penis, the perinæum is affected with swelling and redness, and even the loins, buttocks, and anus, sympathise and afford a very uneasy sensation. Sometimes the prepuce inflames about the end of the penis, and cannot be drawn back, occasioning what is called a *phymosis;* at other times, as in the *paraphymosis*, it remains in an inflamed state below the glans, so that it cannot be drawn forwards; and, if the stricture and inflammation be violent, may terminate in gangrene. Now and then, especially when there is a phymosis, we may perceive a hard chord extending along the back of the penis. This is an inflamed lymphatic, and may be considered as a prelude to a bubo. When, however, a bubo does appear, almost universally some ulceration is previously to be discovered about the præputium, or glans penis; which gives ground to presume that some other contagious matter besides that of gonorrhœa may have been applied to the urethra. For it is certain that matter, capable of communicating the contagion of gonorrhœa to a female, is often copiously applied to the whole glans penis of a male, for several days together, without giving either ulceration or bubo.

In mild cases, the seat of the disease is in the urethra, not far from its orifice; but it frequently happens that the virus insinuates itself much higher up, so as to affect Cowper's glands, the prostate, and parts very near to the neck of the bladder.

In the generality of cases, the inflammation goes on increasing for several days, commonly for a week or a fortnight; after which the symptoms begin to abate; and the running, when left to itself, gradually lessens in quantity, and becomes whiter and thicker, till at length it wholly stops. The colour of the mucus, however, is by no means a certain guide in these cases: for in many patients it is of a yellowish, and sometimes of a greenish hue, to the very last; but in general it becomes more consistent towards the close of the disease.

In *women*, the external parts of generation being fewer and more simple, the disease is less complicated than in men. Sometimes the vagina only is affected; and when this happens, the symptoms are very trifling: but in general it comes on with an itching and sensation of heat as in the other sex; and is attended with inflammation of the nymphæ, inside of the *labia*, *clitoris*, *carunculæ myrtiformes*, the orifice, and sometimes the whole of the *meatus urinarius.* Very often the deep-seated glands of the vagina are affected, and it is sometimes difficult to distinguish the discharge of a gonorrhœa from that of the fluor albus.

Many ingenious arguments were, some years ago, advanced to prove, that the gonorrhœa and the lues venerea are *different affections*, originating from two distinct species of virus; and this controversy still, perhaps, remains to be decided by future facts. Certain it is, that in nineteen of twenty cases of gonorrhœa, no symptom whatever of syphilis appears; and that the disease readily admits of cure without having recourse to those remedies which are universally requisite for combating the contagion of syphilis. It is by no means wonderful, that, in some cases, both contagions, supposing them different, should be communicated at the same time. Nay, cases are by no means rare, where the contagion of itch, though essentially different from both, has been communicated with either. But as undeniable proof that the contagion in both cases is precisely the same, it has been alleged by some, that the matter of a chancre introduced into the urethra will generate a gonorrhœa, and that the discharge from a gonorrhœa will produce chancre, bubo, and every other symptom of syphilis. On the other hand, however, it is contended, that when experiments of this nature are conducted with the greatest accuracy, the matter of syphilis uniformly produces syphilis, and that of gonorrhœa, gonorrhœa only. Without pretending to decide on which of these experiments the greatest dependence is to be put, we may only observe, that while an almost inconceivably small portion of syphilitic matter applied to the glans penis, from connection with an infected female, infallibly produce syphilis if it be not speedily removed, the matter of gonorrhœa, in every instance of that disease, is applied to the whole surface of the glans penis for many days together, without producing almost any bad effect whatever. From this, therefore, there is ground for inferring, either that it is not capable of being absorbed, or if absorbed it is innocent.

But while there have been disputes with regard to the peculiar nature of matter in gonorrhœa, there have also been controversies with respect to the source from whence it is derived. While some suppose it to be principally purulent matter arising from ulcerations, other assert that no such ulceration is ever produced in the urethra by gonorrhœa. They contend, that the increased secretion in these cases is exactly similar to what happens in the catarrh. But the comparison will by no means hold good in every particular: in the latter the whole membrane of the nose is equally irritated; whereas in gonorrhœa, only particular parts of the urethra seem affected. The disease, in the generality of cases, seldom extends more than half an inch or an inch along that canal, and in many is confined (at least in the beginning) to a small spot near the extremity of the glans. This discharge is produced from that part of the urethra where the pain is felt; and the patient, when he voids his urine, feels no smarting till it reaches the inflamed spot: but as the disorder increases, the inflammation affects a greater number of points, just in the same manner as chancres affect different parts of the glans. It might be supposed that dissection would at once clear up this matter, and put an end to the dispute; but this is far from being the case. Dr. Simmons asserts that he has seen several urethras opened in persons who had a gonorrhœa at the time of their death: in three of them the surface of the urethra, as in the cases related by Morgagni, appeared for some way down of a slight red colour, and in all of them was covered with mucus; but without any appearance of ulceration, except in two dissections at Paris, in which most of the gentlemen present were convinced that they saw evident marks of it; but Dr. Simmons says, that the appearances were to him not sufficiently satisfactory to enable him to decide with certainty on the subject. On the other hand, when we consider that the discharge in a gonorrhœa is sometimes tinged with blood, and that when this happens a little blood-vessel is no doubt ruptured, we can have no reason to doubt that an ulceration may, and sometimes does, happen in these cases; especially as we often observe an excoriation near the orifice of the urethra. It is certain, that wherever there is considerable inflammation, there will be danger of ulceration. Besides, from a neglected or badly-treated gonorrhœa, we often see fistulas *in perinæo*, and other ulcers of the urethra, penetrating through its substance, and affording a passage to the urine. And there can be no doubt that slight ulcerations of this canal often occur, and are afterwards perfectly obliterated, in a similar manner to what happens in the papillæ of the tongue, the tonsils, &c. Such an obliteration will the more readily take place in a part like the urethra, defended with mucus, and not exposed to the air, which is known to have no little effect in hardening a cicatrix.

But whether ulcers take place or not, whether the virus of gonorrhœa be precisely of the same kind with that which gives syphilis, or of a different kind, there is reason from the phenomena of the disease to conclude, that the matter first acts by mixing with the mucus at the extremity of the urethra; and that from thence it is propagated upwards, particularly where the excretories of mucus are most numerous; and that on the parts to which it is applied, it operates as a peculiar irritating cause. The consequences of this irritation will be inflammation and an increased secretion of the mucus; and so far the complaint will be local. In ninety-nine cases of an hundred, a local affection of this kind constitutes the whole of the disease; and of this inflammation, ulcerations within the urethra, strictures, and other local affections, may be the consequence. But whether a disease of the habit ever takes place, unless when the contagion of syphilis is communicated with that of gonorrhœa, still remains to be determined by future observations and experiments.

Nothing can be more variable than the period at which the disease makes its appearance after infection. Perhaps, at a medium, we may place it between the fourth and fourteenth day; but in some cases it happens within twenty-four hours; and in others, not before the end of five or even seven weeks: neither of these extremes, however, are common.

From what has been said of the manner in which the contagious matter in gonorrhœa acts, and of the influence it exerts on those parts with which it comes in contact, it follows, that the prevention of gonorrhœa must depend on the removal of the contagious matter as soon as that can be done; and where this is either altogether neglected or not properly accomplished, that the cure must depend on counteracting the inflammation which this contagious matter excites, and the consequences which result from it.

The first of these intentions may be most certainly and most easily accomplished by careful lotion of all the parts to which the contagious matter has any chance of being applied. These parts, at least on the first application of the matter, are readily accessible; for even in men there is no reason to believe that it at first penetrates to any extent in the urethra. This washing of the parts should be performed as soon as possible; because then the matter is both most accessible and least involved with mucus. But although washing cannot be accomplished at an early period, it should not be neglected afterwards; for from the disease uniformly commencing, even when it does not appear till a considerable time after the application of the contagious matter, with a peculiar sense of titillation at the external parts, particularly, in men, at the extremity of the urethra, there is reason to believe, that the contagious matter attached to the mucus, may remain latent there for a considerable time. For the purpose of washing, with a view to the prevention of this disease, recourse may be had to almost any watery fluid, provided it be not so stimulant as to produce bad effects from injuring the parts. Pure water, properly applied, is perhaps one of the best lotions; but there can be no doubt that its power of removing the contagious matter may be somewhat increased by such additions as render it a more powerful solvent of mucus. With this intention, one of the most effectual additions is the vegetable alkali, either in its mild or caustic state. In the latter state it is most active, but in the former it is most safe; and the *lixivia purificata* of the Edinburgh Pharmacopœia, to the extent of half a drachm, dissolved in six or eight ounces of water, is one of the best lotions that can be employed. The purpose of removing the contagion may often also be effectually answered by washing with water impregnated with soap; for there the alkali, though in a caustic state, is prevented from exerting any disagreeable effects, in consequence of its being combined with oily matters.

With the view of preventing gonorrhœa, some advise, that the alkali either in its mild or caustic state properly diluted with water, should be injected into the urethra; and there can be no doubt, that by this means the contagious matter, when it has entered the urethra, may be removed. Its removal may also be effected by the injection of a weak solution of corrosive sublimate, which seems to act not by dissolving the mucus, but by producing an augmented secretion. But at a very early period of the disease, injections are probably unnecessary; and if it has made any considerable progress, they are dangerous: for from the augmented sensibility of the part, even very gentle ones are apt to excite a high degree of inflammation.

There are practitioners who, supposing that the body possesses powers to expel the virus, and that the disease has a certain period to run through its several stages of progress, acme, and decline, are for leaving the cure to nature; or at least content themselves with assisting her by an antiphlogistic regimen, gentle evacuations, and the like.

That in many cases the disorder admits of a natural cure, there can be no doubt; the increased secretion of mucus carrying off the virus faster than it is formed, till at length the infection is wholly removed: but it is equally certain that, in every case, by the application of suitable remedies to the inflamed parts, we may shorten the duration of the complaint, and abridge the sufferings of the patient, with the same certainty and safety as we are enabled to remove the effects of an ophthalmia, or any other local inflammation, by proper topical applications. General remedies, such as occasional blood-letting, cooling diet, the liberal use of diluting liquors, and mild purges, are by all allowed to be useful, and even necessary. Astruc was of opinion, that in these cases, blood-letting ought to be repeated five or six times; and there are still many practitioners who depend much on repeated evacuations of this sort for a removal of the inflammation. But there is, perhaps, not one case in ten in which it is at all requisite; and this small number of cases will consist only of the strong and plethoric. In such, when the chordee is frequent and painful, and the pulse hard and full, the loss of from eight to twelve ounces of blood will be beneficial, but it will be seldom necessary to repeat the operation. The inflammation, in these cases, is kept up by the local stimulus of the virus and the urine; and all that we can expect from venæsection is to moderate the pain, and the frequency of erection. In persons of a delicate habit, and of an irritable fibre, the evacuation will do no good; but if repeated will certainly be liable to do harm, by increasing irritability, and of course rendering the patient more susceptible of stimulus.

The utility, and even the necessity, of a cooling regimen, are sufficiently obvious. Wine and spirituous liquors, spiceries, a fish-diet, much animal food, and salted and high-seasoned dishes of every sort, will constantly add to the complaint. The patient should eat meat only once a-day and that sparingly. He should abstain from hot suppers. Milk, mild vegetables, and fruit, should constitute the principal part of his diet while the inflammatory symptoms continue. Every thing that tends to excite the venereal imagination should be studiously avoided, for whatever promotes erection of the penis, will increase the inflammation, and of course add fuel to the disease. For the same reasons, much walking, or riding on horseback, will be hurtful, from the irritation kept up in the perinæum by such means. Violent exercise of any kind, or any thing that is liable to increase the heat and the momentum of the blood, will of course be improper.

The drinking freely of mild, cooling, mucilaginous liquors, such as linseed-tea, orgeat, whey, milk and water, almond emulsion, and the like, will be extremely useful, by diluting the urine, and by preventing its salts from stimulating the urethra. When the heat and pain in making water are very considerable, mucilaginous substances are found to have the best effect, particularly the gum tragacanth. It is a common practice to give equal doses of this, or of gum-arabic, and nitre, and to dissolve nitre in the patient's drink, with a view to lessen the inflammation. But in these cases nitre is always improper: it is known to be a powerful diuretic, its chief action being upon the urinary passages; so that the stimulus it occasions will only serve to increase the evil it is intended to alleviate. Cream of tartar, on account of its diuretic quality, will be equally improper. Our view here is not to promote a preternatural flow of urine; for the virus, being insoluble in water, cannot be easily washed away by such means; but our object ought to be, to render the urine that is secreted, as mild and as little stimulating as possible.

Mild purges, which constitute another material part of the general remedies, are no doubt extremely useful, when exhibited with prudence. But it is well known, that the abuse of purgative medicines in this disease has been productive of numerous evils. Formerly it was a pretty general practice to give a large dose of calomel at bed-time, three or four times a-week; and to work it off next morning with a strong dose of *pil. e colocynth.* or some other drastic purge. This method was persevered in for several weeks: in consequence of which the patient often found himself troubled with an obstinate gleet, and perhaps his constitution materially injured; the effect of such a method being (especially in irritable habits) to weaken the stomach and bowels, and lay the foundation of hypochondriac complaints. Violent purging, likewise, often occasions strangury, hernia humoralis, and other troublesome symptoms.

The purges employed in these cases should be gentle; such as Rochelle salt, manna, tartarised kali, elect. sennæ, ol. ricini, and the like. They should be given only in a dose sufficient to procure two or three stools, and be repeated only every two or three days. The daily use of the purgative electuaries that are still given by some practitioners, serves only to keep up a continual irritation in the bladder, and of course to prolong the inflammation.

The topical remedies that are used, consist chiefly of different sorts of injections, the ingredients of which are extremely various; but their modes of operation may, in general, be referred to their mucilaginous and sedative, or to their detergent, stimulating, and astringent qualities. In the hands of skilful practitioners, great advantages may, doubtless, be derived from the use of these remedies; but, on the other hand, the improper and unseasonable administration of them may prove a source of irreparable mischief to the patient.

We know that mucilaginous and oily injections will tend to allay the local inflammation; and that a sedative injection, such as a solution of opium, will lessen the irritability of the parts, and of course produce a similar effect; the utility of such applications is, therefore, sufficiently obvious.

A detergent injection, or one that will act upon the mucus of the urethra, increase the discharge of it, wash it away, and with it the venereal virus that is blended with it, can only be used as a prophylactic before the symptoms of infection have made their appearance. But great circumspection is necessary in the use of this kind of injection. If it be too weak, it can be of no efficacy; and if it be too strong, it may prove dangerous to the patient. A suppression of urine has been brought on by the improper use of an injection of this kind. When the symptoms of inflammation have once made their appearance, the stimulus of such an injection must be extremely hazardous. An excoriation of the urethra has but too often been produced by remedies of this sort in the hands of adventurous and unskilful practitioners.

While the inflammation of the urethra continues, every thing that stimulates it must be hurtful. If the injection excites a painful sensation in the urethra, as is but too often the case, it will be liable to produce swelled testicles, difficulty in making water, excoriation, and other effects of increased inflammation. If, by its astringency, the running be checked before the virus that excited the discharge be properly subdued, the patient will be exposed to fresh dangers; and perhaps to a variety of local complaints, such as obstructions in the urethra, and abscesses *in perinæo*, which are well known to be sometimes owing to applications of this sort improperly managed.

When the inflammation has subsided, gently stimulating and astringent injections may be used with safety, and with considerable advantage: for as the inflammation is at first excited by the stimulus of the venereal virus, so when the former begins to lessen, we may be assured that the activity of the latter has abated in proportion; and, in general, when the inflammatory symptoms are entirely removed, it will be found, that the mucus is no longer of an infectious nature, but is merely the effect of an increased secretion, and of relaxation. Mild astringents will therefore serve to brace and strengthen the vessels secreting mucus, and in this way will lessen the discharge, and greatly promote the cure. It is certain, that in the greater number of cases, a gonorrhœa which, if treated by internal remedies alone, would continue for five or six weeks, or longer, may, when judiciously treated with injections, be cured in a fortnight, and very often in less time. The great aim, therefore, of the practitioner ought to be, at first, to make use of such injections only as will tend to lubricate the surface of the urethra, and to counteract and destroy the stimulus of the virus: as the inflammation abates, he may add some gently astringent preparation to a mucilaginous and sedative injection; taking care that its astringency be suited to the state of the disease, and to the irritability of the patient. Amongst a great variety of substances, mercury, in different forms, is one of those that is the most frequently employed in injections. All these mercurial injections have more or less of astringency; and, according to Mr. Hunter, it is solely to this property, that we are to ascribe their effects; for the idea of their correcting the venereal virus was originally introduced, and has, he thinks, been continued upon mistaken principles.

Calomel, mixed with the mucus discharged in a gonorrhœa, has no more power in destroying the infectious properties of that mucus than ceruse or any other preparation would have. A diluted solution of sublimate injected into the urethra, will, like a solution of verdigrise, or blue vitriol, or any other styptic, constringe the mouths of the lacunæ; but this is all that it will do, for it will never lessen the infectious nature of the virus. The same thing may be said of crude mercury, extinguished by means of mucilage, or of mercurial unction, blended with the yolk of an egg, and which, when thrown up into the urethra, will act nearly in the same manner as balsam of copaiva, or any other stimulating injection. The stimulus of calomel, however, has often been found of considerable efficacy; and in women, when the vagina only was affected, after washing the parts well, the cure has been accomplished by rubbing them repeatedly with mercurial ointment.

Having said thus much on the nature and properties of different injections, we refer the practitioner for a choice of formulæ to the article Injection.

As the gonorrhœa is only a local affection, it may be inferred, that the *internal use of mercury* is unnecessary towards the cure. Very often, indeed, this complaint may be removed without having recourse to mercurials. Sometimes patients have been met with whose general health has been greatly impaired by a long continued use of mercury in such cases, while the original disease, the gonorrhœa, was rendered much worse by it. In some, it degenerated into a gleet, that was cured with extreme difficulty; in others it brought on a variety of distressing symptoms. In cases of gonorrhœa, therefore, whenever mercury is administered, it ought not to be with a view to expedite the cure, but merely to obviate the dangers of syphilis. But when the infection is apparently slight, and the inflammation and symptoms trifling, we may proceed without the assistance of mercury, especially if the patient be of a weak, relaxed, and irritable habit, for then he is likely to be injured by mercurial medicines.

GONORRHŒ'A MUCO'SA. See Gonorrhœa.

GOOSE. See Birds.

GOOSE-FOOT, STINKING. See Atriplex fœtida.

GOOSE-GRASS. See Aperine.

GO'RDIUS, the hair-worm. Of this there are two species, the *gordius aquaticus*, and the *gordius medinensis*, that produce disease by getting into the feet, &c. of the inhabitants of many hot countries.

GOSSY'PIUM, (γοςςιπιον; from *gotne*, whence *gottipium*, Egypt), or *bombax;* cotton. The seeds afford a small quantity of oil by pressure. They are used by the Egyptians in cough and fevers, in the form of a mucilage. The utility of cotton for economical purposes is well known: in the fabric of *callico*, of a loose texture, it makes excellent bandages for the purposes of surgery.

GOSSY'PIUM HERBACE'UM; the systematic name of the cotton plant. See Gossypium.

GOURD. See Cucurbita.

GOURD, BITTER. See Colocynthis.

GOUT. See Arthritis.

GRAAF, (Reginer de), a celebrated physician, born at Schoonhaven in Holland, in 1641. Although he studied physic in Prussia, he was educated at Leyden, where he acquired great honour by publishing a treatise, *De Succo Pancreatico*. He also published three pieces upon the organs of generation, both male and female; upon which subject he had a controversy with Swammerdam. He died young, in 1673; and his works, with his life prefixed, were published at Leyden, in 1677, in 8vo.

GRA'CILIS, (so named from its smallness), the *rectus internus femoris* of Winslow; a long, straight, and slender muscle, situated immediately under the integuments, at the inner part of the thigh. It arises by a broad and thin tendon, from the anterior part of the ischium and pubis, and soon becoming fleshy, descends nearly in a straight direction along the inside of the thigh. A little above the knee it terminates in a slender and roundish tendon, which afterwards becomes flatter, and is inserted into the middle of the tibia behind and under the sartorius. Under the tendons of this and the rectus there is a considerable *bursa mucosa*, which, on one side, adheres to them and to the tendon of the semi-tendinosus, and on the other to the capsular ligament of the knee. This muscle assists in bending the thigh and leg inwards.

GRADUATION, a term signifying the formalities required of a candidate in taking a degree. In the university of Edinburgh, medical degrees are conferred by the *Senatus Academicus*, on those students who have gone through their appointed examinations, and defended their respective inaugural dissertations. The following are the regulations observed in this university, in promoting candidates to the degree of Doctor in Medicine: they are translated from the *Statuta Solennia*, as lately reprinted.

1. No person shall be promoted to the degree of Doctor in Medicine, except on one of two stated days in every year; viz. on the 24th of June, or 12th of September, or the days immediately thereafter.

2. No person shall be received as a candidate, until he has applied during three complete years to the study of medicine, in this or some other university, and has attended to all the branches of the science of medicine; viz. anatomy and surgery, chemistry, botany, materia medica, and pharmacy, theory and practice of medicine, and clinical lectures, delivered by professors of medicine, on hospital patients.

3. Whoever is desirous of obtaining a degree, must deliver, before the 24th of March, or 12th of June, a medical dissertation, composed by himself, to some one of the medical professors, that he may peruse it, if necessary correct it, and affix to it a written testimony that he has perused it, with the date when he received it.

4. Then, whoever is desirous of a degree in medicine, must communicate his intention to the Dean of the Faculty of Medicine, on or before the 20th of April or June, and at the same time deliver to him his inaugural dissertation, with the testimony of the pro-

fessor who perused it, to be subjected to the consideration of the Faculty of Medicine.

5. After this, he is to undergo a medical examination by the faculty, either *viva voce* or in writing, that no person may be received as a candidate who is not well acquainted with polite literature and the science of medicine.—As the professors think themselves bound in honour not to divulge the unfavourable result of an examination, a candidate may be remitted to his studies in this stage of his trials, without injury to his reputation or interest.

6. On the 18th of May, or 6th of August, the candidate shall, in an examination by two professors, in the presence of the Faculty of Medicine, give a farther proof of his advancement in the various branches of medical knowledge enumerated above.

7. To the candidate, after having passed these trials, shall be proposed, by one of the professors, an *aphorism of Hippocrates*, and, at the same time, by another professor, a *medical question;* the former of which, explained by himself, and illustrated by a commentary, and the latter, along with an answer to it, supported by proper arguments, he shall return to the professors by whom they were proposed on the 28th of May, or 11th of August, and shall defend his commentary, and answer, before the Faculty of Medicine, on the 30th of May, or 18th of August.

8. If, by having duly fulfilled these conditions, the candidate shall deserve to be promoted, he shall receive from two of the professors, two histories of diseases, with questions annexed to them, for the purpose of writing an illustration of the one, and answers to the others. These histories, with the illustrations and answers, he shall deliver on the 12th of June, or 1st of September, to the professor who proposed them, and defend them before the Faculty of Medicine on the 15th of June, or 3d of September.

9. After the candidate has been approved of at his first examination, on the 18th of May, or 6th of August, he shall be permitted to send his dissertation to the press, and shall deliver eight copies, accurately printed, to the Dean of the Faculty of Medicine, on the 15th of June, or 3d of September.

10. If the candidate, after having printed his dissertation, shall be approved of by the Medical Faculty at his third examination, all these proceedings shall be reported to the Senatus Academicus, by the Dean of the Faculty of Medicine, with whose approbation and authority he shall be ordered to publish his dissertation, and defend it in a meeting of the university, on the 24th of June, or 12th of September, when, if the Senatus shall think fit, the highest medical honours, that is, the degree of Doctor in Medicine, shall be conferred on him, with the usual solemnities, as the reward of his diligence and study.

11. To give greater solemnity to all these proceedings, the Faculty of Medicine shall always meet within the university on each of the abovementioned days, at nine in the morning. And if any candidate shall absent himself at the hour appointed, without sufficient reason, he shall not be permitted, on this occasion, to proceed with his trials, or obtain the degree of Doctor in Medicine.

It is required that all the abovementioned exercises shall be performed in the Latin tongue.

The regulations enacted by the Senate of the University of *Glasgow*, respecting degrees in medicine, are the following:

1. That before any person can be allowed to be a candidate for a degree in medicine, in this university, he shall appear personally before the senate, and lay before them evidence that, during the space of three years, or sessions of six months each, he has regularly attended in some university or universities, or in some medical school or schools of reputation, the following medical classes; viz. Anatomy and surgery, chemistry and pharmacy, the theory and the practice of physic, materia medica and botany.

2. That he shall bring forward evidence that, during one year at least, he has attended medical classes in this university.

3. That the candidate shall undergo three separate examinations in private, by the medical professors of the university, and write a commentary on an aphorism of Hippocrates, and another on a case of disease propounded to him by the said examiners. The first examination shall be on anatomy and physiology; the second on the theory and practice of physic; and the third on chemistry, materia medica, pharmacy, and botany.

4. That the examiners shall report to the senate their opinion respecting the medical knowledge of the candidate; and if their report be favourable, his name, as a candidate for a degree, shall be entered in the minutes of senate, and a day fixed, when the candidate shall read his commentaries on the aphorism and case, and answer such questions, on the several branches of medical science, as shall be put to him by the examiners, in presence of the senate. If the senate be of opinion that the candidate has shown himself worthy of a degree, it shall be conferred, in presence of the senate, by the Vice-Chancellor, provided the candidate has not published a thesis, which he may, or may not do, according to his own option; but if he has published a thesis, he must defend it, and the degree must be conferred in the comitia.

5. The whole of the examinations shall be carried on, and the commentaries on the aphorism and case must be written, in the Latin language.

GRAIN, the smallest weight used in England, and which is thus denominated, because it is said to have been regulated by the weight of a grain of wheat, selected from the middle of the ear, and well dried. The grain employed by apothecaries, is the same as that of goldsmiths; though they afterwards vary with respect to the computation of greater weights arising from the aggregate of grains. Thus, with the former, 20 grains make a scruple, 3 scruples a drachm, 8 drachms an ounce, and 12 ounces a pound.

GRA'MEN CANI'NUM, the common dog-grass, or couch-grass; the *triticum repens*, Linn. The roots have a taste agreeably sweet, and possess aperient properties. The expressed juice is recommended to be given largely in scorbutic disorders.

GRA'MINA, in botany, *grasses;* one of the seven tribes or natural families, into which all vegetables are distributed by Linnæus, in his *Philosophia Botanica.* They are defined to be plants which have very simple leaves, a jointed stem, a husky calyx termed *gluma,* and a single seed. This description includes the several sorts of corn as well as grasses. In Tournefort they constitute a part of the fifteenth class, termed *apetali*; and in Linnæus's sexual method, they are mostly contained in the second order of the third class, called *triandria digynia.* This numerous and natural family of the grasses has engaged the attention and researches of several eminent botanists. The principal of these are, Ray, Monti, Micheli, and Linnæus.

M. Monti, in his *Catalogus stirpium agri Bononiensis gramina ac hujus modi affinia complectens,* printed at Bononia, in 1719, divides the grasses from the disposition of their flowers, as Theophrastus and Ray have divided them, before him, into three sections or orders—These are, 1. Grasses having flowers collected in a spike. 2. Grasses having their flowers collected in a panicle or loose spike. 3. Plants that in their habit and external appearances are allied to the grasses. This class would have been natural if the author had not improperly introduced sweet rush, juncus, and arrow-headed grass, into the third section. Monti enumerates about 306 species of the grasses, which he reduces under Tournefort's genera: to these he has added three new genera.

Scheuchzer, in his *Aristographia,* published likewise in 1719, divides the grasses, as Monti, from the disposition of their flowers, into the five following sections: 1. Grasses with flowers in a spike, as phalaris, anthoxanthum, and frumentum. 2. Irregular grasses, as schœnanthus and cornucopiæ. 3. Grasses with flowers growing in a simple panicle or loose spike, as reed and millet. 4. Grasses with flowers growing in a compound panicle, or diffused spike, as oats and poa. 5. Plants by their habit nearly allied to the grasses, as cypress grass, scirpus, linagrostis, rush, and scheuchzeria. Scheuchzer has enumerated about four hundred species, which he describes with amazing exactness. Micheli has divided the grasses into six sections, which contain in all 44 genera, and are arranged from the situation and number of the flowers.

Gramina is also the name of the fourth order in Linnæus's Fragments of a Natural Method, consisting of the numerous and natural family of the grasses, viz. agrostis, aira, alopecurus or fox-tail grass, anthoxanthum or vernal grass, aristida, arundo or reed, avena or oats, bobartia, briza, bromus, cinna, cornucopia or horn of plenty grass, cynosurus, dactylis, elymus, festuca or fescue-grass, hordeum or barley, lagurus or hare's-tail grass, lolium or darnel, lygeum or hooded matweed, melica, mileum or millet, nardus, oryza or rice, panicum or panic-grass, paspalum, phalaris or canary-grass, phleum, poa, saccharum or sugar-cane, secale or rye, stipa or winged spike-grass, triticum or wheat, uniola or sea-side oats of Carolina, coix or Job's tears, olyra, pharus, tripsacum, zea, Indian Turkey wheat or Indian corn, zizania, ægilops or wild fescue-grass, andropogon, apluda, cenchrus, holcus or Indian millet, ischæmum.

GRAMINEOUS HERBS, in botany, such as have a long narrow leaf, and no footstalk. Those are reckoned *frumentaceous* whose seed is used for food, either in bread, decoction, or infusion; such as wheat, rye, barley, &c. According to Linnæus, the gramina constitute one of the seven tribes or families of the vegetable kingdom: they are thus characterized; having the most simple leaves, an articulated culmus, a glumose calyx, and a single seed. This family includes the several kinds of corn as well as grasses.

GRA'NA CNIDU. See COCCOGNIDIA.

GRA'NA PARADI'SI; called also *Cardamomum majus*, *Melleguetta Maniguetta*, and *Cardamomum piperatum;* grains of paradise. They are the seeds of the *Amomum grana paradisi*, Linn. These seeds are angular, of a reddish brown colour, smaller than pepper, and resembling very much the seeds of the cardamomum minus. They are extremely hot, and similar in virtue to pepper. See PIPER NIGRUM.

GRA'NA TINCTO'RIA. See KERMES.

GRA'NA TIGLIA. See TIGLIA GRANA.

GRANA'TUM, (from *granum*, a grain, because it is full of seed), the pomegranate; the fruit of the *Punica granatum* of Linnæus. *Punica foliis lanceolatis, caule arboreo.* Class, *Icosandria.* Order, *Monogynia.* It is a prickly tree, or shrub, with long narrow leaves, deep red flowers, set in bell-shaped cups of the same colour; the fruit is about the size of an orange; it consists of a thick, tough rind, externally brownish, and internally yellow, with a juicy pulp, and numerous seeds, called *coccones*, in cells like a honey-comb. It is a native of the south parts of Europe. The flowers (called *Balaustine flowers)*, are a mild astringent, similar to those of the wild pomegranate; which last are preferred only on account of their being larger. The pulp of the ripe fruit is a grateful subacid sweet, and of the same general qualities as the summer fruits. The rind is moderately astringent, and is called *cortex granati.* It gives its virtue out most abundantly to water, but the flower yields it most freely to spirit. Dr. Cullen says, the strong styptic taste of this bark, and the black colour it strikes with vitriolated iron, show sufficiently its astringent power; and it is commonly supposed to be among the strongest of this kind. He frequently found it useful in gargles, in diarrhœas, and in external applications; nor does he think it, internally used, more improper than many other powerful astringents. With regard to its disposition to suppress the catamenia, that seems to him to be very doubtful. Its dose, in powder, is generally from ʒss. to ʒj. and in infusion, or decoction, it is given to half an ounce.

GRANA'TUM, granate or *garnet*; a genus of fossils, ranked among the siliceous earths; but, according to M. Magellan, analogous to gems, all of them being composed of the siliceous, argillaceous, and calcareous earths, with a greater or less proportion of iron. Cronsted observes, that the metallic calces, when mixed with other earthy substances, make great alteration in their fusibility; iron, for instance, in the argillaceous and micaceous earths, renders them fusible, though otherwise they are not so. Hence there may be some reasons for considering the garnet as a quartz, impregnated with iron; yet, on the whole he thinks it will be better to call the garnet a stone of a different order, until we have experiments sufficient to warrant us to reduce the number of earths. The garnet earth is never found but in an indurated state, and is divided into the garnet properly so called, and schorl or cockle; though this, perhaps, is owing more to the figure of their crystals than any thing else. The *species* are, 1. The *granatus*, or coarse-grained garnet; a heavy hard stone, crystallizing in form of polygonal balls, mostly of a red or reddish brown colour. It is found of a reddish brown and whitish or pale yellow, in different parts of Sweden. 2. The *granatus crystallizatus*, or crystallized garnet, is reckoned among the precious stones, but varying in its colour, and form of its crystal, more than any of them. Sometimes it is of a deep and dark red colour; sometimes yellowish or purplish; sometimes brown, black, or opaque. It is inferior, both in lustre and hardness, to the other gems, yielding to the file, although it will strike fire with steel. The crystals are sometimes irregular, but frequently assume rhomboidal, tetradecahedral, and almost all other regular forms.

GRANITE, a genus of stones of the order of *petræ*, belonging to the class of saxa. The principal constituent parts of this stone are, felt-spar or rhombic quartz, mica, and quartz. These ingredients constitute the hardest sort of granite, and that most anciently known. That into which schorl enters is more subject to decomposition. They never have any particular texture or regular form, but consist of enormous shapeless masses, extremely hard. In the finer granites the quartz is transparent; in others generally white or grey, violet or brown. The felt-spar is generally the most copious ingredient, and of a white, yellow, red, black, or brown colour. The mica is also grey, brown, yellow, green, red, violet, or black; and commonly the least copious. The schorl is generally black, and abounds in the granites that contain it. Hence the colour of the granites depends principally on that of the spar or schorl. The red granites consist commonly of white quartz, red felt-spar, and grey mica; the grey ones of white quartz, grey or violet felt-spar, and black mica. The black granites commonly contain schorl instead of felt-spar; and the green usually contain green quartz.

GRANIVOROUS, an appellation given to animals which feed on corn or seeds. These are principally of the bird kind.

GRAPHIOI'DES, (γϱαφοειδης, from γϱαφις, *stylus*, a pencil, and ειδος, *forma*, shape): a name for the processus styliformis. Also a process of the ulna towards the wrist. The musculus biventer, vel digastricus, was formerly so called, from its supposed origination from the process of the temporal-bone thus denominated.

GRANULATION, in chemistry, an operation by which metallic substances are reduced into small grains, or roundish particles; the use of which is, to facilitate their combination with other substances.—This operation is very simple; it consists only in pouring a melted metal slowly into a vessel filled with water, which is in the mean time to be agitated with a broom. With melted copper, however, which is apt to explode with great violence on the contact of water, some precautions are to be observed. Lead or tin may be granulated by pouring them, when melted, into a box; the internal surface of which is to be rubbed with powdered chalk, and the box strongly shaken till the lead has become solid. Metals are granulated, because their ductibility renders them incapable of being pounded, and because filing is long and tedious, and might render the metal impure by an admixture of iron from the file.

GRASS; in botany, is defined to be a plant having simple leaves, a stem generally jointed and tubular, a husky calyx, called *gluma*, and the seed single. Hence wheat, oats, barley, &c. are properly grasses, according to the definition given; while clover and some other similar plants are not grasses, though so frequently called by that name. See GRAMINA.

GRÀTAROLUS (William), a learned physician in the sixteenth century, was born at Bergamo, in Italy; and taught physic with reputation at Padua: but, having embraced the protestant religion, he retired to Switzerland, where he was made professor of physic. He died at Basil in 1658, aged 52. He wrote several curious works in Latin; amongst which are, 1. The manner of preserving and improving the memory. 2. Of preserving the health of travellers, men of letters, magistrates, and studious persons, &c.

GRATIO'LA, (*Gratiola*, dim. of *gratia;* so named from its supposed admirable qualities), hedge-hyssop; the *Gratiola officinalis*, *foliis lanceolatis serratis*, *floribus pedunculatis*, Linn. Class, *Diandria.* Order, *Monogynia.* This plant has an emetic and purgative virtue; to answer which intentions, it was formerly used by the common people of England, but was never much prescribed by the physicians, and at last fell totally into disuse. Of late, however, it has been the subject of a dissertation by Dr. James Kostrzewski, of Warsaw, in Poland, who gives some remarkable accounts of its effects in mania and obstinate venereal cases. It was given in powder, or in extract, to the quantity of half a drachm of the first, and a whole drachm of the second, at each dose. From the cases related in his dissertation, the author draws the following conclusions, in some of which, however, we cannot readily coincide: "1. The gratiola may be given with safety both to male and female patients. 2. In all disorders proceeding from a superabundance of serum in the fluids, it appears to be a most effectual remedy. 3. In consequence of this, it is had recourse to, with very great advantage, in melancholy and mania, arising from that state of the system. 4. It powerfully promotes purging, vomiting, sweat, and urine; and is therefore much superior to any of the usual evacuating medicines, most of which prove only active in promoting one of these discharges at once. 5. The most obstinate cases of gonorrhœa, fluor albus, and venereal ulcers, are cured by the powder. In some instances it has induced salivation; but whether or not it can always be made to produce that effect, is not as yet altogether certain. 6. The powder of gratiola, prepared from the extract, and exhibited with sugar, does not induce vomiting; and, on the contrary, the powder of the root always promotes that evacuation."

GRATI'OLA OFFICINA'LIS; the systematic name of the hedge-hyssop. See GRATIOLA.

GRAVE'DO, a dull pain in the forehead. It is synonymous, in Cullen's *Nosology*, with catarrh. It is that weight or listlessness, which accompanies obstructed perspiration, or taking cold, as it is commonly called; and it is frequently accompanied with a running of the nose and eyes. This term also is used for a *coryza*, which expresses the same.

GRAVEL. See DYSURIA and NEPHRITIS.

GRAVIDITY, the state of pregnancy; or an extraordinary distension of the abdomen during pregnancy. See GRAVID UTERUS.

GRAVIDITY, PROLONGED; that state of actual pregnancy in which a woman retains the fœtus beyond the natural period of nine months. On this obscure and doubtful subject, little information, of a satisfactory nature, has ever been, or perhaps ever will be, communicated. The following cases and remarks of Dr. Smellie, in speaking of women whom he knew to have exceeded the common term of gestation, comprehend nearly the whole of the information that can be depended upon. He says—"I was bespoke to lay a young woman of her first child. She was taller than the middle size, and had been healthy from her infancy. She was married in September, about a week after the menstrual discharge, which, not returning at the stated time, she was seized with the usual complaints of sickness and retching, which her mother supposed to be certain signs of pregnancy; and though she reckoned only to the beginning of June, she was not delivered till the end of August. Before marriage, the menses had flowed regularly every four weeks, and though she, perhaps, did not conceive immediately after wedlock, it was reasonable to suppose she actually exceeded the usual term of gestation by four or five weeks at least. Her labour was very tedious, though the pelvis was of a large size; but the child was very lusty, and the head squeezed into a longitudinal form. Two years after, I delivered her of a second child, which was also very large; yet the labour was short, and happened according to the common time of reckoning; nor was the head of this last squeezed into a longish form, like that of the first, which was indeed the largest child I ever brought into the world."

A second case he describes thus:—"I was called by a midwife to a woman in child-bed, and found the breech of the fœtus presenting at the brim of the pelvis, where it stuck for some time, without advancing, although the mother had been long in labour, and the membranes had been broken eighteen hours before I came. I with great difficulty pushed up the breech, and brought down the legs; and, after much fatigue, delivered her of a live child. According to this woman's reckoning, she had exceeded the usual time of gestation by eight weeks; for she affirmed, and her mother confirmed the assertion, that she had but one discharge of the menses after she was married, and in the middle of the month was seized with the common symptoms of pregnancy, from which they concluded she had conceived soon after the evacuation.

Dr. Smellie selected these two cases, from a great number of less certainty, to show, as he says, that women "*may, probably, go with child beyond the nine months*;" though this is a circumstance that rarely happens. Many women think they exceed that period by their own reckoning; but we may generally suppose they commit some error in keeping the account. In the works of Lamotte (liv. 1. chap. 27, and 28), we read of women who have been delivered a considerable time before and after the time of reckoning. It is very common for patients to go two or three weeks beyond the nine months, reckoning from the last discharge of the menses.

Dr. Denman says:—"If the time of utero-gestation be not interrupted by accidental causes, it proceeds in all animals with great, though not with exact regularity, as is proved by those who are employed in breeding cattle, by whom a correct account is usually preserved. But in the human species there was supposed to be a considerable latitude in this respect, and examples have been recorded with great confidence, by grave writers, of children born after a term much exceeding the common, and of others after a term far short of it, which were nevertheless in a perfect state. This opinion has also been countenanced to a certain degree by the laws or customs established in different countries.

"The common time of utero-gestation in women is forty weeks, or nine calendar months; and some men of ability and candour have been persuaded, that it is possible for them to proceed as far as ten calendar months. By the laws of this country, the term is not precisely limited; so that if any case should occur, in which this matter might be litigated, the decision would rather depend upon the circumstances, or upon the confidence placed in the testimonies of the medical witnesses, than upon any proof or conviction of the nature of the thing to be decided.

"There must in general be much difficulty in determining, with absolute precision, the time of utero-gestation in individual women. But I have met with several instances of those who, from particular contingencies, such as the casual intercourse with their husbands, or their return to, or absence from them, for a particular time, have been able to tell exactly when they became pregnant; and none of these have exceeded forty weeks. I am therefore persuaded, that the term of utero-gestation is as accurately limited in women as in animals. I do not mean that it is completed to a minute or an hour, as has been surmised, because the birth of the child may be delayed by a multiplicity of accidents. But parturition will be accomplished, or the parturient disposition will take place, before or at the expiration of forty weeks from the time of conception. Nor does it seem reasonable that a law of nature, which is not altered by the differences of age, by the diet, by the extremes of climates, by the severities of slavery, or by the indulgencies of luxury, should be changed by circumstances of less importance."

GRAVIDITY, SPURIOUS, that state in which the uterus is distended, and the woman supposes herself with child, when this distension and the symptoms that accompany it, and that sometimes render her real situation inexplicable, arise from a cause different from actual conception. It is certain, that various diseases incident to the uterine system, and other morbid affections of the abdominal viscera, will frequently excite the appearance of utero-gestation. Complaints arising from a simple obstruction are sometimes mistaken for those of breeding; when a tumor about the region of the uterus is also formed, and gradually becomes more and more bulky, the symptoms it occasions are so strongly marked, and the resemblance to pregnancy so very striking, that the ignorant patient is often deceived, and even the experienced physician imposed on.

Scirrhous, polypous, or sarcomatous tumors in or about the uterus or pelvis; dropsy or ventosity of the uterus or Fallopian tubes; steatoma or dropsy of the ovaria; and ventral conception; are the common causes of such fallacious appearances. In many of these cases the menses disappear; nausea, retchings, and other symptoms of breeding ensue; flatus in the bowels will be mistaken for the motion of the child; and in the advanced stages of the disease, from the pressure of the swelling on the adjacent parts, tumefaction, and hardness of the mammæ supervene, and sometimes a viscid or serous fluid distils from the nipple; circumstances that strongly confirm the woman in her opinion, till time, or the dreadful consequences that often ensue, at last convince her of her fatal mistake.

Other kinds of spurious gravidity, less hazardous in their nature than any of the preceding, may also be classed under this head; diseases commonly known by the names of *false conception* and MOLA: the former of these is nothing more than the dissolution of the fœtus in the early months; the placenta is afterwards retained in the uterus, and from the addition of coagula, or in consequence of disease, is excluded in an indurated or enlarged state. When it remained for months or longer, and came off in the form of a fleshy or scirrhous-like mass, without having any cavity in the centre, it was formerly distinguished by the name of *mola*.

Mere coagula of blood, retained in the uterus after delivery, or after immoderate floodings at any period of life, and squeezed, by the pressure of the uterus, into a fibrous or compact form, constitute another species of mola, that more frequently occurs than any of the former. These, though they may assume the appearances of gravidity, are generally, however, expelled spontaneously, and are seldom followed with dangerous consequences.

GRAVID UTERUS. See UTERUS, GRAVID.

GRAVITATIVE, an epithet for a sort of pain, attended with a sense of weight; as when the prostate gland is affected in a gonorrhœa.

GRAVITY, or GRAVITATION (for these words are most commonly used synonymously), signifies either the force by which bodies are pressed towards the surface of the earth, or the manifest effect of that force; in which last sense the word has the same signification with *weight* or *heaviness*. Concerning gravity, in the first sense of the word, or that active power by which all bodies are impelled towards the earth, there have been great disputes. Many eminent philosophers, and among the rest Sir Isaac Newton himself, have considered it as the first of all second causes; an incorporeal or spiritual substance, which never can be perceived any other way than by its effects; an universal property of matter, &c. Others have attempted to explain the phenomena of gravitation by the action of a very subtile ethereal fluid; and to this explanation Sir Isaac, in the latter part of his life, seems not to have been averse. He has even given a conjecture concerning a matter in which this fluid might occasion these phenomena. But for a full account of the discoveries of this great philosopher on the subject, we must refer to his works.

GRAVITY, CENTRE OF; that point of a body upon which, being freely suspended, it will rest in any position.

GRAVITY, SPECIFIC; denotes the weight belonging to an equal bulk of every different substance. Thus, the exact weight of a cubic inch of gold, compared with a cubic inch of water, tin, lead, &c. is called its *specific gravity*.

GREW (Nehemiah); a learned English writer, in the 17th century, had a considerable practice as a physician in London, and succeeded Mr. Oldenburgh in the office of secretary to the royal society. In this capacity, pursuant to an order of council, he drew up a catalogue of the natural and artificial rarities belonging to the society, under the title of *Musæum Regalis Societatis*, &c. 1681. He also wrote, besides several pieces in the Philosophical Transactions, 1. The Comparative Anatomy of the Stomach and Guts, folio. 2. The Anatomy of Plants, folio. 3. *Tractatus de salis cathartici natura et usu.* 4. *Cosmologia Sacra*, or a Discourse of the Universe as it is the Creature and Kingdom of God, folio. He died suddenly in 1721.

GRIEF, an increased and continued degree of sorrow. It is one of the depressing passions of the mind. Its influence on the body is remarkable; and its effects, with few exceptions, are similar to those of *fear*. Dr. Willich observes, that grief diminishes bodily strength in general, and the action of the heart in particular. The circulation of the fluids is thus impeded; the bile stagnates, and occasions indurations of the liver; or, by mixing with the blood, it produces either jaundice or dropsy. Grief also diminishes perspiration, renders the skin sallow, aggravates the scurvy, but particularly putrid fevers, and disposes persons to become easily infected with them. Its effects in changing the colour of the hair, are well known; and instances have occurred, in which the hair has been turned from a deep black to a grey colour, in twenty-four hours. Blindness, gangrene, and even sudden death, or, as it is emphatically called, a *broken heart*, have resulted from the excess of this passion. Persons who indulge in *fretting*, become at length in a high degree peevish and irritable: from the constant return of sorrow, the mind beholds new food for it in every object. Thus, the whole imagination is seriously affected, and the most profound melancholy, together with a nervous fever, or, which is still more dreadful, with total insanity, are the inevitable consequences. Consolatory arguments being the first remedy that can be administered, recourse should be had to whatever is chearful, or calculated to dispel thought, and to divert the mind from brooding over its real or imaginary woes. Gentle opiates, cautiously taken, may occasionally be of great service in this preying disease; but daily exercise in the open air must on no account be neglected; the body should be frequently rubbed with dry cloths, and perfumed with vinegar, amber, or other fragrant matters: the tepid bath will also be found of eminent advantage; and, if possible, the patient ought to be removed to a more genial climate. Mild wines, if drunk with moderation, will be often productive of the happiest effects; but, if they be intemperately used, their strong tendency to generate an acid, cannot fail to deprave the appetite, and disorder the stomach.

GRIT, a genus of argillaceous earths. Its texture is more or less porous, equable, and rough to the touch. It does not give fire with steel, nor effervesce with acids. When fresh broken and breathed upon, it exhales an earthy smell. Mr. Kirwan mentions two kinds; one from Hollington near Utoxeter, of a yellowish or whitish grey, and about the specific gravity of 2288. Another, from Knepersly in Staffordshire, is of the specific gravity of 2568, and so infusible as to be used for fire-stones. According to Fabroni the grit-stone is of greater or less hardness, mostly of a grey, and sometimes of a yellowish colour, composed of a siliceous and micaceous sand, but rarely of a sparry kind: with greater or smaller particles closely compacted by an argillaceous cement. It gives some sparks with steel, is indissoluble for the most part in acids, and vitrifiable in a strong fire.

GRITS. See Groats.

GROATS, oats after the hulls are taken off, or great oat-meal. A decoction of these is a softer and more elegant food for sick persons, than gruel made by boiling the meal. In London these are called Grits.

GROIN, in anatomy, that part of the belly next the thigh. In vol. 67 of the Philosophical Transactions is an account of a remarkable case, where a peg of wood was extracted from the groin of a young woman of 21, after it had remained sixteen years in the stomach and intestines, having been accidentally swallowed when she was about five years of age.

GROMWELL, COMMON. See Lithospermum.

GROTTO DEL CANI, a little cavern near Pozzuoli, four leagues from Naples, the steams whereof are of a mephitical or noxious quality: whence also it is called *bocca venenosa*, the poisonous mouth. Dr. Mead describes it to be about eight feet high, twelve long, and six broad. From the ground, he says, arises a thin, subtile, warm fume, visible enough to a discerning eye, which does not spring up in little parcels here and there, but in one continued stream, covering the whole surface of the bottom of the cave; having this remarkable difference from common vapours, that it does not, like smoke, disperse itself into the air, but quickly after its rise falls back again, and returns to the earth, the colour of the sides of the grotto being the measure of its ascent; for so far, it is of a darkish-green, but higher, only the colour of common earth. Dr. Mead found no inconvenience in standing in it; nor is any animal, if its head be above this mark, in the least injured. But when the head of a dog, or of any other creature, is forcibly kept below it; or, by reason of its smallness, cannot hold its head above it, it presently loses all motion, falls down in a swoon, the limbs being convulsed, till at last no more signs of life appear than a very weak and almost insensible beating of the heart and arteries; which, if the animal be left a little longer, quickly ceases too, and then he is irrecoverable: but if he be snatched out, and laid in the open air, he soon comes to life again, and sooner yet if thrown into the adjacent lake. It is now well known that this steam is nothing else than carbonic acid, issuing out of the earth in very great quantity, from a cause not as yet known.

GROTTO DEL SERPI; a subterraneous cavern near the village of Sassa, eight miles from the city of Braccano in Italy, described by Kircher thus: "The *grotto del serpi* is big enough to hold two persons. It is perforated with several fistular apertures, somewhat in manner of a sieve; out of which, at the beginning of the spring season, issues a numerous brood of young snakes of divers colours, but all free from any particular poisonous quality. In this cave they expose their lepers, paralytics, arthritics, and elephantiac patients, quite naked; where, the warmth of the subterraneous steams resolving them into a sweat, and the serpents clinging variously all around, licking and sucking them, they become so thoroughly freed of all their vitious humours, that, upon repeating the operation for some time, they become perfectly restored." This cave Kircher visited himself, and found it warm, and every way agreeable to the description given of it. He saw the holes, and heard a murmuring hissing noise in them; though he missed seeing the serpents, it not being the season of their creeping out. Yet he saw a great number of their exuviæ, or sloughs, and a neighbouring elm, laden with them; no doubt to strengthen the pretensions of this wonderful remedy.

GROUND AVERWORT. See Lichen cinereus terrestris.

GROUND-PINE. See Chamæpitys.

GROUNDSEL. See Erigerum.

GROUND-NUTS, or Ground-pease, the *Arachis hypogæus Americanus* of Ray: a plant cultivated in the West Indies by the Negroes. When in flower, it inclines towards the earth, into which the pointal enters, and extends to a certain depth, where the seed-vessel and fruit are formed: so that the latter attains to maturity under ground. As large crops of this vegetable are produced on light sandy lands, of little value, it may perhaps be advantageously cultivated in the southern counties of Britain. The seeds or fruit, when bruised and expressed through canvas bags, afford a pure, clear, and savory oil, which, in the opinion of Dr. Watson, may be used for the same purposes, both culinary and medicinal, as those obtained from olives or almonds. The oil of ground-nuts, however, possesses a great advantage, as it will admit of being kept for a considerable time, without becoming rancid, or requiring any particular care, even during the heat of summer. As one bushel of the seeds, when expressed, yields a gallon of pure oil without, and a much larger quantity, though of inferior quality, with the aid of heat, they deserve to be more generally known and imported. The value of a bushel of these nuts, in South Carolina, did not exceed eight-pence in the year 1768, when specimens of the seeds were produced before the Royal Society, and an account given in their Transactions for 1769.

GROUND-NUT, or *Earth-nut*. See PIG-NUT.

GROWTH; the accumulation of substance in living bodies, by which they become of the size and bulk which nature intended. After birth a child continues to grow, but always more slowly the older he is. There are many concurring causes, why the growth is continually rendered less and less. Many vessels seem to be stopped up, both because they are compressed by the neighbouring torrent of blood flowing through the great arterious tube, and because the blood being now become more viscid more easily coagulates. But the harder kind of food that is now used, throws into the blood more terrestrial parts; which being carried through the whole body along with the nutritious juice, renders all the parts harder, as the bones, teeth, cartilages, tendons, ligaments, vessels, membranes, and cellular texture; so that an increase of hardness may be perceived in them, even by touching them with the finger. Wherefore, since the blood flows from the heart through fewer canals, and since all parts which should be lengthened or distended are grown harder, it necessarily follows, that those which ought to increase in bulk, will yield less and less to the impulse of the heart.

But the heart likewise, which is the part that is first consolidated among all the soft ones, increases less than any other part of the whole body; and while the much more tender limbs and softer viscera are distended, the proportional bulk of the heart to the rest of the body grows continually less and less, till at last its proportion to the body of the adult becomes eight times less than what it was in the new-born infant. At the same time, from that very density which it has so quickly acquired, it becomes less irritable, and is contracted less frequently within a given time. Thus, while the resisting forces are augmented, the distending ones are at the same time diminished.

There will therefore, sooner or later, be an end of the increase of bulk; and that will happen so much the sooner as the heart has had the more frequent and vivid contractions: but this cessation of growth will take place when the cartilaginous crusts of all the bones are now become so thin, that they cannot yield to the increase of the bony part. In women, the menses seem to put an earlier than usual stop to the growth. In cartilaginous fishes, the growth is perpetual.

There is no state in which nature by a perennial progress induces a continual decrease from the first conception. It is said however to take place, when there is neither any increase of bulk, nor yet does any visible decrease take place.

For we are all perpetually consuming. Nor do we only lose the fluid parts of our bodies, but in short even those which are reckoned to be the most solid. For even the bones are changed; and the teeth, which are harder than the bones, increase in bulk when the attrition of the opposite teeth has ceased to wear them away, and therefore their elements are changed: even the fibres of ivory in an elephant's tooth, after having been divided by the entrance of a leaden bullet, have grown in a curve direction, and completely inclosed the ball. The bony juice likewise is changed; for in some cases the bones grow soft, in others they swell out in bony tumors: even cicatrices themselves have a manifest growth, otherwise they would not be sufficient in an adult person to close up a wound which he had received when a boy; and a great quantity of the earthy part of our bodies goes off by urine, as is seen in some diseases, particularly in diabetes.

By *Growth* also is particularly understood the gradual increase of bulk and stature that takes place in the human body, to a certain period. The growth of the human species, is subject to great variations; of which a remarkable instance was observed in France in the year 1729, when the Academy of Sciences examined a boy, who was then only seven years old, and who measured four feet eight inches and four lines high without his shoes. His mother observed the signs of puberty in him at two years old, which continued to increase very quick, and soon arrived at the usual standard. At four years old he was able to lift and toss the common bundles of hay in stables into the horses' racks; and at six years old could lift as much as a sturdy fellow of twenty. But though he thus increased in bodily strength, his understanding was no greater than is usual with children of his age, and their playthings were also his favourite amusements.

Another boy, a native of the hamlet of Bouzanquet, in the then diocese of Alais, though of a strong constitution, appeared to be knit and stiff in his joints till he was about four years and a half old. During this time nothing farther was remarkable of him than an extraordinary appetite, which was satisfied no otherwise than by giving him plenty of the common aliments of the inhabitants of the country, consisting of rye-bread, chesnuts, bacon, and water; but his limbs soon becoming supple and pliable, and his body beginning to expand itself, he grew up in so extraordinary a manner, that at the age of five years he measured four feet three inches: some months after he was four feet eleven inches; and at six, five feet, and bulky in proportion. His growth was so rapid, that one might fancy he saw him grow: every month his clothes required to be made longer and wider; and what was still very extraordinary in his growth, it was not preceded by any sickness, nor accompanied with any pain in any part of his body. At the age of five years his voice changed, his beard began to appear, and at six he had as much as a man of thirty: in short, all the unquestionable marks of puberty were visible in him. It was not doubted in the country but this child was, at five years old, or five and a half, in a condition of begetting other children; which induced the rector of the parish to recommend to his mother that she would keep him from too familiar a conversation with children of the other sex. Though his wit was riper than is commonly observable at the age of five or six years, yet its progress was not in proportion to that of his body. His air and manner still retained something childish, though by his bulk and stature he resembled a complete man, which at first sight produced a very singular contrast. His voice was strong and manly, and his great strength rendered him already fit for the labours of the country. At the age of five years, he could carry to a good distance three measures of rye, weighing eighty-four pounds; when turned of six, he could lift up easily on his shoulders, and carry loads of, 150 pounds weight a good way off: and these exercises were exhibited by him as often as the curious engaged him thereto by a reward. Such beginnings made people think that he would shoot up into a giant. A mountebank was already soliciting his parents for him, and flattering them with hopes of putting him in a way of making a great fortune. But all these hopes suddenly vanished. His legs became crooked, his body shrunk, his strength diminished, his voice grew sensibly weaker, and he at last sunk into a total imbecility.

In the Paris Memoirs also there is an account of a girl who had her menses at the age of three months. When four years old, she was four feet six inches in height, and had her limbs well proportioned to that height, her breasts large and plnmp, and the parts of generation like those of a girl of eighteen; so that there is no doubt but that she was marriageable at that time, and capable of being a mother of children. These things are more singular and marvellous in the northern than in the southern climates, where the females come sooner to maturity. In some places of the East Indies, the girls, it is said, have children at nine years of age.

Many other instances of extraordinary growth might be brought, but the particulars are not remarkably different from those already related. It is at first sight astonishing that children of such early and prodigious growth do not become giants: but when we consider, that the signs of puberty appear so much sooner than they ought, it seems evident that the whole is only a more than usually rapid expansion of the parts, as in hot climates; and accordingly it is observed, that such children, instead of becoming giants, always decay and die, apparently of old age, long before the natural term of human life.

GRUINA'LES, (from *grus*, a crane); the name of the fourteenth order in Linnæus's Fragments of a Natural Method, consisting of geranium, and a few other genera which the author considers as allied to it in their habit and external structure. See Botany, page 50.

GRUME, a term denoting a thick viscid consistence of a fluid, like what we call *ropy;* as the white of an egg, or clotted like cold blood. Hence *grumous blood*, is that which is supposed too thick for circulation, or found stagnated in bruised parts.

GRU'TUM, or milium; a hard white tubercle of the skin, resembling in size and appearance a millet-seed.

GRYPHO'SIS, (γρυφοσις; from γρυπόω, *to incurvate);* a disease of the nails, which turn inwards, and irritate the soft parts below. This is best remedied by thinning the middle of the nail, which is generally too thick and brittle; for by that means the sides will recede, and the soft parts be relieved

GUA'IACUM, (from the Spanish *Guayacan*, which is formed from the Indian *Houxacan);* officinal guaiacum. This tree, *Guiaicum officinale foliis bijugis obtusis* of Linnæus; Class, *Decandria.* Order, *Monogynia*, is a native of the West India islands. The wood, gum, bark, fruit, and even the flowers, have been found to possess medicinal qualities. The wood is heavier than water, very hard, resinous, and of a greenish-black colour. Its taste is bitterish, and when kindled it gives out a pleasant smell. It is brought either in pieces, which are sometimes covered with a pale yellow alburnum, or already rasped; when, by division, its colour appears greenish, brown, or yellow. The bark is thin, of an ash-grey or blackish colour, and apparently composed of several laminæ. It is less resinous than the wood. Neumann got from 7680 parts of the wood 1680 alcoholic, and 280 watery extract, and inversely 740 watery, and 960 alcoholic; from 3840 of the bark, he got 560 alcoholic, and 320 watery, and inversely 620 watery, and 240 alcoholic. The resin exudes spontaneously in tears, but is principally obtained by sawing the wood into billets about three feet long, which are then bored with an augre longitudinally. One end of these is laid upon a fire, so that a calabash may receive the melted resin, which runs through the hole as the wood burns. It may be also obtained by boiling the chips or sawings of the wood in water and muriate of soda. The resin swims at the top, and may be skimmed off. This resin has a brownish yellow colour externally. When held against the light it is transparent, breaks with a uniform smooth shining fracture, of a bluish-green colour, pulverizable, powder of a white colour, gradually becoming bluish-green; fusible in a moderate heat, but not softened by the heat of the fingers; soluble in alcohol, insoluble in water, (Neumann got from 480 parts 400 alcoholic, and only 10 watery extract, and inversely 80 watery, and 280 alcoholic); without proper smell or taste, but when thrown on hot coals diffusing an agreeable odour, and when swallowed in a state of minute division, causing an insufferable burning and prickling in the throat. It therefore is not a gum-resin, but a pure resin. It is sometimes adulterated with colophony or common resin, but the fraud is easily detected by the smell of turpentine which it emits when thrown on live coals.

If taken internally, guaiacum commonly excites warmth in the stomach, a dryness of the mouth, with some thirst. It increases the heat of the body, and quickens the circulation. If the patient be kept warm, it produces diaphoresis; if exposed freely to the air, an increased flow of urine. In large doses, however, it acts as a purgative. It is a useful remedy, 1. In rheumatism and gout. 2. In certain venereal symptoms; as in foul indolent ulcers, and a thickened state of the ligaments or periosteum, remaining after a mercurial course. This remedy will also suspend the progress of some of the secondary symptoms, but it is totally incapable of eradicating the disease, of itself, as was formerly pretended. 3. It is of service in cutaneous diseases. 4. In ozæna and scrofulous affections of the membranes and ligaments.

Lignum guaiacum is always exhibited in decoction; yet, from the resinous nature of the active constituent of this substance, this cannot be a very active preparation, as the menstruum is totally incapable of dissolving, though it may suspend a little of the resin. The decoction of an ounce may be drunk in convenient doses in the course of a day.

The resin may be exhibited in substance, either made into pills, or suspended in water with mucilage of gum arabic, in the form of an emulsion; in which way from ten to thirty grains may be taken in the day. Or we may give about half an ounce of the tincture, with some mucilage and syrup, and two ounces of water, as a sudorific dose for an adult. Lastly, it may be combined with an alkali, forming a kind of emulsion.

The officinal preparations in which this remedy is found, are the following:—*Tinct. guaiac.* Edin. *Tinct. guaiac. ammon.* Edin. Lond. Dubl. *Pulv. Aloet. cum. guaiac.* Lond. *Decoct. guaiac. comp.* Edin. *Decoct. sars. comp.* Lond. Dubl.

GUILA'NDINA MORI'NGA; the Gubernaculium tree which affords the *lignum nephriticum*, and the ben-nut. See Lignum nephriticum and Ben-nut.

GUINEA-PEPPER. See Capsicum.

GUINEA-WORM; the *Gordius Medinensis*, or muscular hair-worm, of Linnæus. See Gordius. In hot countries this worm gets into the feet and legs of the inhabitants, and produces a very troublesome ulcer, which can only be cured by seizing the worm, and extracting a little of it, day by day, till the whole is drawn out entire. The name of *Medinensis Vena* was given to it by the Arabians, who called it *vena*, because they doubted its being a living animal, and *Medinensis*, from its being frequent at Medina.

GUM. See Gummi.

GUM-BOIL. See Parulis.

GU'MMA, a strumous tumor on the periosteum of a bone; thus called from the resemblance of its contents to a gummy substance. When the cause appears, and the indisposition of the habit in general is got the better of, some attempt the cure by pressure, adapted to the part. These tumors frequently are the consequence of syphilis, and removable only by mercury.

GU'MMI, gum; a concrete vegetable juice, of no particular smell or taste, becoming viscous and tenacious when moistened with water; totally dissolving in water into a liquid, more or less glutinous in proportion to the quantity of the gum; not dissolving in ardent spirits or in oils; burning in the fire to a black coal, without melting or catching flame; suffering no dissipation in the heat of boiling water. The true gums are gum arabic, gum tragacanth, gum senegal, the gum of cherry and plum trees, and such like. All else have more or less of resin in them and are thence called *Gum-resins*. By way of eminence, the name of *gum* is given to the produce of a species of *Mimosa.* See Arabic, Gum. One ounce of this renders a pint of water considerably glutinous: four ounces give it a thick syrupy consistence: but for mucilage, one part gum to two parts water is required; and for some purposes, an equal proportion is necessary. In Dr. Percival's Essays, Vol. I. p. 319, &c. we have a good account, by Mr. Henry, of the faculty which this gum has, of dissolving and keeping suspended in water, not only resinous but also other substances which should seem not likely to be affected by it.

In Mr. Hasselquist's Travels, we have an instance of the extraordinary nutritive virtues of this gum. "The Abyssinians (says he) make a journey every year to Cairo, to sell the products of their country. They must travel over terrible deserts, and their journey depends as much on the weather as a voyage at sea; consequently they know as little as a seaman how long they must be on their journey; and the necessaries of life may chance to fail them when the journey lasts too long. This happened to the Abyssinian caravan in the year 1740; their provisions being consumed when they had still two months to travel. They were then obliged to search for something among their merchandise wherewith they might support nature; and found nothing more proper than gum arabic, of which they had a considerable quantity along with them. This served to support above 1000 persons for two months; and the caravan at last arrived at Cairo without any great loss of people either by hunger or diseases."

GU'MMI ARA'BICUM. See Arabicum gummi.

GU'MMI CARA'NNÆ. See Caranna.

GU'MMI CERASO'RUM; the juice which exudes from the bark of the cherry tree. It is very similar to gum arabic, for which it is often substituted.

GU'MMI CHIBOU; a spurious kind of gum elemi, but little used.

GU'MMI COURBARIL; an epithet sometimes applied to the juice of the *Hymenæa courbaril.* See Anime.

GU'MMI GA'LDA. See Galda.

GU'MMI GAMBIE'NSE. See Kino.

GU'MMI GU'TTÆ. See Gambogia.

GU'MMI HE'DERÆ, ivy gum; the resinous juice of the *Hedera helix* of Linnæus. It is imported from the East Indies, though it may be also collected from trees in this country. It is brought over in hard compact masses, externally of a reddish brown colour, internally of a bright brownish yellow, with reddish specks or veins. It has a strong, resinous, agreeable smell, and an astringent taste. Though never used in the practice of the present day, at least in this country, it is said to possess corroborant, astringent, and antispasmodic properties.

GU'MMI JUNIPERI'NUM. See Sandarack.

GU'MMI KIKEKUNEMALO. See Kikekunemalo.

GUM-RESINS; a name for such of the juices of plants as are mixed with resin, and an exractive matter, which has been taken for a gummy substance. They seldom flow naturally from plants, but are mostly extracted by incision, in the form of white, yellow, or dark red fluids, which dry more or less quickly. Water, spirit of wine, wine, or vinegar, dissolve them only in part, according to the proportion they contain of resin or extract. Gum-resins may also be procured by art, by digesting the parts of vegetables containing the gum-resin in diluted alcohol, and then evaporating it. For this reason most tinctures contain gum-resin. The principal gum-resins employed medicinally are aloes, ammoniacum, asafœtida, galbanum, gambogia, guaiacum, myrrha, olibanum, opoponax, sagapenum, sarcocolla, scammonium, and styrax.

GUM SENEGAL; a gum extremely resembling gum arabic, brought to us from the country through which the river Senegal runs, in loose or single drops: but these are much larger than usually are those of the gum arabic. Sometimes it is of the bigness of an egg, and sometimes much larger; the surface is very rough or wrinkled, and appears much less bright than the inner substance where the masses are broken. It has no smell, and scarcely any taste. It is probably produced from a tree of the same kind with the former. The virtues of it are the same with the gum arabic: but it is rarely used in medicine, unless as being fraudulently mixed with the gum arabic: the dyers and other artificers consume the great quantities of it that are annually imported hither. The negroes dissolve it in milk, and in that state make it a principal ingredient in many of their dishes, and often feed on it alone.

GUMS; *gingivæ:* the very vascular and elastic substance covering the two sides of the whole alveolary border of both jaws. It insinuates itself between all the teeth, surrounds the collar of each tooth in particular, and adheres very strongly to them. Therefore the outer and inner gums are continuous, and both together form just as many openings as there are teeth. The substance of the gums is of a very singular structure, resembling, in some measure, the texture of a hat, calculated to be very compact and elastic. It is not immediately fixed to the bones of the jaws, but by the intervention of the periosteum, with which it is perfectly united; and it is covered by a fine strong even membrane, which sticks very close to the substance of the gums; and seems to be a continuation of that thin membrane which passes to the cheeks and lips, and of that which goes to the tongue.

The gums are apt to become spongy, and to separate from the teeth; and the cause is frequently a stony tartarous kind of crust, which forms itself there: but when effectually separated by an operation which the dentists call *scaling*, the gums soon return to their former state. If rubbed daily with a brush composed of very stiff bristles, the tartar will not only be prevented from accumulating, but the gums, from being tender and apt to bleed, will become hard and firm. Cold water is as useful as any other wash, but some choose to join with it one part in four of tincture of myrrh. The scurvy is another disorder which affects the gums; indeed, when a scorbutic disorder invades the whole habit, its first symptom is a putrid state of the gums. See SCURVY.

GUN-SHOT WOUNDS; such wounds, generally speaking, as are the consequence, whether mediate, or immediate, of a ball fired from a gun. More properly, however, they are wounds made by the projection of hard obtuse bodies, the greatest number of which are musket-balls; for Mr. Hunter very justly observes, that cannon-balls, pieces of shells and stones from ramparts in sieges, or splinters of wood, &c. when on board of a ship in an engagement at sea, can hardly have their effects ranked among gun-shot wounds. Wounds of this kind vary according to circumstances; that is, according to the kind of body projected, the velocity of the body, the nature and peculiarities of the parts injured, &c.

Gun-shot wounds, whatever be their cause, whether musket-ball, cannon-ball, shell, &c. are in general contused wounds; from which contusion there is most commonly a part of the solids surrounding the wound *deadened*, as the projecting body forced its way through these solids, which is afterwards thrown off in form of a slough, and which prevents such wounds from healing by the first intention, or by means of the adhesive inflammation, from which circumstance most of them must be allowed to suppurate. This does not always take place equally in every gun-shot wound, nor in every part of the same wound; and the difference commonly arises from the variety in the velocity of the body projected; for we find in them many cases, where the ball has passed with little velocity, which is often the case with balls, even at their entrance, but most commonly at the part last wounded by the ball, that the wounds are often healed by the first intention.

Gun-shot wounds, from the circumstance of having a part killed, in general do not inflame so readily as those produced by other accidents; and this backwardness to inflame will be in the proportion that the quantity of deadened parts bears to the extent of the wound: from which circumstance the inflammation is later in coming on, more especially when a ball passes through a fleshy part with great velocity; because they will be a great deal deadened, in proportion to the size of the wound: therefore, inflammation in gun-shot wounds is less than in wounds in general, where the same quantity of mischief has been done; and this, also, is in an inverse proportion to the quantity of parts deadened; inflammation being less active where parts are to slough, than where parts have been destroyed by other means. On the other hand, where the ball has fractured some bone, which fracture in the bone has done considerable mischief to the soft parts, independent of the ball, then there will be nearly as quick inflammation as in a compound fracture of the same bone, because the deadened part bears no proportion to the laceration or wound in general.

From this circumstance, of a part being deadened, Mr. Hunter observes, that a gun-shot wound is often not completely understood at first; for it is at first, in many cases, impossible to know what parts are killed, whether bone, tendon, or soft part, till the deadened part has separated, which often makes it a much more complicated wound than at first was known or imagined; for it very often happens, that some viscus, or a part of some viscus, or a part of a large artery, or even a bone, has been killed by the blow, which does not show itself till the slough comes away. If, for instance, it is a part of an intestine that has received a contusion, so as to kill it, and which is to slough, a new symptom will most probably appear from the slough's being separated, the contents of the intestine will most probably come through the wound; and probably the same thing will happen when any other containing viscus is in part deadened; but those cases will not be so dangerous, as if the same loss had been produced at first, for by this time all communication will be cut off between the containing and contained parts: nor will it be so dangerous as when a considerable blood-vessel is deadened; for in this case, when the slough comes off, the blood, getting a free passage into the wound, as also out of it, probably death will immediately follow. If this artery is internal, nothing can be done; if in an extremity, the vessel may be either taken up, or probably amputation may be necessary, to save the person's life; therefore an early attention should be paid to accidents, where such an event is possible. In case of a wound being deadened, an exfoliation takes place.

Gun-shot wounds are often such as do much mischief to vital parts, the effects of which will be according to the nature of the parts wounded, and the violence of the wound; and also to parts, the soundness of which are essential either to the health of the whole, or to the uses of the parts wounded; such as some viscus, whose contents are voided through the opening, or joints, the disposition of which is slow to heal, and whose uses are impeded when healed.

To show how great a variety of circumstances attends gun-shot wounds, Mr. Hunter recites the case of an officer in the navy, who was wounded by a pistol ball, in the right side, about the last rib. It entered about five inches from the navel, and appeared on the inside of the skin, about two inches from the spinal process; having passed, as he supposed, among the abdominal muscles. The only remarkable thing that occurred was, that the cellular membrane for some way about the passage of the ball was œdematous, and that when the ball was extracted, air came out along with it.

Mr. Hunter states the varieties between one gun-shot wound and another to arise, in many instances, from the difference in the velocity of the body projected. He says, "If the velocity of the ball is small, then the mischief is less in all of them; there is not so great a chance of their being compounded with fractures of the bones, &c. but if the velocity is sufficient to break the bone it hits, the bone will be much more splintered than if the velocity had been very considerable; for where the velocity is very great, the ball, as it were, takes a piece out; however, all this will also vary according to the hardness of the bone. In a hard bone the splinters will be the most frequent. When the velocity is small, the direction of the wound produced by the ball will, in common, not be so straight, therefore its direction not so readily ascertained, arising from the easy turn of the ball. When the velocity is small, the deadened part or slough is always less; for with a small velocity, a ball would seem only to divide parts, while when the velocity is great, the contrary must happen: from this circumstance it is, that the slough is larger at that orifice where the ball enters, than where it comes out; and if the ball meets with a great deal of resistance in its passage through, there will very probably be no slough at all at its exit, which will be, therefore, only a lacerated wound. The greater the velocity of the ball, the cleaner it wounds the parts, so much so as almost to be similar to a cut with a sharp instrument; from which circumstance it might be imagined, that there should be a smaller slough: but I suspect, that a certain velocity given to the best cutting instrument, would produce a slough on the cut edges of the divided parts; for the divided parts not giving way equally to the velocity of the dividing body, must of course be proportionally bruised.

"Gun-shot wounds are attended with less bleeding than most others; however, some will be attended with this symptom more than others, even in the same part: this arises from the manner in which the wound is produced. Bleeding arises from a vessel being cut or broken; but the freedom of bleeding arises from the manner in which this is done: if the artery is cut directly across, and it is done by a ball passing with a considerable velocity, it will bleed pretty freely; if bruised, and in some degree torn, then it will bleed less. When the velocity of the ball is small, the vessels will be principally torn, for they will have time to stretch before the continuity of their parts gives way; but if it is great, they will bleed more freely, because velocity will make up for want of sharpness.

"According to the velocity of the ball, so is the direction. When the velocity is great, the direction of the ball will be in general more in a straight line than when it is small; for under such circumstances the ball more easily overcomes obstructions, and therefore passes on in its first direction.

"Velocity in the ball makes parts less capable of healing, than when it moves with a small impulse; therefore gun-shot wounds in pretty thick parts, are in general later of healing at the orifice where the ball enters, than at the orifice where it passes out, because it becomes in some degree a spent ball; the part having less slough, being only torn, which will often admit of being healed by the first intention.

"In cases where the ball passes through, and in such a direction as to have one orifice more depending than the other, I have always found that the depending orifice healed soonest, and more certainly so if the ball came out that way, and also if the ball had been pretty much spent in its passage, therefore it will require art to keep the depending orifice open, if thought necessary: but this circumstance of its being a spent ball will not always happen, because, if the person is near the gun when fired, the velocity of the ball will be very little diminished in its progress through the soft parts, and, therefore, it will have nearly the same velocity on both sides.

"This fact of the lower orifice healing soonest is common to all wounds, and, I believe, is owing to the tumefaction which generally arises from the extravasated fluid always descending to the lower part, and being retarded at the lower orifice, it is as it were stopped there, and presses the sides of the wound together, obliging it to heal, if the parts have not been deadened: this is evidently the case after the introduction of the seton in the hydrocele, especially if the two orifices of the seton are at some distance; but in the hydrocele there is a more striking reason for it, for in this disease the extravasated fluids are wholly detained about the lower orifice, as there is no depending part for the fluid to descend to."

After enumerating the different kinds of gun-shot wounds, which are sufficiently spoken of above, Mr. Hunter speaks of the treatment. He supposes the almost universal practice of opening immediately upon their being received, or as soon after as possible, the external orifice of all gun-shot wounds made by musket-balls, to have arisen from an opinion, that these wounds have a something peculiar to them, which is to be removed by the opening. The most probable way of accounting for the first introduction of this practice is, from the wound in general being small, and nearly of a size from one end to the other; also the frequency of extraneous bodies being forced into these wounds by the ball, or the ball itself remaining there: for the way in which these wounds are made, is by the introduction of an extraneous body which is left there, if it has not made its way through, so that the immediate cause of the wound makes a lodgement for itself, often carrying before it clothes, and even the parts of the body wounded, such as the skin, &c. From hence it would naturally appear, at first view, that there was an immediate necessity to search after those extraneous bodies, which very probably led the surgeon to do it; and, in general, the impossibility of finding them, and even of extracting them when found, without dilatation, gave the first idea of opening the mouths of these wounds. But, from experience, they altered this practice in part, and became not so desirous of searching after these extraneous bodies; for they found it was oftener impossible to find them than could at first have been imagined, and, when found, that it was not possible to extract them, and that afterwards these bodies were brought to the skin by the parts themselves, and those that could not be brought to the external surface in this way, were such as gave little or no trouble afterwards, such as balls. Yet they altered this practice only so far as respected the attempt to extract extraneous bodies, for when they found, from experience, that it was not necessary, nor possible, to extract these immediately, yet they did not see, that it therefore was not necessary to take the previous or leading steps towards it.

The circumstance of gun-shot wounds being contused, obliges most of them to suppurate; there is, therefore, a freer passage for the matter, or any other extraneous substance, than the same sized wound would have, if made by a clean cutting instrument, even if not allowed to heal by the first intention. From all this, if there be no peculiarity in a gun-shot wound, Mr. Hunter thinks *the dilating of them as a general practice should be rejected.*

"It is contrary," says he, "to all the rules of surgery, founded on our knowledge of the animal economy, to enlarge wounds simply as wounds. No wound, let it be ever so small, should be made larger, excepting when preparatory to something else, which will imply a complicated wound, and which is to be treated accordingly. It should not be opened because it is a wound, but because there is something necessary to be done, which cannot be executed, unless the wound is enlarged." He adds, that this is *common surgery*, and ought also to be *military surgery*, respecting the wounds, which form the subject of his remark; and he proves the inutility of *opening gun-shot wounds*, as a general practice, by shortly reciting the cases of four Frenchmen, and a British soldier, wounded on the day of the landing of the English army on the island of Bellisle. These persons had nothing at all done to their wounds for four days after receiving them; and, when they were brought to the hospital, their wounds were only dressed superficially, and they all recovered. It would, he allows, be absurd for any one to suppose that there is *never* occasion to dilate gun-shot wounds at all, but it is certain *there are very few in which it is actually required.* It is impossible to determine, by any general description, what those are that ought to be opened, and what those are that ought not; that must be left to the discretion of the surgeon. Some general rules may, however, be given with regard to the more simple cases; but with regard to the more complicated, the particular circumstances of each case are the only guide; and they must be treated according to the general principles of surgery.

If a ball passes through the fleshy part, where it can hurt no bone in its way, such as the thickest of the thigh, Mr. Hunter says, in such a simple wound, he can see no reason for dilating, because no purpose can be answered by it, except the shortening of the depth of the wound made by the ball, which can be productive of no benefit. If the ball does not pass through, and is not to be found, opening can be of as little service.

If the opening in the skin should be thought so small as to form an obstruction to the exit of the slough, &c. in general this is not the case; for the skin is kept open by its own elasticity, as we see in all wounds; this elasticity, muscles, and many other parts, have not; and, in general, the opening made by a ball is much larger than those made by pointed instruments; for there is often a piece of the skin carried before the ball, especially if it have passed with great velocity, besides the circular slough; so that there is, in fact, a greater loss of substance; therefore, whatever matter or extraneous body there is, when it comes to the skin, it will find a free passage out. Nor does the wound in the skin, in general, heal sooner than the bottom; and indeed, in many cases, not so soon, because the skin is generally the part that has suffered most.

Mr. Hunter allows, however, that this is not an absolute rule; for the skin sometimes *heals first;* but he found this to be the case as often where openings had been made, as in those where they had not; and this will depend upon peculiar circumstances, such as the bottom being at a considerable distance, with extraneous bodies, and tending to a fistula. In those cases, the wound or opening made by the surgeon generally skins to a small hole before the bottom of the wound is closed, which brings it to the state in which it would have been if not dilated at all, especially if there are extraneous bodies still remaining; for an extraneous body causes and keeps up the secretion of matter, or rather keeps up the disease at the bottom of the wound, by which means the healing disposition of the wound is in some degree obviated.

"If," says Mr. Hunter, "the extraneous bodies are broken bones, it seldom happens that they are entirely detached, and, therefore, must loosen before they can come away: also the bones in many cases are rendered dead, either by the blow or being exposed, which must exfoliate, and this requires some time; for in gun-shot wounds, where bones are either bruised or broken, there is most commonly an exfoliation, because some part of the bone is deadened, similar to the slough in the soft parts."

A common reason given for dilating gun-shot wounds is, that it takes off the tension, and gives the part liberty. This, Mr. Hunter says, would be very good practice, if tension or inflammation were not a consequence of wounds; or it would be very good practice, if it could be proved, that the effects from dilating a part that was already wounded, were very different, if not quite the reverse, of those of the first wound; but as this must always be considered as an extension of the first mischief, we must suppose it to produce an increase of the effects arising from that mischief; therefore, this practice is contradictory to common sense and common observation.

Mr. Hunter suggests, that they are principally the *compound wounds* that require surgical operations, and lays down certain precautions which are necessary with regard to them. As the dilatation of gun-shot wounds is a violence, it will be necessary, he says, to consider well what relief can be given to the parts or patient by such an operation, and whether, without it, more mischief would ensue; it should also be considered, what is the proper time for dilating. One of the principal points of practice, will be, to determine *at what period of time the dilatation should be made.*

1. "If the wound should be a slight one, and should require opening, it will be better to do it at the beginning, before inflammation comes on; for the inflammation, in consequence of both, will be slight: but in slight cases dilatation will never be necessary, except to allow of the extraction of some extraneous body that is near. But if the wound is a considerable one, and it should appear, upon consideration, that you cannot relieve immediately any particular part, or the constitution, then you can gain nothing by opening immediately, but will only increase the inflammation, and, in some cases, the inflammation arising from the accident and opening together, may be too much for the patient. Under this last circumstance, it would be more adviseable to wait till the first inflammation ceases, by which means the patient will stand a much better chance of a cure, if not of his life; therefore it is much better to divide the inflammations. However, it is possible that the inflammation may arise from some circumstance in the wound, which could be removed by opening it; for instance, a ball, or broken bone, pressing upon some part whose actions are either essential to the life of the part, or the whole, as some large artery, nerve, or vital part; in such the case will determine for itself. On the other hand, it may, in many cases, be better to remove the whole by an operation, when in such parts as will admit of it.

2. "If an artery is wounded, where the patient is likely either to become too weak, or to lose his life from the loss of blood, then certainly the vessel is to be tied, and most probably this cannot be done without previously opening the external parts, and often very freely.

3. "Or, *thirdly*, in a wound of the head, where there is reason to suspect a fracture of the skull, it is necessary to open the scalp, as in any other common injury done to the head, where there was reason to suspect a fracture; and when opened, if a fracture is found, it is to be treated as any other fractured skull.

4. "Where there are fractured bones in any part of the body that can be immediately extracted with advantage, and which would do much mischief if left, this becomes a compound fracture wherever it is; and it makes no difference in the treatment, whether the wound in the skin was made by a ball, or the bone itself, at least where the compound fracture is allowed to suppurate; for there is often a possibility of treating a compound fracture as a simple one, which gun-shot fractures, if I may be allowed the expression, seldom will allow of; but, where the compound fracture must suppurate, there they are very similar. However, there have been instances where a fracture of the thigh bone, made by a ball, has healed in the same way as a simple fracture.

5. "Where there is some extraneous body which can with very little trouble be extracted, and where the mischief, by delay, will probably be greater than that arising from the dilatation.

6. "Where some internal part is misplaced, which can be replaced immediately in its former position, such as in wounds of the belly, where some of the viscera are protruded, and it becomes necessary to perform the operation of gastroraphia, which is to be done in this case in the same manner as if the accident arose from any other cause; but the treatment should be different, for gun-shot wounds cannot heal by the first intention, on account of the slough that is to ensue.

7. "Or when some vital part is pressed, so that its functions are lost or much impaired, such as will often happen from fractures of the skull, fractures of the ribs, sternum, &c.; in short, when any thing can be done to the part after the opening is made for the pre-

sent relief of the patient, or the future good arising from it. If none of these circumstances has happened, then perhaps we should be very quiet. Balls that enter any of the larger cavities, such as the abdomen or thorax, need not have their wounds dilated, except something else is necessary to be done to the contained parts, for it is impossible to follow the ball, therefore they are commonly not opened, and yet we find them do very well."

If a ball has entered a part where it cannot be followed, such as the bones of the face, the wound in the skin need not be in the least enlarged, as it can give no assistance to the other part of the wound, which is a bony canal. In proof of this, Mr. Hunter relates two cases in his treatise on Inflammation, &c.

The present practice is not to regard the balls themselves, and seldom or ever to dilate upon their account, nor even to search much after them when the wound is dilated, which shows that opening is not necessary, or at least not made upon account of extraneous bodies. This practice has arisen from experience; for it was found that balls, when obliged to be left, seldom or ever did any harm when at rest, and when not in a vital part; for balls have been known to lie in the body for years, and are often never found at all, and yet the person has found no inconvenience. This knowledge of the want of power in balls to promote inflammation when left in the body, arose from the difficulty of finding them, or extracting them when found; and, therefore, in many cases, they were obliged to leave them.

One reason for our not readily finding the ball at first is, because the parts are only torn and divided, without any loss of substance (till the slough comes off), by which means the parts collapse and fall into their places again, which makes it difficult to pass any thing in the direction of the ball, or even to know its direction. The different courses they take, by being turned aside by some resisting body, add also to the difficulty, as will be explained.

But the course of the ball, if not perpendicular, but passing obliquely, and not very deep, a little way under the skin, probably an inch or more, is easy to be traced through its whole course; for the skin, over the whole passage of the ball, generally is marked by a reddish line. Mr. Hunter says, he has seen this redness, even when the ball has gone pretty deep. It has none of the appearances of inflammation, nor of extravasation; for extravasation is of a darker colour, and to what it is owing he was not able to discover.

Some curious instances have occurred, of the *effect of oblique resistance in altering the course of a ball.* An account of the circumstances to be attended to in the surgeon's endeavours to obtain a knowledge of its precise situation, is given in Mr. Hunter's treatise on Inflammation. He observes, that these *uncertainties in the direction of the ball* have made the common bullet forceps almost useless; yet forceps are not to be entirely thrown aside, for it will often happen that a ball will be found to lie pretty near the external wound, which, if the ball was removed, would heal probably by the first intention: for in such superficial wounds they must have passed with little velocity, or, if there was a part killed, it would heal immediately; but if there is a slough, this is best done after all inflammation, and the separation of the slough is over, for then the passage of the ball is better ascertained, in consequence of the surrounding adhesive inflammation; and, moreover, the granulations are beginning to push the extraneous body towards the surface; but the operation of ulceration, which brings it to the skin, being often too slow, the ball, &c. had better be extracted, and even the part might be dilated. We are admonished, however, to be very cautious how far we carry this practice, and only do it when all circumstances are favourable.

For the same reasons, probes are become of little use; indeed, Mr. Hunter thinks they should never be used but by way of knowing what mischief is done. If the wound will admit of it, the finger he thinks the best instrument.

In cases where the ball passes a considerable way under the skin, and near to it, it is adviseable to make an opening midway between the two orifices made by the ball (especially when they are at a very great distance), that fractured bones, or extraneous bodies, may, at this or any future time, be better extracted; for if this is not done, an abscess is apt to form between them, which, indeed, answers the same purpose, and often better, but sometimes it should not be delayed for such an event.

Where the ball has passed immediately under the skin, as in the case where the ball passes between the skin and tibia, it will be often proper to open the whole length of the passage of the ball; the necessity of which, Mr. Hunter thinks, arises from the skin not so readily uniting with the parts underneath, as muscles do with one another.

Although the practice is discontinued of searching after the ball, splintered bones, or any other extraneous bodies, yet it often happens that a ball shall pass on till it comes in contact with the skin of some other part, and where it can be readily felt; the question is, Should such a ball be cut out? If the skin is bruised by the ball coming against it, so that we may imagine that this part will slough off, in that case there seems nothing to hinder the opening of it. The part being dead, no more inflammation can arise from the opening, than otherwise would take place upon allowing the slough to be thrown off; while, on the other hand, perhaps as little good may arise from it, because the ball will come out of itself, when the part sloughs off. Yet the ball may, before the slough falls off, so alter its situation, that it will be impossible to extract it by that opening. But if the ball is only to be felt, and the skin quite sound, Mr. Hunter, in that case, advises letting it alone, till the wound made by the entrance of the ball inflames and suppurates. His reasons for it are these:

1. "We find that most wounds get well when the ball is left in (except it has done other mischief than simply passing through the soft parts), and that very little inflammation attends the wound where the ball lodges, only that where it enters, the inflammation not arising

so much from the injury done by the ball, as from the parts being there exposed to the suppurative inflammation, if it is immediately removed. There is always a greater chance of a slough where the ball enters than where it rests, arising from the greater velocity of the ball; for, beyond where the slough is, the parts unite by the first intention.

2. "In those cases where the ball passes through and through, we have two inflammations, one at each orifice; instead of the one at the entrance, or a continued inflammation through and through, if the ball has passed with great velocity. Where the ball makes its exit, the inflammation passes further along the passage of the ball, than when the wound has been healed up to the ball, and it is cut out afterwards; so that by opening immediately, the irritation will be extended further, and, of course, the disposition for healing will be prevented."

If this be the case, Mr. Hunter thinks that two wounds should not be made at the same time; for he has seen cases where the balls were not found at first, nor even till after the patients had got well of their wounds; and these balls were found at last very near the skin. They gave no trouble, or else they would have been found sooner; no inflammation came upon the parts, and they were afterwards extracted and did well. On the other hand, in cases where the balls were found at first, and cut out immediately, which were similar to balls passing through and through; the same inflammation came on the incisions that came on the wound made by the entrance of the ball.

Penetrating gun-shot wounds of the abdomen, Mr. Hunter observes, become more or less dangerous, according to the mischief done to the contents of the cavity into which they enter. These wounds, he says, may be distinguished according as they are simply penetrating, without extending to the contained parts, or as they affect these parts; and the event of these two kinds of wounds is very different; for in the first, little danger is to be expected, if properly treated; but in the second, the success will be uncertain, for, in some instances, nothing can be done for the patient, and very often a good deal of art can be made use of with advantage.

"Wounds of the parietes of the abdomen, not immediately inflicted on such a viscus as has the power of containing other matter, will in general do well, let the instrument that made the wound be what it will. There will be a great difference, however, should that instrument be a ball passing with great velocity, for in this case a slough will be produced. But if it should pass with little velocity, then there will be less sloughing, and the parts will, in some degree, heal by the first intention, similar to those made by a cutting instrument: but although the ball has passed with such velocity as to produce a slough, yet that wound shall do well, for the adhesive inflammation will take place on the peritonæum all round the wound, which will exclude the general cavity from taking part in the inflammation, although the ball has not only penetrated, but has wounded parts which are not immediately essential to life, such as the epiploon, mesentery, &c. and perhaps gone quite through the body; yet it is to be observed, that wherever there is a wound, and whatever solid viscus may be penetrated, the surfaces in contact, surrounding every orifice, will unite by the adhesive inflammation, so as to exclude entirely the general cavity, by which means there is one continued canal wherever the ball or instrument has passed: or if any extraneous body should have been carried in, such as clothes, &c. they will also be included in these adhesions, and both these and the slough will be conducted to the external surface by either orifice.

"All wounds that enter the belly, which have injured some viscus, are to be treated according to the nature of the wounded part, with its complications; which will be many, because the belly contains more parts of very dissimilar uses than any other cavity in the body, each of which will produce symptoms peculiar to itself, and the nature of the wound.

"The wounding of the several *viscera* will often produce what may be called immediate and secondary symptoms, which will be peculiar to themselves, besides what are common to simple wounds, such as bleeding, which is immediate, and inflammation and suppuration, which are secondary. Sensations alone will often lead to the viscus wounded, and this is frequently one of the first symptoms.

"The immediate symptoms arising from wounds in the different viscera are as follows: From a *wound in the liver* there will be pain in the part, of the sickly or depressing kind; and, if it is in the right lobe, there will be a delusive pain in the right shoulder; or in the left shoulder, from a wound in the left lobe. A *wound in the stomach* will produce great sickness and vomiting of blood, and sometimes a delirium; a case of which occurred in a soldier at Portugal, who was stabbed in the stomach with a stiletto. Blood in the stools will arise from a wound in the *intestines*, and according to the intestine wounded, it will be more or less pure. If the blood is from a high part of an intestine, it will be mixed with fæces, and of a dark colour; if low, as the colon, the blood will be less mixed, and give the tinge of blood; and the pain or sensation will be more or less acute, according to the intestine wounded: more of the sickly pain, the higher the intestine, and more acute the lower. There will be bloody urine from a wound in the kidneys or bladder; and if caused by a shot or ball, and a lodgment made, these bodies will sometimes become the cause of a stone. The sensation will be trifling."

A *wound of the spleen* will produce no symptoms that Mr. Hunter is aware of, excepting, probably, sickness, from its connection with the nerves going to the stomach, &c. Some extravasation of blood will take place in all penetrating wounds, and more especially if some viscus is wounded; and this must prove dangerous, or not, according to the quantity lost by the patient on such occasions.

Besides the immediate and general symptoms upon such parts being wounded, other symptoms may arise, in consequence of some of those viscera being wounded, which require particular attention. There may be wounds of the liver and spleen, which produce no symptoms but what are immediate, and may soon take on the healing disposition; but wounds in those viscera which contain extraneous matter, such as the stomach, intestines, kidneys, ureters, and bladder, may produce secondary symptoms, in consequence of this peculiarity. If the injury is done by a ball to any of those viscera, the effect may be of two kinds; one where it makes a wound, as stated above, the other where it only produces death in a part of one of them: these will produce very different effects; the first will most probably be always dangerous, the second will hardly ever be so. The first is, where the ball has wounded some one of the abovementioned viscera in such a manner, as not to produce the symptoms already described, but produce one common to them all, viz. their contents or extraneous matter immediately escaping into the cavity of the abdomen. Such cases will seldom or ever do well, as this effect will hinder the abovementioned adhesions taking place. The consequence of this will be, that universal inflammation on the peritonæum will take place, with great pain, and tension, and ending fatally. But all this will be in proportion to the quantity of wound in the part, and quantity of contents capable of escaping into the cavity of the abdomen; for if the wound is small, and the bowels not full, then adhesions may take place all round the wound, which will confine the contained matter, and make it go on in its right direction.

Mr. Hunter apprehends that *gun-shot wounds of the thorax*, have been unjustly considered by surgeons as hopeless cases. He rather supposes, that a wound in the lungs from a ball would, in general, do better than a wound in the same part with a pointed instrument; and this difference in effects would appear, in many cases, to arise from the difference in the quantity of blood extravasated, because the bleeding from a ball is very inconsiderable, in comparison to that from a cut, and there is, therefore, a less chance of extravasated blood, either in the cavity of the thorax, or the cells of the lungs. Another circumstance that favours the gun-shot wounds in these parts is, that they seldom heal up externally by the first intention, on account of the slough, especially at the wound made by the entrance of the ball, so that the external wound remains open for a considerable time, by which means any extravasated matter may escape; but even this has often its disadvantages, for, by keeping open the external wound which leads into the cavity, we give a chance to produce the suppurative inflammation through the whole surface of that cavity, which most probably would prove fatal, and which would be equally so if no viscus was wounded; but it would appear that the cavity of the thorax does not so readily fall into this inflammation from a gun-shot wound as we should at first imagine; nor can we suppose that the adhesive inflammation readily takes place between the lungs and pleura round the orifice, as in the wounds of the abdomen, because these parts are not under the same circumstances that other contained, and containing, parts are; for in every other case, the contained and containing have the same degree of flexibility, or proportion in size. The brain and the skull have not the same flexibility, but they bear the same proportion in size. From this circumstance, the lungs immediately collapse, when either wounded themselves, or when a wound is made into the chest, and not allowed to heal by the first intention, and become by much too small for the cavity of the thorax, which space must be filled either with air or blood, or both, therefore adhesion cannot readily take place; but it very often happens that the lungs have previously adhered, which will frequently be an advantage.

In gun-shot wounds of the chest, nothing in general is to be done but to keep quiet, and dress the wounds superficially, for any extravasated blood that might have got into the cavity of the thorax will generally make its escape by the external wound, as also any matter from suppuration.

Concussion and fracture of the skull from a musket-ball, differs in nothing from the same accident arising from other causes, except in the lodgment of the ball, which requires no peculiar mode of treatment.

In *compound gun-shot wounds*, where bones are broken, or where there are extraneous bodies that continue the irritation, similar to compound fractures, the external parts seldom or ever heal at once, or by regular degrees; but generally heal very quick at first, upon the going off of the inflammation, similar to the healing of simple gun-shot wounds; but, when healed so far as to be affected by the extraneous bodies, then they become slow in their progress, till at last they come to a stand, or become fistulous, in which state they continue till the irritating cause is removed; and this takes place even if the dilatation should have been made at first as large as could be thought necessary; so that the opening at first, in such cases, can only let out those extraneous bodies, or detached bones, that are perfectly loose, or become loose while the wound continues large: however, even this can only take place in superficial wounds; but in those that are deep, or where there is an exfoliation to take place, the dilated part always heals up long before they are fit to make their exit; but before this happens, the parts often acquire an indolent diseased state, and, even when all extraneous bodies are extracted, the parts do not readily heal.

When a wound comes to this stage, Mr. Hunter blames the practice of those who introduce tents into the opening, or apply some corroding medicine to keep it open, and also with a view to make it wider; this being unnecessary, as a wound in such a state seldom heals entirely over, nor do tents add much to the width of the wound, and always confine the matter.

When an *exfoliation* is expected, it is generally better to expose as much of the bone as possible: it keeps up a kind of inflammation, which, perhaps, gives a disposition for this process. This can be only done where the bone is rather superficial; but in cases where the separation has already taken place, and it is now to make its way to the skin like any other extraneous substance, then, instead of keeping the orifice in the skin open by tents, it would be often better to let the whole heal over, because the extraneous body would form an abscess round itself, which would enlarge the cavity, and produce the ulcerative inflammation quicker towards the surface, and when that was opened, the extraneous body could be with more ease extracted, or would come out of itself; but this method of healing the mouths of fistulous sores is not always practicable.

If no inconveniences attend this, it has at least this advantage, that the patient has not a sore to dress every day, till the extraneous body comes away. This practice, however, is not to be followed in every case; for instance, if the wound should communicate with a joint, as is common to most sores in the foot and hand, where the bones are diseased, it would be, in such cases, very imprudent to allow the wound to heal, as the confined matter would get more readily into the different joints, and increase the disease. If wounds are to be kept open at their mouths, whose bottoms are not disposed to heal, they should be kept open *to that bottom*, because, whenever they do heal at their mouths, it is most commonly owing to their sides underneath first uniting, for the skin will seldom unite when all beyond it is open.

In *wounds that become fistulous*, where there is no extraneous body, there is always a diseased bottom, which is to be looked upon as having the same effect as an extraneous substance. To alter this diseased disposition, Mr. Hunter says, they should be opened freely, as large openings produce quick inflammation, quick suppuration, and quick granulations, which are generally found when they arise from such a cause: on the other hand, letting such wounds heal at their mouths has often a salutary effect, as it becomes a means of destroying this diseased part by the formation of an abscess, and in general there can be no better way of coming at a part or extraneous body than by an abscess there. It is a natural way of opening to relieve diseased parts; but we often find in practice, that this method is not sufficient, either for the extraction of extraneous bodies, or to expose the diseased bottom, excepting these abscesses are opened very largely by art, so as to expose the whole of the diseased parts or extraneous body.

An important circumstance in the treatment of gun-shot wounds is to determine the *time proper for removing incurable parts*. On this subject Mr. Hunter's instructions merit particular attention. He says, "Many gun-shot wounds, are at the very first evidently incurable, whether in a part that cannot be removed, or in one that will admit of being removed. When such wounds are in parts that will not admit of a removal of the parts injured, then nothing can be done by surgery; but when in a part that can be removed, then a removal of the injured part is to be put in practice. But even this is to be under certain restrictions: perhaps it should not be done immediately upon the receiving of the injury, excepting where a considerable blood-vessel is wounded, so as to endanger the life of the person, and that it absolutely cannot be taken up; or it is suspected that the inflammation, in consequence of the accident, will kill, by which means you have only the inflammation, in consequence of the amputation. But this is a bad resource, especially if it is a lower extremity that is to be amputated, and which is, perhaps, the only part that can be removed of which the inflammation will be fatal.

"How far the same practice is to be followed in cases which we may suppose will not kill; but that the part is so hurt, as to all appearance not to be in the power of surgery to save, is not easy to determine. This is a very different case from the former, and its consequences depend more upon contingencies, so that the part should be removed only when the state of the patient in other respects will admit of it; but this is seldom the case, for few people in full health are in that state, and still less so those who are usually the subjects of gun-shot wounds. The situation they are in at the time, from the hurry of mind, makes it here in general to be the very worst practice: it will in general, therefore, be much better to wait till the inflammation, and all the effects of both the irritation and inflammation, shall be gone off.

"If these things are not sufficiently attended to, and the first inflammation, as in the first stated case (for instance, that which is likely to prove mortal), is allowed to go on, the patient will most probably lose his life; or if the first inflammation be such as is likely to go off, according to the last stated case, then we should allow it to go off before we operate, and not run the risk of producing death by an operation; for, as we have already observed, few can support the consequences of the loss of a lower extremity when in full health and vigour: we know that a violent inflammation will, in few hours, alter the healthy disposition, and give a turn to the constitution, especially if a considerable quantity of blood has been lost, which most probably will be the case where both accident and operation immediately succeed each other. The patient under such circumstances becomes low, simply by the animal life losing its power, and hardly ever recovers afterwards."

On the treatment of those patients whose wounds, at the very first, appear to be incurable; when they are in parts that will admit of being removed by an operation, Mr. Hunter observes, that amputation of an extremity, is almost the only operation that can, and is performed immediately on receiving the injury. As these injuries in the soldier are generally received at a distance from all care, except what may be called chirurgical, it is proper we should consider how far the one should be practised without the other. In general, surgeons have not endeavoured to delay it till the patient has been housed, and put in the way of a cure; and, therefore, it has been a common practice to amputate on the field of battle. Nothing can be more improper than this practice, for the following reasons: In such a situation it is almost impossible for a surgeon, in many instances, to make himself master of the case, so as to perform so capital an operation with propriety; and it admits of dispute, whether at any time, and in any place, amputation should be performed before the first inflammation is over. When a case is so violent as not to admit of a cure in any situation, it is a chance if the patient will be able to bear the consequent inflammation; therefore, in such a case it might appear, at first sight, that the best practice would be to amputate at the very first; but if the patient is not able to support the inflammation arising from the accident, it is more than probable he would not be able to support the amputation and its consequences: on the other hand, if the case is such as will admit of being brought through the first inflammation, although not curable, we should certainly allow of it, for we may be assured, that the patient will be better able to bear the second.

"If the chances," says Mr. Hunter, "are so even, where common circumstances in life favour the amputation, how must it be where they do not? how must it be with a man, whose mind is in the height of agitation, arising from fatigue, fear, &c.? These circumstances must add greatly to the consequent mischief, and cast the balance much in favour of forbearance.

"The only thing that can be said in favour of amputation on the field of battle is, that the patient may be moved with more ease without a limb, than with a shattered one; however, experience is the best guide; and I believe it is universally allowed by those whom we are to esteem the best judges, those who have had opportunity of making comparative observations with men who have been wounded in the same battle, some where amputation had been performed immediately, and others where it had been left till all circumstances favoured the operation; it has been found that few did well who had their limbs cut off on the field of battle, while a much greater proportion have done well, in similar cases, who were allowed to go on till the first inflammation was over, and underwent amputation afterwards.

"There will be exceptions to the above observations, which must be, in a great measure, left to the discretion of the surgeon; but a few of these objections may be mentioned, so as to give a general idea of what is meant.

1. "It is of less consequence whichever way it is treated, if the part to be amputated be an upper extremity: but it may be observed, that there will be little occasion in general to amputate an upper extremity on the field, because there will be less danger in moving such a patient, than if the injury had happened to the lower.

2. "If the parts are very much torn, so that the limb only hangs by a small connection, then the circumstance of the loss of so much substance to the constitution cannot be an objection, as it takes place from the accident, and, indeed, every thing that can possibly attend an amputation; therefore, in many cases, it may be more convenient to remove the whole. In certain cases it may be necessary to perform the operation to get at blood vessels, which may be bleeding too freely: for the searching after them may do more mischief than the operation.

"It will also be immediately necessary, on the field, to replace many parts that would destroy the patient if their restoration was delayed, such as the bowels or lungs protruding out of their cavities; to remove large bodies, such as a piece of shell sticking in the flesh, which would give great pain, and do mischief by its weight and roughness."

The *treatment of the patient's constitution* is the point that next comes to be considered. On this head Mr. Hunter doubts if bleeding is necessary more than in other wounds that have done the same mischief, and where the same inflammation and other consequences are expected. It is proper here, as in all wounds where there is a strong and full habit, and where we expect considerable inflammation and symptomatic fever; but if it is such a gun-shot wound as not to produce considerable effects, either local or constitutional, Mr. Hunter would not bleed merely because it is a gun-shot wound; and from what he has seen, he thinks that inflammation, &c. does not run so high in these wounds as might at first be expected. But this can only be said of wounds which are not complicated with any other injury, except the ball's passing through soft parts; for if a bone be broken, it will inflame like any other compound fracture.

In the time of inflammation, we are advised to bleed in the part with *leeches*, or by punctures with a lancet. This helps to empty the vessels of the part, to lessen the *inflammation sooner*, and, of course, to promote suppuration. But Mr. Hunter apprehends that bleeding must be used with great caution, *where inflammation and fever run very high;* for, to reduce the patient equal to the action at the time (which, whether an increased action, or an acquired one, is only temporary), will be reducing him often too much for the constitution to support life, when this action ceases. The very worst thing that can happen, is the patient being reduced too low; and we often afterwards find more difficulty in keeping him up with cordials, bark, &c. than we find in lowering; and we may avail ourselves of observing those who have lost considerable quantities of blood from the accident, which is always immediate; and we find too, that a second bleeding, by some other accident, although very small in quantity, often destroys the patient very quickly. Nevertheless, this will, in a great measure, depend upon the seat of the injury; for, in cases of great violence done to some parts of the body, bleeding answers better than in others, because the symptoms of dissolution, and dissolution itself, come on sooner from mischief done to some parts, than when it is done to others. Mr. Hunter says, a man will bear bleeding better after an amputation of the arm than leg; better after a compound fracture of the arm than the leg; he will bear bleeding better after an injury done to the head, chest, the lungs, &c. than to either the arm or leg. We find that injuries done to inactive parts, such as joints, do worse, and are more susceptible of irritation than those in fleshy parts of the same situation. It would appear upon the whole, that the decay of animal life is sooner brought on, when the inflammation is in a part whose circulation is not so strong, and where the nervous influence, or the force of the circulation, is far removed.

Cinchona is greatly recommended in gun-shot wounds, and with good reason; but Mr. Hunter objects, that it is ordered *indiscriminately* to all patients that have received such wounds, whatever the symptoms or constitution of the patient may be. That there is no better medicine, he says, for wounds in general, not only when the *inflammation is gone off*, but in the time of inflammation, if the patient is *rather low*, and, indeed, before it comes on, experience daily shews. Bark is looked upon as a strengthener, or regulator of the system, and an antispasmodic, both of which destroy irritation. The bark and gentle bleedings, when the pulse begins to rise, are the best treatment that we know of in inflammations that arise either from accidents or operations. One lessens the volume of the blood, and the increased animal powers at thetime, which makes the circulation more free, so that the heart labours less, and simple circulation goes on more freely; the other gives to the blood that which makes it less irritating, makes the blood-vessels do their proper offices, and gives to the nerves their proper sensations, which take off the fever.

For the first twelve days, in all gun-shot wounds, it will be proper to observe a cooling regimen, both in respect of the medicines that may be prescribed, and the diet requisite for the support of nature. It is absolutely necessary likewise that the body be constantly kept open. Unless, therefore, Nature does this office of herself, a stool should be every day procured, either by emollient clysters, or some gentle laxative taken at the mouth; and whenever there is much pain in the wounded parts, immediate recourse must be had to opium.

If a mortification happen after a gun-shot wound, it is to be treated in the same manner as if it had arisen from any other cause, only bark is not to be promiscuously used. Mr. White's manner of giving *musk and volatile alkali* in mortifications, a practice which some surgeons have cordially adopted, may prove worthy of attention in this instance also. See MORTIFICATION.

GUSTATO'RII, a name for the ninth pair of nerves.

GUSTATO'RIUS; a name for the third maxillary branch of the fifth pair of nerves.

GU'TTA, (from χεω, *to pour out); a drop*, in pharmacy, an uncertain form of administering liquid medicines. Where great exactness is necessary these should not be prescribed. The shape of the bottle from whence the drops fall, occasions a considerable difference in the quantity administered; and the consistence of the fluid is often a still greater cause of difference.

GU'TTA ROSA'CEA, a cutaneous eruption, affecting the face, and more especially the nose. Dr. Cullen ranks it as synonymous with *varus*, and *bacchia*, and places these as a variety of the *phlogosis phlegmone*. It has been also called simply *rosacea*, from the little red drops, or fiery tubercles, dispersed about the face and nose. It is named *gutta rubacchia*, by Linnæus. Nicholaus Florentinus, an old writer, distinguishes three degrees of it, viz. 1. *Rubedo simplex*, seu *facies rubra*. 2. *Rubedo pustulosa*. 3. *Rubedo ulcerosa*. A prevailing notion that the cause is in the liver, seems to be supported by observing that often, on the disappearance of fiery pimples in the face, an indurated liver takes place, and thence a dropsy; and, *on the contrary*, disorders of the liver are sometimes supposed to be relieved by eruptions in the face. Though tipplers are most subject to this complaint, the most abstemious are sometimes affected with it. Persons suddenly drinking a draught of cold water when they were hot, also have been attacked by it. As to the cure, a temperate regimen is proper; but if the patient has been accustomed to a generous diet, a sudden alteration is not adviseable. Harrowgate and Scarborough waters are generally esteemed useful. *Internally* the spring vegetable juices, mercurial alteratives, small doses of antimonials, and the ferruginous preparations, are also commended. Antimonials, as they have the best effect on the emunctories of the skin, are, perhaps, the most to be relied on; and, as purges, those of the mercurial kind are not to be omitted.

Danger has been apprehended, but without reason, from the use of topical remedies in this complaint. On the contrary, the occasional application of *ung. hydrarg. nitrat.* or of an ointment composed of suet with a proper proportion of levigated *hydrarg. nitrat. rubri*, by urging the pustules to a perfect suppuration, and also by altering *the diseased action* in the part, will have the best effects. The latter has been long sold, as a quack medicine, under the name of *Golden Ointment.*

GU'TTA NI'GRA, the *Black Drop;* the popular name for a concentrated preparation of opium which Dr. Cassels says, was known above fifty years ago to many people in Lancashire. As it is a favourite medicine now with some practitioners, in that part of the world, the Dr. gives the following account of it. According to his information, there are two preparations now in use under this name: in one rectified spirit of wine is the menstruum, in the other opium is dissolved in a vegetable acid. The receipt of the former is this:

Take of Purified opium five ounces;
Pimento and cinnamon, of each two drachms;
Saffron and Seville orange peel, of each one drachm;
Rectified spirit of wine, a pint;
Digest with a gentle heat a week, and strain the liquor through flannel with a screw-press, then add two or three ounces of powdered sugar-candy.

The other receipt is, more properly speaking, an infusion than a tincture of opium, and is thus expressed:

Take of opium four ounces;
Juice of quinces, or verjuice, four pints;
Digest them three weeks: then add,
Saffron one ounce;
Cloves,
Nutmegs,
Cinnamon, of each, in coarse powder, an ounce;
Continue the digestion a week, strain through flannel, and evaporate the strained liquor to the consistence of a syrup.

Lemon juice, it is probable, will answer the purpose as well as either of the vegetable juices above-mentioned. One drop of these preparations is reckoned equal to three or four of the common tincture of opium: but neither the one nor the other is new; for Dr. Jones, in his "*Mysteries of Opium revealed*," published above a century ago, mentions a preparation of opium similar to the latter, under the title of *laudanum liquidum cydoniacum;* and Quincy, in his Dispensatory, published in the year 1722, not only takes notice of the same medicine, but adds receipts for other tinctures of opium with aromatics, which, no douht, will be found equally as efficacious as what is sold under the name of the *black drop*. This indeed Dr. Cassels has confirmed by his own experience.

GU'TTA SERE'NA, also named *Amaurosis;* an abolition of the sight without any apparent cause or fault in the eyes. In every case it depends on an affection of some part of the optic nerve; but the affections which may produce this disease are of different kinds. Bonetus, in his *Sepulchretum Anatomicum*, lib. i. sect. 18, has given us several such proofs. In four of the cases related by him, after the decease of the patients, the real state or true cause of their disorders appeared to be as follows:—in one, the blindness was found to be occasioned by an *encysted tumor* weighing fourteen drachms, which was situated in the substance of the cerebrum, and pressed on the optic nerves near their origin:—in a second, by *a cyst*, containing a considerable quantity of water, and lodging itself on the optic nerves, at the part where they unite:—in a third, by a *caries of the os frontis*, occasioning an alteration in the figure of the optic foramina:—and, in a fourth, by *mal-formation of the optic nerves* themselves. In all these instances, and in others of the same kind which might be adduced, it must be evident that the causes of the disorder were such as lay beyond the power of art to reach. In other cases, however, upon opening the subject, and after the closest inspection, nothing was to be discovered, either in the structure of the eye, or in the state of any of the component parts contributing to the faculty of vision, which could at all obstruct the performance of their proper offices. In these instances the failure or imperfection of sight, has been accounted for by supposing some defect in the optic nerves, which though not discoverable, disqualified them for conveying the impressions of objects through the eye to the brain. Another solution of the difficulty, however, has been attempted by Mr. Ware, who has ventured to hazard a conjecture as to one cause, which, at the same time that it seems fully equal to the production of every apparent effect in this disorder, does yet make so very little difference in the appearance of the parts affected from what they commonly have after death, that the alteration, he thinks, may easily have escaped the notice even of those who have acquired no small skill in anatomical investigations. The cause he alludes to is *a dilatation of the anterior portion of the circulus arteriosus;*—which, he thinks it highly probable, has been the cause of the gutta serena, in not a few of the instances of which no particular account has been given; and especially in those cases where the blindness has been accompanied with an inability of moving the upper eyelid.

"By the term *circulus arteriosus*," says Mr. Ware, "anatomists understand an arterial circle, surrounding the sella turcica, which is formed by the carotid arteries on each side, by branches passing from them to meet each other before, and by other branches passing backward to meet branches from the basilary artery behind.

"My meaning will perhaps be better understood by the following fuller description. At but a little distance from the points where the carotid arteries enter the cranium through the petrose canals which open by the side of the sella turcica, each artery sends off a branch passing in a straight direction forward till it has reached a little beyond the part where the optic nerves unite, whence it proceeds, in a direction inclining towards a branch from the opposite artery, which it usually joins, and with it forms the anterior portion of the circulus arteriosus. It is to this portion of the circulus arteriosus to which I here principally refer; and concerning which it is very material to be noticed, that *its situation is directly over the optic nerves*, which it *crosses*, lying in close contact with them. Very near to these first branches issuing from the carotid arteries is a second set (one on each side), taking their direction backward for the purpose of meeting other branches from the basilary artery, with which it is also usual for them to unite; thus forming the posterior part, and completing the whole of the circulus arteriosus. It is yet further to be observed, that exactly in the same manner as the anterior branches of the carotid arteries cross the optic nerves and lie in close contact with them, so the posterior branches of this artery cross and lie in contact with the nervi motores oculorum. Now, as it is well known that all the arteries of the human frame are, from their texture, liable to no small variations both from contraction and dilatation, should a more than common degree of the latter at any time happen to take place with respect to both, or either, of those portions of the circulus arteriosus which I have been describing, it must then be plain, that the nerves severally connected with these parts will, in proportion to the degree in which they are dilated, suffer by compression from them. The dilatation of an artery being, however, not always equal in every part, it is evident that the compression, which is the effect of it, must, as to its extent, be determined by that of the former, which is its proper cause. Should then the dilatation take place in the posterior portion of the circulus arteriosus, so as to compress the *nervi motores oculorum*, the consequence will be, that the eyelids, and probably the eyes also, will lose the power of motion. But if the dilatation happens in the anterior portion of the circulus, as the compression will then be on the optic nerves, the sight must of course be destroyed. And should the dilatation take place in both portions so as to occasion a compression both on the optic nerves and the nervi motores oculorum at the same time, while the eyelids will hereby be rendered immoveable, the eyes also will be deprived both of sight and motion."

For ought we can possibly know, but a small degree of pressure on such tender and exquisitely sensible parts as those we are speaking of, may produce all these dire effects. But Mr. Ware thinks it not a little in favour of the opinion he has advanced, that most of the persons who have been attacked with the united symptoms of blindness and falling of the upper lid, have been both young and plethoric; and such subjects appear much more likely to suffer from an undue dilatation of the blood-vessels than those of a different habit. Further, he has been informed, by surgeons who have practised in hot climates, that persons, after much fatigue, when the blood is likely to be most rarified, and the vessels through which it passes of consequence most dilated, have not unfrequently in such a state of body been attacked with sudden blindness, without any apparent defect or disorder in the eyes; and that the cure of such patients has generally been accomplished in a short time by bleeding, blistering, purging, and the application of volatile remedies to the eyes: in which instances, as well as in the former, it seems not a little probable, that the blindness was occasioned, in the first instance, by a dilatation of the blood-vessels within the cranium.

But besides the blood-vessels here alluded to, Mr. Ware speaks of another, the dilatation of which may also essentially affect the sight: to wit, that vessel, the course of which lies *directly through the centre of the optic nerve* to the retina;—a branch of which also passes through the vitreous humour, to the capsule of the crystalline lens. The dilatation of this vessel, he suspects, may have been the cause of blindness in those instances where it has come on suddenly, and in which, though all objects placed directly before the eyes were totally invisible, there has nevertheless remained some small sense of light, so as to give a confused perception of objects sideways. In such cases, it is to be noticed, that the pupils are seldom much dilated; notwithstanding which, they admit of very little variation of size in different degrees of light.

A dilated pupil is considered, by most authors, as a symptom peculiarly characteristic of a gutta serena. Many other instances of blindness are, however, continually occurring, in which, instead of a dilatation, a contraction of the pupil is the only change which takes place in the appearance of the eye. In cases of the latter description, the obstruction in the sight is usually preceded by severe pain; and the original cause of these several effects, Mr. Ware thinks, may be an internal ophthalmy, if prevalent in any considerable degree: and they are not unfrequently accompanied with visible opacity in the crystalline capsule.

With regard to the treatment of gutta serena, the general practice is as follows: when it is owing to a decay or wasting of the optic nerve, it does not admit of a cure; but when it proceeds from a compression of the nerves by redundant humours, these possibly may be in some measure drained off, and the patient relieved. For this purpose, the body must be kept open with calomel; and if the patient be young, and of a sanguine habit, he may be bled. Cupping, with scarifications on the back part of the head, will likewise be of use. A running at the nose also may be promoted by volatile salts, stimulating powders, &c. But the most likely means of relieving the patient, are setons, issues, or blisters, kept open for a long time, on the back part of the head, behind the ears, or on the neck: which have been known to restore sight even after it had been for a considerable time lost. Mr. Ware recommends a course of the hydrargyrus muriatus, in the dose of a quarter of a grain, to be continued, with as few intermissions as possible, for a month or more if necessary. Should these fail, recourse may be had to a mercurial salivation.

Mr. Ware says, he has known considerable relief to be obtained by the use of a snuff compounded of ten grains of hydrargyrus vitriolatus, well mixed with about a drachm of the old *pulvis sternutatorius;* or, in place of that, of liquorice powder, or loaf-sugar. A small pinch of this taken up the nose, stimulates it very considerably; sometimes exciting sneezing, but in general producing a very large discharge of mucus. It will hardly admit of a doubt, that the benefit derived to a patient from the use of this snuff chiefly depends on its immediate effects; though, at the same time, it is not improbable that some particles of the mercurial preparation, which enters into the composition of this snuff, may make their way to the minuter vessels connected with the part affected; their action on which may also not a little contribute to its efficacy. Some authors speak of the chief ingredient in this snuff, as being particularly adapted to give relief in cases of this nature. Mr. Boyle relates a case in which this one ingredient was singly administered, in its full strength, by an empiric at Paris, and was attended with astonishing success. In this instance, however, it operated most violently in the several ways of vomiting, purging, sweating, salivating, &c. and also caused the head to swell to a very large size. Mr. Ware has himself been a witness to the efficacy of the same application in several instances, in which, being given in its compounded state, the hydragyrus vitriolatus was so far covered, or its potency reduced, that it was followed with no such violent effects as Mr. Boyle has mentioned. Of the instances of its success, Mr. Ware has published four remarkable and satisfactory cases. We must not, however, omit to observe, that, administered in its usual forms, electricity has been found efficacious, when no other thing would do any service; and here it has in some degree the same chance of success as in other cases of insensibility, depending on an affection of the nerves.

In his remarks on the *amaurosis*, Dr. Porterfield observes, that it is of the utmost consequence to know of how long standing the disease has been; which is not always easily done if one eye only be affected. This is a very essential point; because an amaurosis of a long standing is altogether incurable. Mr. Boyle mentions the case of a man who had a cataract for several years without knowing it himself, though others did. He discovered it at last by happening to rub his sound eye, and was surprised to find himself in the dark.—When a person therefore has a gutta serena only in one of the eyes, he may think that the eye has but lately lost the power of sight; though this perhaps has been the case for several years. On the other hand, he may imagine that a recent disease of this kind is really of long standing. But by enquiring at what time he first became subject to mistakes in all actions that require the distance to be exactly distinguished, as in pouring liquor into a glass, snuffing a candle, threading a needle, we may discover the age of the disease, and thence be assisted to form a more just prognostic with respect to its cure. Dr. Porterfield gives an instance of his conjecturing in this manner concerning the case of a young lady, who had discovered a loss of sight in one of her eyes only the day before. The disease was thought to be of long standing; but as the doctor found that she had only been subject to mistakes of the kind above mentioned for about a month, he drew a favourable inference, and the disease was cured.

GU'TTÆ ROSA'CEÆ; red spots upon the face and nose. See Gutta rosacæa.

GUTTURA'LIS ARTE'RIA. The first considerable branch of the external carotid is the superior *guttural*, which arises just where it parts from the internal, and runs to the thyroid gland, and to the muscles and other parts of the larynx or pharynx. The inferior *guttural artery* is the *tracheal artery*.

GUTTURA'LIS VE'NA. The right goes from the upper part of the bifurcation above the mammaria of the same side, and sometimes from the subclavia. The left from the left subclavian, near its origin.

GYMNASTIC, (from γυμναζω, *exerceo*, to exercise): a method of cure performed by exercise, or that part of medicine which treats of the rules that are to be observed in all sorts of exercises, for the preservation of health. Amongst the ancients this term had a more extensive signification; denoting the performance of exercises for defence, or diversion, as well as for health. Several modern writers have treated of this art. M. Burette has given the history of gymnastics in the Memoirs of the Royal Academy of Inscriptions. On the first establishment of society, men, being apprised of the necessity of military exercises for repelling the insults of their neighbours, instituted games and proposed prizes to animate their youth to combats of different kinds. And as running, leaping, strength and dexterity of arm, in throwing the javelin, driving a ball, or tossing a quoit, together with wrestling, &c. were exercises suited to the manner of fighting, in those days, so the youth vied to excel in them, in the presence of the aged, who sat as their judges, and dispensed prizes to the conquerors. It should seem, from the particular account which Homer gives of these exercises, that even then the gymnastic art wanted little of perfection: so that when Galen says there was no gymnastic art in Homer's days, and that it began to appear no earlier than Plato, he is to be understood of the *medicinal gymnastics* only. This last, indeed, had its rise later; because, while men continued sober and laborious, they had no occasion for it: but when luxury and idleness had reduced them to the sad necessity of applying to physicians, these, who had found that nothing contributed so much to the preservation and re-establishment of health as exercise proportioned to the different constitutions, ages, and sexes, did not fail to refer them to the practice of gymnastics.

According to Plato, one Herodicus, prior a little time to Hippocrates, was the first who introduced this art into physic; and his successors, convinced by experience of its usefulness, applied themselves in earnest to improve it. Hippocrates, in his book of Regimen, has given instances of it, where he treats of exercise in general, and of the particular effects of walking, with regard to health; also of the different sorts of races, either on foot or horseback; leaping, wrestling, the exercise of the suspended ball, called *corycus*, chironomy, unctions, frictions, rolling in the sand, &c. But as physicians did not adopt all the exercises of the gymnastic art in their practice, it came to be divided between them and the masters of martial and athletic exercises, who kept schools, the number of which was greatly increased in Greece. At length the Romans also caught the same taste; and, adopting the military and athletic exercises of the Greeks, they improved and advanced them to the utmost pitch of magnificence, not to say extravagance. But the declension of their empire involved the arts in its ruin, and, among others, gymnastics and medicine; which last unhappily then relinquished the title it had to the former, and has neglected to resume it ever since.

GYMNOPY'RIS, a name given by Dr. Hill to the pyritæ of a simple internal structure, and not covered with a crust. See Pyrites. Of these there are only two species. 1. A green variously shaped kind. 2. A botryoide kind. The first species is the most common of all the pyritæ.

GYMNOSPE'RMIA, (from γυμνος, *naked*, and σπερμα, *seed*); in botany, the first order in Linnæus's class of didynamia. It comprehends those plants of that class which have naked seeds. The seeds are constantly four in number, except in one genus, viz. phryma, which is monospermous. See Botany.

GYNA'NDRIA, (from γυνη, *a woman*, and ανηρ, *a man*), in botany, the name of the 20th class in Linnæus's sexual system, consisting of plants with hermaphrodite flowers, in which the stamina are placed upon the style, or to speak more properly, upon a pillar-shaped receptacle resembling a style, which rises in the middle of the flower, and bears both the stamina and pointal; that is, both the supposed organs of generation. See Botany. The flowers of this class, says Linnæus, have a monstrous appearance, arising, as he imagines, from the singular and unusual situation of the parts of fructification.

GYNA'NTHROPOS, (from γυνη, *a woman*, and ανθρωπος, *a man*); that species of hermaphrodite which partakes more of the female than of the male: that species which partakes most of the male is called *androgynus*. These distinctions, however, are groundless. See Hermaphrodite.

GYPSUM, or *Sulphate of Lime*; a natural combination of calcareous earth with sulphuric acid. This substance which has also been denominated *selenite* and *plaster-stone*, loses its transparency by calcination; at the same time that it becomes pulverulent, and acquires the property of again seizing the water of which it had been deprived, and resuming its hardness. It does not give fire with the steel, nor effervesce with acids. We are principally indebted to Margraff for our knowledge of the constituent principles of plaster: and from subsequent experiments the following proportion of the same principles has been assigned. One hundred parts of gypsum contain thirty of sulphuric acid, thirty-two of pure earth, and thirty-eight of water. It loses very considerably by calcination.

From various facts and circumstances it would seem that the formation of this substance is, in some degree, dependent on, and connected with, the presence of sulphur and lime. Whenever, therefore, the pyrites are decomposed, the sulphuric acid which thence arises, seizes the lime, and effloresces in small crystals, which are carried off by the water, and sooner or later deposited. Mr. Chaptal has observed perceptible depositions of plaster on the banks of rivulets which wash pyritous clays, and likewise seen depositions of the same nature in rivers whose waters have been strongly concentrated by the burning heat of summer. If we therefore suppose selenite to be dispersed in more considerable masses of water, there will be no difficulty in conceiving the formation of those strata which are exhibited by the plaster quarries. Sulphate of lime, or gypsum, is found in the earth in four different states: in the pulverulent and friable form, which constitutes gypseous earth, fossil flour, &c.; in solid masses, which constitute plaster-stone; in stalactites, or secondary depositions. In this place we may notice the striated silky gypsums, the cauliflowers, the gypseous alabasters, and that prodigious variety of forms which the stalactites assume, whatever may be its component parts; and in determinate crystals, which usually exhibit the following forms: the compressed tetrahedral rhomboidal prism; the hexahedral prism truncated at its summit; and the decahedral rhomboid.

Gypsum is subject to a great number of varieties with respect to its colour, and which are the signs of various qualities relative to its uses. The white is the most beautiful, but sometimes it is grey; and in this case is less esteemed, and less valuable. The several states of the oxids of iron, with which it abounds in greater or less quantities, constitute its rose-coloured, red, and black varieties. The specific gravity of gypsum varies according to its purity. Mr. Kirwan found it sometimes of the weight of 2.32, and sometimes 1.87. It is soluble in about five hundred times its weight of water, at the temperature of 60 degrees of Fahrenheit. If it be exposed to heat, its water of crystallization is dissipated, it becomes opake, loses its consistence, and falls into powder. When moistened, it becomes hard again, but does not resume its transparency; a circumstance which appears to prove that its first state is a state of crystallization. If it be kept in a fire of considerable intensity, in contact with powder of charcoal, the acid is decomposed, and the residue is lime. Its principles may likewise be separated by finely pulverizing it, and boiling it with alkali. It is fusible by the blow-pipe, and in a porcelain furnace; as has been shown by Bergman and Darcet.

It is proper to observe, that the management of the fire in the calcination of gypsum is of great consequence. Too much heat decomposes it; and too little does not enable it to unite, and form a hard substance with water. This substance, when calcined, divides and disperses itself in water, with which it forms a paste that may be cast into any kind of figures. We are indebted to this property for the beautiful anatomical casts in the cabinets of the curious.

H.

HABIT. The terms *custom* and *habit* are used by many synonymously; and indeed the former is often confounded with the latter. By custom, however, is meant, a frequent repetition of the same act; by habit, the effect that custom has on the mind or body; so that one appears to be the cause of the other. The effects of custom and habit in the animal economy may be reduced to five heads. 1. On the simple solids. 2. On the organs of sense. 3. On the moving power. 4. On the whole nervous power. 5. On the system of blood-vessels. But the word habit is often made to express *constitution*, as a plethoric habit, &c. which means the constitution superabundant with blood, &c.

Dr. G. Fordyce says, an application, producing a sensation, may have its power increased or diminished by custom. If the mind pays particular attention to any impression, its force and distinctness is increased. Hence arises the improvement of the eye, ear, &c. in distinguishing objects in painting, tones in music, &c. If the impressions are very strong, so as to excite great attention, their force is increased. If the impressions are not attended to, their force is diminished. Hence, after living for some time near any thing producing a great noise, the noise is hardly heard.

The power of the will, in producing motion, may be increased by custom, and diminished by disuse. The will, in frequently producing a motion, may not only have its power increased, but it is also capable of producing that motion with greater accuracy, and by frequent attempts may acquire a power over a moving part, upon which it has naturally little or no influence. A motion may arise from a volition, in con equence of custom, which was not naturally connected with it; as a man, in turning in a lathe, does not will the motion of his hand, but that of the end of the chisel.

Dr. Fordyce here proposes, as a quere, Can a man produce two distinct motions by his will at once; or, when two distinct motions are produced, does the will produce them successively? The impression arising from one volition remaining till the mind renews it, after having produced the other, in the same manner as the impression of a flame making a circular motion, remains on the eye, so as to give an idea of a complete circle. The power of producing two distinct motions, apparently at the same time, is greatly increased by custom. From the above circumstances the facility of execution acquired by custom arises.

The power of an idea in exciting motion, may be increased or diminished by custom. An idea strongly imprest on the mind, is for the most part more powerful in exciting a motion, than one weakly imprest. The power of an application, in impressing an idea, may be increased or diminished by custom, as is above described, and of consequence the power of an idea in exciting motion.

Supposing the impression on the mind the same, if an idea has frequently produced a motion, its power is increased. On the contrary, if an idea has been often excited, and if the motion depending upon it has by any means been prevented, its power is diminished or lost. The action of an application producing, diminishing, or altering the mode of contraction of a moving part, and which at the same time has no effect on the mind, may be increased or diminished by custom. If it be often applied, so as always to produce its effect, its power, or the certainty of its action, is for the most part increased. An application of an equal apparent force does not always produce the same effect. If the same quantity of ipecacuanha be twice exhibited at the interval of several days, it may vomit at the first exhibition, and not at the second; or it may produce vomiting at the second exhibition, and not at the first.

In applying medicines, which do not act as simple stimuli, their particular effect cannot be increased by increasing the dose, they being converted into simple stimuli. Thus small doses of acetite of lead produce costiveness, but a very large dose frequently purges. There is a maximum in the dose of all medicines, so that if they be exhibited in greater quantity their effects are lost instead of being increased. An application frequently repeated, so as to produce its proper effect, often becomes more constant and uniform in its action, although it may become necessary that it should be applied in a greater degree. If an evacuating medicine be repeatedly exhibited, it generally requires a larger dose at the second, and some of the subsequent exhibitions, to produce the same effect as the first; but if these produce the effect, the power of the medicine is afterwards increased.

The more violent the effect of any application, the more is its power increased by repetition. If an application be made in so small a degree, as not to produce any effect, or if its effects are by any means counteracted, its power is diminished or lost. The repeated application of some medicines, in any circumstance, diminishes their powers. All the natural powers of action in the body are increased by frequent exertion.

If two or more fibres have been accustomed to contract together, either by the action of the will, by an idea, or by stimuli; or if the contraction in one of them be produced by the will, while the other is brought into action at the same time by a stimulus, the producing of a contraction in the one, by an application to it alone, will produce a contraction in the other. If they be fibres of the same muscle, and acted upon by a stimulus, this will happen after the communication with the brain, by the nerves, is cut off. If, after this habit is acquired, one of these fibres is made to contract frequently, while the other is prevented from contracting, the habit will be lost or destroyed. If any motion, or state of the body, be repeated at a particular period of time, it will often return at that period, although no other cause be applied but the habit acquired.

A habit may be destroyed, by counteracting and preventing its effects. Two habits may be so connected, that preventing the one from taking place, may prevent the effects of the other.

From not attending to the numerous circumstances that induce habits, and to that general accommodating principle in living bodies, many medical prescriptions are found to be not only useless but mischievous; and many parents, by studying the health and comfort of their children, bring on habits that prove the sources of perpetual sickness, or the certain presages of an early death. The accommodating principle is one of the consequences of irritability. Its various effects arise from the actions of different stimulants on the irritable fibre; and the after-duration of these effects, from the modifications of the irritable fibre, become habitual from the frequently repeated action of the stimulants. The design of this accommodating principle is to fit both animals and plants, for a more extensive and a more varied range of existence.

Custom has also a powerful influence on the mind; and whatever be the cause, it is certain that we are much influenced by custom: it has an effect upon our pleasures, upon our actions, and even upon our thoughts and sentiments. Any slight or moderate pleasure, frequently reiterated for a long time, forms a peculiar connection between us and the thing that causes the pleasure. This connection, termed *habit*, has the effect to awaken our desire or appetite for that thing, when it returns not as usual. During the course of enjoyment, the pleasure rises insensibly higher and higher, till a habit be established; at which time the pleasure is at its height. It continues not, however, stationary: the same customary reiteration which carried it to its height, brings it down again by insensible degrees even lower than it was at first. Those things which at first are but moderately agreeable, are the aptest to become habitual. Spirituous liquors, at first scarcely agreeable, readily produce an habitual appetite: and custom prevails so far, as even to make us fond of things originally disagreeable, such as coffee, asa-fœtida, and tobacco.

A walk upon the quarter-deck, though intolerably confined, becomes however so agreeable by custom, that a sailor, in his walk on shore, confines himself commonly within the same bounds. Lord Kaimes speaks of a man who had relinquished the sea for a country life: in the corner of his garden, he reared an artificial mount, with a level summit, resembling most accurately a quarter deck, not only in shape, but in size; and here he generally walked. In Minorca, Governor Kane made an excellent road, the whole length of the island; and yet the inhabitants adhere to the old road, though not only longer, but extremely bad.

To introduce an active habit, frequency of acts is not sufficient, without length of time: the quickest succession of action, in a short time, is not sufficient; nor a slow succession in the longest time. The effect must be produced by a moderate soft action, and a long series of easy touches, removed from each other by short intervals. Nor are these sufficient without regularity in the time, place, and other circumstances of the action; the more uniform any operation is, the sooner it becomes habitual. And this holds equally in a passive habit; variety, in any remarkable degree, prevents the effect; thus any particular food will scarce ever become habitual, where the manner of dressing it is varied. The circumstances then requisite to augment a moderate pleasure, and at the long-run to form a habit, are weak uniform acts, reiterated during a long course of time, without any considerable interruption: every agreeable cause that operates in this manner will grow habitual.

HÆMAGO′GOS, (from *αιμα*, *blood*, and *αγω*, *to bring away)*; the name of an antidote in Nicolaus Myrepsus, which was used for promoting the menstrual and hæmorrhoidal fluxes. It consisted of fœtid plants and black hellebore.

HÆMATE′MESIS, (from *αιμα*, *blood*, and *εμεω*, *to vomit); vomitus cruentus*, the vomiting of blood, a disease which is mostly symptomatic of some other, and generally arises from plethora, obstructed catamenia, or from the scurvy.

HÆMATI′TES, (*αιματιτης*; from *αιμα*, *blood*; so named from its property of stopping blood, or from its colour), named *lapis hæmatites;* an iron ore called blood-stone. When finely levigated, and freed from the grosser parts by frequent washings by water, it has been recommended in hæmorrhages, fluxes, uterine obstructions, &c. in doses of from one scruple to three or four, but it is little used at present.

HÆMATOCE′LE, (from *αιμα*, *blood*, and *κηλη*, *a tumor);* a collection of blood in the tunica vaginalis testis, or in the cellular membrane of the scrotum. Tumors of this kind may be produced by any thing which ruptures the blood-vessels of the part, but they are commonly the consequence of external violence. In the tunica vaginalis this disorder may be produced by the point of a trocar, or of a lancet, in tapping for hydrocele. In such a case, we are commonly informed of the accident by blood being discharged along with the water; though sometimes it does not appear till the whole of the water is evacuated, and then a tumor of a considerable size suddenly takes place. Sometimes it happens where the quantity of water has been so uncommonly great that the sudden discharge of it, by taking away the support which the vessels have been accustomed to receive, has been the cause of their rupture; and it seems certain, that whenever a tumor is produced either in the scrotum, or cord, suddenly after the water of a hydrocele has been evacuated by tapping, that it is entirely owing to an extravasation of blood.

In the spermatic cord, injuries of the same kind will be attended with a similar effect upon the vessels of the sac containing the water. The distinction between blood and water in the substance of the scrotum is readily made by the colour; for where the disease is produced by blood, it forms a real ecchymosis. The tumor feels heavier in the tunica vaginalis when filled with blood, than where it is filled merely with water; the treatment is nearly the same with that of hydrocele. In the commencement of the anasarcous or diffused hæmatocele, when produced from slight external violence, the application of stimulating or astringent fluids will sometimes discuss it; but if this prove ineffectual, the tumor is to be laid open, and treated exactly as is directed for hydrocele; only if a ruptured vessel be discovered, it must be secured by ligature. In like manner, all collections of blood, either in the vaginal coat or spermatic cord, are to be laid open, and treated as in hydrocele. If bleeding vessels appear, they are to be secured. Sometimes, however, these cannot be detected; an oozing takes place, which it is difficult to restrain, even by the use of bark, vitriolic acid, and other means generally employed in such cases. It has been uniformly found, that local remedies prove chiefly useful here, particularly the application of ardent spirits, æther, or tincture of myrrh, to the surface of the sore. Pledgets of soft lint, soaked in one or other of these, not only serve to check the discharge of blood, but in general tend to promote the formation of good matter.

HÆMATO′DES, (*αιματωδης*; from *αιμα*, *blood;* so called from the red colour of its flowers); an old name for the plant called bloody crane's-bill. See Geranium sanguineum.

HÆMATOLO′GIA, (*αιματολογιως*, from *αιμα*, *blood*, and *λογος*, *a discourse)*, *hæmutologis;* the doctrine of the blood. See Blood.

HÆMATOMPHALOCE′LE, (*αιματομφαλοκηλη*; from *αιμα*, *blood*, *ομφαλος*, *the navel*, and *κηλη*, *a tumor);* a species of ecchymosis, forming a tumor about the navel, from an extravasation of blood. It is usually absorbed, but, if too considerable, a puncture may be made to evacuate the blood, as is done in ecchymosis. See Ecchymosis.

HÆMATO′XYLUM, (*αιματοξυλον*; from *αιμα*, *blood*, or *αιματικος*, *bloody*, and *ξυλοι*, *wood)*, logwood; so called from its red colour. See Lignum campechense.

HÆMATO′XYLUM CAMPECHIA′NUM; the systematic name of the logwood-tree. See Lignum campechianum.

HÆMATU′RIA, (*αιματȣρια*; from *αιμα*, *blood*, and *ȣρον*, *urine);* bloody urine, which mostly is a symptom of some other disease.

HÆMO′PTYSIS, (*αιμοπτυσις*; from *αιμα*, *blood*, and *πτυω*, *to spit)*, or *Hæmoptöe;* a spitting of blood. A genus of disease arranged by Cullen in the class *pyrexiæ*, and order *hæmorrhagiæ*. It is characterized by coughing up florid or frothy blood, heat or pain in the chest, irritation in the larynx, and a saltish taste in the mouth. There are five species of this disease: 1. *Hæmoptysis plethorica*, from fullness of the vessels. 2. *Hæmoptysis violenta*, from some external violence. 3. *Hæmoptysis phthisica*, from ulcers corroding the small vessels. 4. *Hæmoptysis calculosa*, from calculous matter in the lungs. 5. *Hæmoptysis vicaria*, from the suppression of some customary evacuation.

This hæmorrhagy commonly begins with a sense of weight and anxiety in the chest, some uneasiness in breathing, pain of the breast or other parts of the thorax, and some sense of heat under the sternum; and very often it is preceded by a saltish taste in the mouth. Immediately before the appearance of blood, a degree of irritation is felt at the top of the larynx. The person attempts to relieve this by hawking, which brings up a little florid and somewhat frothy blood. The irritation returns; and in the same manner blood of a similar kind is brought up, with some noise in the wind-pipe, as of air passing through a fluid. Sometimes, however, at the very first, the blood comes up with coughing, or at least somewhat of coughing, and accompanies the hawking abovementioned. The blood is sometimes at first in very small quantity, and soon disappears; but in other cases, especially when it frequently recurs, it is in greater quantity, and often continues to appear at times for several days together. It is sometimes profuse, but rarely in such quantity as, either by its excess or by a sudden suffocation, to prove immediately mortal.

It is not always easy to discover whether the blood evacuated by the mouth proceeds from the internal surface of the mouth itself, from the fauces or adjoining cavities of the nose, from the stomach, or from the lungs. It is, however, very necessary to distinguish the different cases; and for this Dr. Cullen offers the following considerations:

1. When the blood proceeds from some part of the internal surface of the mouth, it comes out without any hawking or coughing; and generally, upon inspection, the cause is evident.

2. When blood proceeds from the fauces, or adjoining cavities of the nose, it may be brought out by hawking, and sometimes by coughing. In this case there may be a doubt concerning its real source, and the patient may be allowed to please himself with the thoughts that the blood does not come from the lungs. But the physician must remember, that the lungs are much more frequently the source of an hæmorrhagy than the fauces. The latter seldom happens but to persons who have before been liable to an hæmorrhagy from the nose, or to some evident cause of erosion; and in most cases, by looking into the fauces, the distillation of the blood from thence will be perceived.

3. When blood proceeds from the lungs, the manner in which it is brought up will commonly show from whence it comes; but, independent of that, it may also be known from the causes of hæmoptysis from the lungs, to be afterwards mentioned, having preceded.

4. When vomiting accompanies the throwing out of blood from the mouth, we may generally know the source from whence it proceeds, by considering that blood does not proceed so frequently from the stomach as from the lungs; that blood proceeding from the stomach commonly appears in greater quantity than from the lungs. The pulmonary blood also is usually of a florid colour, and mixed with a little frothy mucus only; but the blood from the stomach is of a darker colour, more grumous, and mixed with the other contents of the stomach. The coughing or vomiting, as the one or the other happens first to arise, may sometimes point out the source of the blood; and this has also its peculiar antecedent signs and causes.

An hæmoptysis may be produced at any time of life by external violence; and, in adult persons, while the arterial plethora prevails in the system, *i. e.* from the age of sixteen to thirty-five, an hæmoptysis may at any time be produced merely by a plethoric state of the lungs. More frequently, however, it arises from a faulty proportion between the capacity of the lungs and that of the rest of the body. Thus it is often an hereditary disease, which implies a peculiar and faulty conformation.

This disease especially happens to persons who discover the smaller capacity of their lungs by the narrowness of their chest, and by the prominence of their shoulders; which last is a mark of their having been long liable to a difficulty of respiration. In such cases, too, the disease very frequently happens to persons of a sanguine temperament, in whom particularly the arterial plethora prevails. It happens also to persons of a slender delicate make, of which a long neck is a mark; to persons of much sensibility and irritability, and therefore of quick parts; to persons who have formerly been liable to hæmorrhagies from the nose; to those who have suffered a suppression of any usual hæmorrhagy, the most frequent instance of which is in females, who have suffered a suppression of the menstrual flux; and, lastly, to persons who have suffered the amputation of any considerable limb.

All this constitutes the predisponent cause of hæmoptysis; and the disease may happen merely from the predisponent cause arising to a considerable height. But in those who are already predisposed, it is often brought on by the concurrence of various occasional and exciting causes. One of these, and perhaps a frequent one, is external heat; which, even when in no great degree, brings on the disease in spring, and the beginning of summer, while the heat rarifies the blood more than it relaxes the solids, which had before been contracted by the cold of winter. Another exciting cause is a sudden diminution of the weight of the atmosphere, especially when concurring with any effort of bodily exercise. The effort, too, alone may often be the exciting cause in those who are already predisposed; and more particularly any violent exercise of respiration. In the predisposed, also, the disease may be occasioned by any degree of external violence.

Hæmoptysis may sometimes be no more dangerous than a hæmorrhagy from the nose: as when it happens to females, in consequence of a suppression of their menses; when, without any mark of predisposition, it arises from external violence; or, from whatever cause arising, when it leaves no cough, dyspnœa, or other affection of the lungs, behind it. But, even in these cases, a danger may arise from too large a wound being made in the vessels of the lungs, from any quantity of red blood being left to stagnate in the cavity of the bronchiæ, and particularly from any determination of the blood being made into the vessels of the lungs, which, by renewing the hæmorrhagy, may have these consequences.

In the treatment of this disease, with a view of stopping the discharge, it is first necessary to have recourse to those measures which tend to diminish the impetus by which the blood is expelled. This is to be effected by a removal of plethora when it exists; by diminishing the general impetus of the circulation; by diminishing local increased action when it takes place in the vessels of the lungs; and by producing a determination of blood to other parts of the system remote from the lungs. But besides the means of diminishing impetus, it is often also necessary to employ such as augment the resistance to the passage of blood through the ruptured vessels of the lungs. With these views a variety of remedies may be employed, particularly blood-letting, refrigerants, sedatives, astringents, and the like.

On this subject Dr. Cullen differs from those who prescribe chalybeates and the Peruvian bark in the cure of hæmoptysis. Both of these, he observes, contribute to increase the phlogistic diathesis then prevailing in the system, and the hæmoptysis from predisposition is always accompanied with such a diathesis. Instead of these, therefore, he recommends blood-letting in greater or smaller quantity, and more or less frequently repeated, as the symptoms shall direct. At the same time cooling purgatives, such as the neutral salts, are to be employed, and every part of the antiphlogistic regimen is to be strictly enjoined. In the London Medical Observations, the use of nitre is greatly recommended by Dr. Dickson, to whom its efficacy was made known by Dr. Leatherland, then physician to St. Thomas's Hospital. The most commodious method of exhibiting it, he found, was in the following form:

℞ Nitri in pulv. trit. ℥ss.
Cons. rosæ ℥iv.
Syr. simp. q. s. Misce.
Fiat Electuarium.

Of this the bulk of a large nutmeg was directed to be given four, six, or eight times a-day, according to the urgency of the case. The good effects of it, he tells us, have often astonished him; and when given early in the disease, he says, he can depend as much upon it for the cure of an hæmoptysis, as on the bark for the cure of an intermittent. He agrees with Dr. Cullen, however, that in those cases where there is any hardness in the pulse, and which almost always happens, there is a necessity for venesection. A cool regimen, and quiet of body and mind, are certainly useful; but Dr. Cullen observes, that some kinds of gestation, such as sailing, and travelling in an easy carriage on smooth roads, have often proved a remedy. When the cough is very troublesome, it is absolutely necessary to exhibit frequently a small dose of an opiate. Dr. Dickson also informs us, that the nitre, joined with *sperma ceti*, or *pulv. e tragacanth. comp.* has produced equally good effects with the electuary abovementioned; in the composition of which he at first considered the conserve only as the vehicle for the nitre, though he means not to insinuate that the former is totally destitute of efficacy.

When this hæmorrhagy has resisted other modes of cure, and there is reason to apprehend, even from the mere quantity of blood evacuated, that the patient may sink under the discharge, blisters, particularly when applied to the breast, are often had recourse to with great advantage; and the vitriolic acid, properly diluted, both as an astringent and refrigerant, is often employed with very good effects.

Dr. Percival, however, in a paper on phthisis, in the Memoirs of the Medical Society of London, says —"In the treatment of hæmoptysis, the antiphlogistic plan is now generally adopted in most parts of England; and during the incipient stage of the disorder, when the inflammatory diathesis commonly prevails, much injury may be done by heating styptics and rough astringents: but during its progress the type is often changed; and many cases occur, which, even in their commencement, indicate great laxity of the solids, and tenuity of the fluids. Under such circumstances, venesection, nitre, and the debilitating class of medicines, are highly improper; though great authorities have sanctioned their use, without sufficient discrimination. When the discharge of blood has continued some time, a new state of the system is induced; the heart and arteries seem to lose their due degree of tone; an increased irritability takes place in the ruptured vessel, and in those which are contiguous to it: and thus the impetus of the circulation is partially augmented, with a diminution of its general energy. Remedies, therefore, which rouse the vital powers, and excite an equable action in the vascular system, are clearly indicated. A blister applied to the back has stopped a nasal hæmorrhage; wine drank to intoxication has cured both hæmaturia and hæmoptysis, when other means have failed; and the following fact proves the efficacy of opium in the malady under consideration. A lady, when about thirty-eight years of age, was attacked with an hæmoptöe. It was supposed to originate from violent retchings, and was afterwards increased by close confinement, and long attendance on a sick child. The quantity discharged from the lungs was from six to ten ounces daily, during the space of more than two months. All the usual means of relief proving ineffectual, and her flesh and strength declining rapidly, the trial of opium was recommended, and happily adopted. She began with taking a grain of purified opium every twelfth hour, and by degrees increased each dose to ten grains; so that for a long time she had a scruple of this administered to her daily. The hæmorrhage quickly abated after the commencement of this course; and by perseverance in it, ceased altogether: but on any omission of the use of opium, she was threatened with a recurrence of the disorder, as she has been necessitated to continue the remedy for nine years; and at this time (August, 1787), takes ten grains every twenty-four hours.

"The use of the *pediluvium in hæmorrhages* has often been recommended; but with a restriction that its temperature shall not exceed 96 or 100 degrees of Fahrenheit's thermometer. This prohibition is not well founded if a stimulant be required. When I have occasion to bathe my feet for the head-ach, the water which I use is generally as hot as I can bear it to be; and the sensation which it first produces is that of universal chilliness, attended with rigor. A glow of warmth succeeds, and afterwards a gentle perspiration; but the addition of more hot water renews, in a slighter degree, a momentary feeling of cold. It is obvious that such an operation would be favourable in some cases of hæmorrhage. How is the chilling sensation to be explained? Does the partial stimulus of heat, like that of cold, contract, in its first operation, the small cutaneous vessels?"

In America, the treatment of hæmoptysis widely differs from that which is practised in this country. Dr. Rush says, that common salt is a remedy universally employed: that it is administered in large spoonfuls, in a dry form; and that its salutary effects are sudden, and for the most part certain. In a letter to Dr. Percival, dated Philadelphia, February 16, 1788, he says,

"I am sorry to find that you entertain a single doubt of the safety or efficacy of common salt in hæmoptysis. I could send you above a hundred cases that establish both. My own would be one of them. On the 2d of April, 1766, I was seized with this disorder. It came on in the middle of the night, and for a while was attended with alarming symptoms. I took a table-spoonful of fine Liverpool salt, and immediately the hæmorrhage was checked. It excited a burning sensation in my throat that gave me some pain; but this pain was probably part of the remedy the salt afforded. To prevent a return of the disorder, as my pulse was full, I lost ten ounces of blood, and lived a few weeks on a vegetable diet. After this I took red bark, from which I derived great benefit; and have never since had the least return of hæmoptysis."

Salt is frequently applied in this country to external wounds as a styptic. In spittings of blood, therefore, which originate about the fauces, it may act in the same way. But such are not the cases to which Dr. Rush refers; and so judicious and experienced a physician could not mistake the spurious for the genuine hæmoptysis. Whether the American practice be adopted amongst us or not, we shall at least be warranted by it to urge more circumspection and discrimination in the use of phlebotomy and refrigerants.

Much has been said and written, of late, on the efficacy of that medical practice which has been called *pneumatic*. Some account of the use of *factitious air* in *hæmoptysis*, will be found under that head.

HÆMORRHA'GIA, (*αιμορραγια*; from *αιμα*, *blood*, and *ρηγνυμι*, *to break out)*; hæmorrhages, or affluxes of blood. An order in the class *pyrexiæ* of Cullen's nosology is so called. It is characterized by pyrexia, with a discharge of blood, without any external injury; the blood, on venesection, exhibiting the buffy coat. The order *hæmorrhagiæ* contains the following genera of diseases, viz. 1. Epistaxis. 2. Hæmoptysis. 3. Phthisis. 4. Hæmorrhois. 5. Menorrhagia. See those Articles.

HÆMORRHOIDA'LES ARTERIÆ; the hæmorrhoidal arteries. The arteries of the rectum are so called: they are sometimes two, and at other times three in number. Dr. Hooper enumerates them thus: 1. The upper hæmorrhoidal artery, which is the great branch of the lower mesenteric continued into the pelvis. 2. The middle hæmorrhoidal, which sometimes comes off from the hypogastric artery, and very often from the pudical artery. It is sometimes wanting. 3. The lower or external hæmorrhoidal is almost always a branch of the pudical artery, or that artery which goes to the penis.

HÆMORRHOIDA'LES VENÆ; the hæmorrhoidal veins. These are two. 1. The external, which evacuates itſelf into the vena iliaca interna. 2. The internal, which conveys its blood into the vena portæ.

HÆMORRHOIS. (*αιμορροις*; from *αιμα*, *blood*, and *ρεω to flow)*, also named *Aimorrhois*, the piles; a genus of disease in the class *pyrexia* and order *hæmorrhagiæ* of Cullen. The discharge of blood from small tumors on the verge of the anus constitutes what is called the *hæmorrhoids* or *piles*. They are distinguished into the *external* and *internal*, according to the situation of the tumors, either without or within the anus. Sometimes, however, these tumors appear without discharging any blood; and in this case they are called the *hæmorrhoides cæcæ*, or *blind piles*. Sometimes the disease appears without the verge of the anus in distinct separate tumors; but frequently only one tumid ring appears, seeming as it were the anus pushed without the body. Sometimes these tumors appear without any previous disorder of the body; but more frequently, before the blood begins to flow, and sometimes even before the tumors are formed, various affections are perceived in different parts of the body; as head-ach, vertigo, stupor, difficulty of breathing, sickness, colic pains, pain of the back and loins, and frequently a considerable degree of pyrexia; while, along with these symptoms, there is a sense of fullness, heat, itchings, and pain, in and about the anus. Sometimes the disease is preceded by a serous discharge from the anus; and sometimes this serous discharge, accompanied with swelling, seems to come in place of the discharge of blood, and to relieve the abovementioned disorders of the system. This serous discharge has therefore been named the *hæmorrhois alba*.

In this disease the quantity of blood discharged is different upon different occasions. Sometimes it flows only when the person goes to stool, and commonly follows the discharge of fæces. In other cases it flows without any discharge of fæces; and then generally in consequence of the disorders abovementioned, when it is also commonly in larger quantity. This is often very considerable; and, by the repetition, so great, that we could hardly suppose the body to bear it but with the hazard of life. Indeed, though rarely, it has been so great as to prove suddenly fatal. These considerable discharges occur especially to persons who have been frequently liable to the disease. They often induce great debility, and frequently a leucophlegmatia or dropsy which proves fatal. Sometimes the tumors and discharges of blood in this disease recur exactly at stated periods. In the decline of life it frequently happens that the hæmorrhoidal flux, formerly frequent, ceases to flow; and in that case it generally happens that the persons are affected with apoplexy or palsy. Sometimes hæmorrhoidal tumors are affected with inflammation, which ends in suppuration, and gives occasion to the formation of fistulous ulcers in those parts.

The hæmorrhoidal tumors have often been considered as varices or dilations of the veins; and in some cases varicous dilatations have appeared upon dissection. These, however, do not appear in the greater number of cases; and Dr. Cullen is of opinion that they are usually formed by an effusion of blood into the cellular texture of the intestine near to its extremity. When recently formed, they contain fluid blood; but after they remain for some time, they are usually of a firmer consistence, in consequence of the blood being coagulated.

It would seem probable that the hæmorrhoidal tumors are produced by some interruption of the free return of the blood from the rectum, by which a rupture of the extremities of the veins is occasioned. But considering that the hæmorrhagy occurring here is often preceded by pain, inflammation, and a febrile state, and with many other symptoms which show a connection of the topical affection with the state of the whole system, it is probable that the interruption of the blood in the veins produces a considerable resistance to the motion of the blood through the arteries, and consequently that the discharge of blood is commonly from the latter. Some have thought, that a difference of the hæmorrhois, and of its effects upon the system, might arise from the hæmorrhoidal vessels from whence the blood issued. But Dr. Cullen is of opinion, that we can scarce ever distinguish the vessels from which the blood flows, and that the frequent inosculations of both arteries and veins belonging to the lower extremity of the rectum, will render the effects of the hæmorrhagy much the same, from whatever source it proceeds.

With regard to the hæmorrhoids, however, he is of opinion, that they are, for the most part, merely a topical affection. They take place before the period of life at which a venous plethora happens. They happen to females, in whom a venous plethora determined to the hæmorrhoidal vessels cannot be supposed to occur; and they happen to both sexes, and to persons of all ages, from causes which do not affect the system, and are manifestly suited to produce a topical affection only.

These causes are, in the first place, the frequent voiding of hard and bulky fæces, which, by their long stagnation in the rectum, and especially when voided, must necessarily press upon the veins of that part, and interrupt the course of the blood in them. For this reason, the disease so frequently happens to those who are habitually costive. From the same causes, the disease happens frequently to those who are subject to a prolapsus ani. In voiding the fæces, it almost always happens that the internal coat of the rectum is more or less protruded; and, during this protrusion, it sometimes happens that the sphincter ani is contracted; in consequence of this, a strong constriction is made, which, preventing the fallen-out gut from being replaced, and at the same time preventing the return of blood from it, occasions a considerable swelling, and the formation of a tumid ring round the anus.

Upon the sphincter's being a little relaxed, as it is immediately after its strong contraction, the portion of the gut which had fallen out is commonly taken into the body again; but by the frequent repetition of the accident, the size and fulness of the ring formed by the prolapsed intestine is much increased. It is therefore more slowly and difficultly replaced; and in this consists the chief uneasiness of hæmorrhoidal persons. As the internal edge of this ring is necessarily divided by clefts, the whole often puts on the appearance of a number of distinct swellings; and it also frequently happens, that some portions of it are more considerably swelled, become more protuberant, and form those small tumors more strictly called *hæmorrhoids* or *piles*.

From considering that the pressure of the fæces, and other causes interrupting the return of venous blood from the lower extremity of the rectum, may operate a good deal higher up than that extremity, we may understand how tumors may be formed within the anus; and probably it also happens, that some of the tumors formed without the anus may continue when taken within the body, and even be increased by the causes just mentioned. Thus may the production of internal piles be explained, which, on account of their situation and bulk, are not protruded on the person's going to stool, and are therefore more painful.

The production of piles is particularly illustrated by this; that pregnant women are frequently affected with the disease. This is to be accounted for, partly from the pressure of the uterus upon the rectum, and partly from the costive habit to which pregnant women are liable. Dr. Cullen has known many instances of piles happening for the first time during the state of pregnancy; and there are few women who have had children, that are afterwards entirely free from piles. Purgatives also, especially those of the more acrid kind, and particularly aloetics, are apt to produce the piles when frequently used; and as they stimulate particularly the larger intestines, they may be justly reckoned among the exciting causes of this disease.

Though the hæmorrhoids are commonly, as we have said, to be esteemed a topical disease, they may, by frequent repetition, become habitual and connected with the state of the whole system; and this will more readily happen in persons who have been once affected with the disease, if they be frequently exposed to a renewal of the causes which occasioned it. It happens also to persons much exposed to a congestion in the hæmorrhoidal vessels, in consequence of their being often in an erect position of the body, and in an exercise which pushes the blood into the depending vessels, while at the same time the effects of these circumstances are much favoured by the abundance and laxity of the cellular texture about the anus. It is to be particularly observed, that when an hæmorrhoidal affection has either been originally, or has become, a disease of the system, it then acquires a particular connection with the stomach; so that certain affections of the stomach excite the hæmorrhoidal disease, and certain states of this disease excite the disorders of the stomach.

It has been an almost universally-received opinion, that the hæmorrhoidal flux is a salutary evacuation, which prevents many diseases that would otherwise have happened; and that it even contributes to give long life: and as this opinion was strenuously adopted by Stahl, it had a very considerable influence on the practice of physic in Germany. But Dr. Cullen maintains that we can never expect to reap much benefit from this flux, which at first is purely topical; and, granting that it would become habitual, it is never, he thinks, proper to be encouraged. It is a disagreeable disease; ready to go to excess, and thereby to prove hurtful, and sometimes even fatal. At best it is liable to accidents, and thus to unhappy consequences. He is therefore of opinion, that even the first approaches of the disease are to be guarded against; and that, though it should have proceeded for some time, it ought always to be moderated, and the necessity of it superceded.

The general intention of *cure* in cases of hæmorrhois are much varied, according to the circumstances of the affection at the time. When hæmorrhois exists in the state of tumor, the principal objects are, to counteract inflammation, and to promote a discharge of blood from the part. When it is in the state of evacuation, the chief intentions of cure are, to diminish the impetus of blood at the part affected, and to increase the resistance to the passage of the blood through the ruptured vessels. And finally, when the disease exists in the state of suppuration, the aims of the practitioner must chiefly be, to obviate the particular affections which are induced in consequence of the suppression; to restore the discharge, as a means of mitigating these and preventing others; or, when the discharge cannot with propriety or advantage be restored, to compensate the want of it by vicarious evacuations.

With these various intentions in different cases, a variety of different remedies may be employed with advantage.

When any evident cause for this disease is perceived, we ought immediately to attempt a removal of that cause. One of the most frequent remote causes is an habitual costiveness. This must be obviated by a proper diet, such as the person's own experience will best direct; or if the management of diet be not effectual, the belly must be kept open by medicines, which may prove gently laxative, without irritating the rectum. Dr. Saunders directs the following:

℞ Flor. sulphur. ℥j.
Kali vitriolat. in pulv. trit. ʒij.
Elect. Sennæ ℥j.
Syr. simp. q.s. ut fiat Electuarium molle, de quo, singulis noctibus, minutum cochleare sumat.

In most cases it will be of advantage to acquire a habit with regard to the time of the discharge, and to observe it exactly. Another cause of the hæmorrhois to be especially attended to, is the prolapsus ani, which is apt to happen on a person's having a stool. If this shall occur to any considerable degree, and be not at the same time easily and immediately replaced, it most certainly produces piles, or increases them when otherwise produced. Persons therefore who are liable to this prolapsus, should, after having been at stool, take great pains to have the intestine immediately replaced, by lying down in an horizontal posture, and pressing gently upon the anus, till the reduction shall be completely obtained. When this prolapsus is occasioned only by the voiding of hard and bulky fæces, it is to be removed by obviating the costiveness which occasions it. But in some persons it is owing to a laxity of the rectum; and in those it is often most considerable on occasion of a loose stool. In these cases, it is to be treated by astringents, and proper compresses are to be employed to keep the gut in its place. The *unguentum gallæ camphoratum* of the Pharmacopœia Chirurgica may be very effectual in this view:

℞ Gallarum pulveris subtilissimi drach ij.
Camphoræ gran. ij.
Adipis suillæ præparatæ unc. j.
Misce fiat unguentum.

When the disease has frequently recurred from neglect, and is thus in some measure established, the methods abovementioned are no less proper; but in this case some other measures must also be used. It is especially proper to guard against a plethoric state of the body; and therefore to avoid a sedentary life, full diet, and intemperance in the use of strong liquors, which, in all cases of hæmorrhagy, is of the most pernicious consequence.

Exercise of all kinds is of great service in obviating and removing a plethoric state of the body; but upon occasion of the hæmorrhoidal flux, when this is immediately to come on, both walking and riding, as increasing the determination of the blood into the hæmorrhoidal vessels, are to be avoided. At other times, when no such determination is already formed, these modes of exercise may be very properly employed.

Another method of removing plethora, is by cold bathing; but this must be employed with caution. When the hæmorrhoidal flux is approaching, it may be dangerous to divert it; but during the intervals of the disease, cold bathing may be employed with safety and advantage: and in those who are liable to a prolapsus ani, the frequent washing of the anus with cold water may be useful.

Besides a general antiphlogistic regimen, in some cases where the inflammation runs high, recourse may be had, with great advantage, both to general blood-letting, and to leeches applied at the anus. Relief is also often obtained from the external application of emollients, either alone or combined with different articles of the sedative kind, as *acetated ceruse* or *opium;* by which, it is well known, that pain in general, particularly when depending on increased sensibility, or augmented action of the vessels, is powerfully allayed.

When the flux has actually come on, we are to moderate it as much as possible, by causing the patient to lie in an horizontal posture on a hard bed; by avoiding exercise in an erect posture; using a cool diet, and avoiding external heat. But with respect to the further cure of this disease, we must observe, that there are only two cases in which it is common for hæmorrhoidal persons to call for medical assistance. The one is, when the affection is accompanied with much pain; and the other, when the piles are accompanied with excessive bleeding. In the first case, we must consider whether the piles be external or internal. The pain of the external piles happens especially when a considerable protrusion of the rectum has taken place; and while it remains unreduced, it is strangled by the constriction of the spincter: and at the same time no bleeding happens to take off the swelling of the protruded portion of the intestine; and sometimes an inflammation supervenes, which generally aggravates the pain. In this case the emollient fomentations and poultices are sometimes of service, but the application of leeches is always to be preferred.

Where the piles become an habitual disease, and the rectum is affected pretty generally, so as to threaten the patient with a fistula, *Dr. Ward's celebrated Paste,* proves an admirable medicine:

℞ Rad. enul. campan. ℔ij.
Sem. fœniculi, ℔iij.
Piper. nig. ℔j. Separatim in pulv. trit. bene misceantur. Dein adde,
Sacchari et mellis despumati aa ℔ij. ut fiat omnium pasta. Sumend. quant. nuc. mosch. bis terve de die.

In case of excessive bleeding, we are on all occasions to endeavour to moderate the flux, even where the disease has occurred as a critical discharge; for if the primary disease shall be entirely and radically cured, the preventing any return of the hæmorrhois seems perfectly safe and proper. It is only when the disease arises from a plethoric habit, and from a stagnation of blood in the hypochondriac region, or when, though originally topical, it has by frequent repetition become habitual, and has thereby acquired a connection with the system, that any doubt can arise about curing it entirely. In any of these cases, however, Dr. Cullen is of opinion that it will be proper to moderate the bleeding, lest, by its continuation or repetition, the plethoric state of the body, and the particular determination of the blood into the hæmorrhoidal vessels, be increased, and the return of the disease be too much favoured. Dr. Stahl is of opinion, that the hæmorrhoidal flux is never to be accounted excessive except when it occasions great debility or leucophlegmasia: but Dr. Cullen thinks, that the smallest approach towards producing either of these effects should be considered as an excess which ought to be prevented from going farther; and even in cases of congestion and plethora, if the plethoric habit and tendency can be obviated and removed, the hæmorrhoidal flux may then with safety be entirely suppressed. In all cases therefore of excessive bleeding, or any approach to it, astringents both internal and external may be safely and properly applied; not indeed to induce an immediate and total suppression, but to moderate the hæmorrhagy, and by degrees to suppress it altogether; while, at the same time, measures are to be taken for the removing the necessity of its recurrence.

Mr. Custance, of Kidderminster, who writes in the Medical and Physical Journal, resists the opinion of Dr. Cullen, and others, who have considered the Piles as depending on *constitutional* plethora; and thinks they are a *local* affection of the rectum only. Accordingly, he says he has found the following injection very successful in completely removing the Piles, especially in young persons.

℞ Tinct. ferri muriati ʒij.
Tinct. opii ʒj ad ʒij.
Decoct. hordei ℥iv.
M. ft. Enema bis de die injiciend.

Injections consisting of the camphorated mixture and tincture of opium are also frequently of use; but a very simple remedy in cases where constitutional debility attends, as in persons somewhat advanced in life, is the swallowing, twice a-day, a pill consisting of four or five grains of *common pitch.* As a most decisive remedy, however, Mr. Ware advises an operation. He says, instead of having recourse to severe remedies, *we have only to direct our attention to the hard inflamed tumor*, which is the cause of the pain, and which is not unfrequently situated in the *centre* of the rest. This is often no larger than the end of the little finger, and the removal of it almost instantly abates the pain, and, in a short time, causes the rest of the tumors to collapse and disappear. "The mode," says he, "in which I have performed the operation in a great variety of cases, with perfect success, is simply this. Having secured the little hard tumor, which, as abovementioned, is often situated near the centre of the rest, and much darker coloured than they are, with a common dissecting hook, or forceps, I snip it off as close to its basis as possible, with a sharp pair of curved scissars. The pain which the operation occasions is really trifling; and the hæmorrhage which follows is so slight, that I have rarely had occasion to use any application to check it. If the hæmorrhoids are constantly protruded, the operation may be performed at any time; but if they only appear after the fæces are voided, that opportunity must be chosen for this purpose."

HAIR, (*pili*, or *capilli*, Lat.); the thin, elastic, dry filaments, arising from the skin. They consist of the *bulb*, situated under the skin, which is a vascular and fibrous vesicle; and a *trunk*, which perforates the skin and cuticle, and is covered with a peculiar vagina. The hairs belong as much to the integuments as the nails do. See Nails. Their roots or bulbs lie toward that side of the skin which is next the membrana adiposa. The trunk or beginning of the stem perforates the skin, and the rest of the stem advances beyond the outer surface of the skin, to a certain distance, which is very various in the different parts of the body.

When the different hairs are examined by a microscope, we find the roots more or less oval, the largest extremity being either turned towards, or fixed in, the corpus adiposum. The smallest extremity is turned towards the skin, and in some places it is fixed in the skin. This oval root is covered by a whitish strong membrane, in some measure elastic; and it is connected either to the skin, to the corpus adiposum, or to both, by a great number of very fine vessels and nervous filaments. Within the root, we observe a kind of glue, some very fine filaments of which advance toward the small extremity, where they unite and form the stem, which passes through this small extremity to the skin. As the stem passes through the root, the outer membrane is elongated in form of a tube, which closely invests the stem, and is entirely united to it.

The stem, having reached the surface of the skin, pierces the bottom of a small fossula between the papillæ, or sometimes a particular papilla; and there it meets the epidermis, which seems to be inverted round it, and to unite with it entirely. A sort of unctuous matter transudes through the sides of the fossula, which is bestowed on the stem, and accompanies it more or less, as it runs out from the skin in form of an hair.

Hairs are scattered almost over the whole surface of the body, the palms of the hands and soles of the feet excepted. They differ in length, thickness, and solidity, in the different parts of the body. Those on the head, are called in English by the general name of *hair;* those which are disposed archwise above the eyes, *supercilia* or the *eye-brows;* those on the edges of the palpebræ, *cilia* or the *eye-lashes;* and those which surround the mouth, and cover the chin, the *beard.* In other parts of the body, they have no particular names; and their different lengths, thicknesses, &c. in all these parts, are sufficiently known.

Their natural figure seems to be rather cylindrical than angular, which is chiefly accidental. Their colour is probably the same with that of the glue, or medullary matter of the root, the different consistence of which makes the hairs more or less hard, flexible, &c. Their straight or crooked direction must depend on that of the holes through which the stems pass. The hair grows continually, and are renewed again after being cut, by a protrusion of their medullary substance, from the skin outwards, under a production of the cuticle. When they are destitute of this medulla in old people, they dry up, split, and fall off. They seem to perspire through their extremities, and possibly through their whole surface; as we may conclude from the constant force of protrusion in their medulla, which, in the plica polonica, wants a boundary to terminate it. See Plica polonica.

The use of the hairs, with respect to the human body in general, is not sufficiently known to be determined with certainty. Their uses with regard to some particular parts indeed may be discovered; as we shall see in the description of the parts on which they are situated.

Though the external surface of the body is the natural situation for hairs, we have many extraordinary instances of their being found also in the internal surface. Amatus Lusitanus mentions a person who had hair upon his tongue. Pliny and Valerius Maximus concur in their testimonies, that the heart of Aristomenes, the Messenian, was hairy. Cælius Rhodiginus relates the same of Hermogenes the rhetorician; and Plutarch, of Leonidas the Spartan. Hairs are said to have been frequently found in the breasts of women; but some authors are of opinion, that these are small worms, and not hairs. Various are the observations of authors, of hairs found in the kidneys, and voided by urine, &c. Hair has been often found in abscesses and imposthumations. Schultetus, opening the abdomen of a woman, found twelve pints of water, and a large lock or bundle of hair swimming loose in it. But, if what is written on the subject is to be credited, of all the internal parts, there is none so subject to an unnatural growth of hair as the ovaries of females, and that as well of the human species as of other animals. Of this Dr. Tyson relates three remarkable instances: two of these were young women, and the other was a bitch. The animal had been much emaciated in its hinder parts; the hair was about an inch and a half long: but the most remarkable particular was, that hair was also found lying loose in the cavities of the veins. Authors relate several instances of mankind being affected in the same manner. Cardan relates, that he found hair in the blood of a Spaniard; and Slonatius in that of a woman of Cracovia; and Schultetus declares, from his own observation, that those who are afflicted with the plica polonica have very often hair in their blood: but these accounts are next to incredible.

Almost the only disease of the hair, besides the remarkable one called *plica polonica,* is its falling off, or *baldness.* For this many remedies have been recommended, but scarce any of them can be depended upon. The juice of burdock, and the lixivial salts of vine-ashes are said to be efficacious; as well as the decoction of boxwood, but these remedies are doubtful.

HAIR, in botany, the *down* of plants; a general term expressive of all the hairy and glandular appearances on the surface of plants, to which they are supposed, by naturalists, to serve the double purpose of defensive weapons and vessels of secretion. These hairs are minute threads of greater or less length and solidity; some of them visible to the naked eye; whilst others are rendered visible only by the help of glasses. Examined by a microscope, almost all the parts of plants, particularly the young stalks or stems, appear covered with hairs. Hairs on the surface of plants present themselves under various forms: in the leguminous plants, they are generally cylindrical; in the mallow tribe, terminated in a point; in agrimony, shaped like a fish-hook; in nettle, awl-shaped and jointed; and in some compound flowers with hollow or funnel-shaped florets, they are terminated in two crooked points. Probable as some experiments have rendered it, that the hairs on the surface of plants contribute to some organical secretion, their principal use seems to be to preserve the parts in which they are lodged from the bad effects of violent friction from winds, from extremes of heat and cold, and such like external injuries. M. Guettard, who has established a botanical method from the form, situation, and other circumstances of the hairy and glandular appearances on the surface of plants, has demonstrated, that these appearances are generally constant and uniform in all the plants of the same genus. The same uniformity seems to characterise all the different genera of the same natural order. The different sorts of hairs which form the down upon the surface of plants, were imperfectly distinguished by Grew in 1682, and by Malpighi in 1686. M. Guettard, just mentioned, was the first who examined the subject both as a botanist and a philosopher. His observations were published in 1747.

HAIR-WORM. See Gordius.

HA′LITUS; a name for vapour, or gas. See Gas.

HALICA′CABUS, (*αλιϰαϰαϐος*, from *αλι*, *the sea*, and *ϰαϰαϐος*, *night-shade*); a plant so called because it grows upon the banks of the sea. See Alkekengi.

HALLER (Albert Van), an eminent physician, was born at Bern, on the 16th of October 1708. He was the son of an advocate of considerable eminence in his profession. His father had a numerous family, and Albert was the youngest of five sons. From the first period of his education, he showed a very great genius for literature of every kind. To forward the progress of his studies, his father took into his family a private tutor, named Abraham Billodz; and such was the discipline exerted by this pedagogue, that the accidental sight of him, at any future period of life, excited in Haller very great uneasiness, and renewed all his former terrors. According to the accounts which are given us, the progress of Haller's studies, at the earliest periods of life, was rapid almost beyond belief. When other children were beginning only to read, he was studying Bayle and Moreri; and at nine years of age he was able to translate Greek, and was beginning the study of Hebrew. Not long after this, however, the course of his education was somewhat interrupted by the death of his father; an event which happened when he was in the 13th year of his age. After this he was sent to the public school at Bern, where he exhibited many specimens of early and uncommon genius. He was distinguished for his knowledge in the Greek and Latin languages; but he was chiefly remarkable for his poetical genius: and his essays of this kind, which were published in the German language, were read and admired throughout the whole empire. In the 16th year of his age he began the study of medicine at Tubingen, under those eminent teachers Duvernoy and Camerarius; and continued there for the space of two years, when the great reputation of the justly celebrated Boerhaave drew him to Leyden. Nor was this distinguished teacher the only man from whose superior abilities he had there an opportunity of profiting. Ruych was then alive, and Albinus was rising into fame. Animated by such examples, he spent all the day, and the greatest part of the night, in the most intense study; and the proficiency which he made, gained him universal esteem both from his teachers and fellow-students. From Holland, in the year 1727, he came to England. Here, however, his stay was but short; and it was rather his intention to visit the illustrious men of that period, than to prosecute his studies in London. He formed connections with some of the most eminent of them. He was honoured with the friendship of Douglas and Cheselden; and he met with a reception proportioned to his merit from Sir Hans Sloane, president of the Royal Society. After his visit to Britain, he went to France; and there, under those eminent masters, Winslow and Le Dran, with the latter of whom he resided during his stay in Paris, he had opportunities of prosecuting anatomy, which he had not before enjoyed. But the zeal of our young anatomist was greater than the prejudices of the people at that period, even in the enlightened city of Paris, could admit of. An information being lodged against him at the police, for dissecting dead bodies, he was obliged to cut short his anatomical investigations by a precipitate retreat. Still, however, intent on the farther prosecution of his studies, he went to Basil, where he became a pupil to the celebrated Bernoulli.

Thus improved and instructed by the lectures of the most distinguished teachers of that period, by uncommon natural abilities, and by unremitting industry, he returned to the place of his nativity in the 26th year of his age. Not long after this, he offered himself a candidate, first for the office of physician to an hospital, and afterwards for a professorship. But neither the character which he had before he left his native country, nor the fame which he had acquired and supported while abroad, was sufficient to combat the interest opposed to him. He was disappointed in both; and it was even with difficulty that he obtained, in the following year, the appointment of keeper of a public library at Bern. The exercise of this office was indeed by no means suited to his great abilities: but it was agreeable to him, as it afforded him an opportunity for that extensive reading by which he has been so justly distinguished. The neglect of his merit, which marked his first outset, neither diminished his ardour for medical pursuits, nor detracted from his reputation either at home or abroad; for not long after, he was nominated a professor in the university of Gottingen, by King George II. The duties of this important office he discharged, with no less honour to himself than advantage to the public, for the space of seventeen years; and it afforded him an ample field for the exertion of those great talents which he possessed. Extensively acquainted with the sentiments of others respecting the economy of the human body, struck with the diversity of opinions which they held, and sensible that the only means of investigating truth was by careful and candid experiment, he undertook the arduous task of exploring the phenomena of human nature from the original source. In these pursuits he was no less industrious than successful, and there was hardly any function of the body on which his experiments did not reflect either a new or a stronger light. Nor was it long necessary for him, in this arduous undertaking, to labour alone. The example of the preceptor inspired his pupils with the spirit of industrious exertion. Zinn, Zimmermann, Caldani, and many others, animated by a generous emulation, laboured with indefatigable industry to prosecute and to perfect the discoveries of their great master. And the mutual exertion of the teacher and his students, not only tended to forward the progress of medical science, but placed the philosophy of the human body on a more sure, and an almost entirely new, basis. But the labours of Dr. Haller, during his residence at Gottingen, were by no means confined to any one department of science. He was not more anxious to be an improver himself, than to instigate others to similar pursuits. To him, the Anatomical Theatre, the School of Midwifery, the Chirurgical Society, and the Royal Academy of Sciences at Gottingen, owe their origin. Such distinguished merit could not fail to meet with a suitable reward from the sovereign under whose protection he then taught. The king of Great Britain not only honoured him with every mark of attention which he himself could bestow, but procured him also letters of nobility from the Emperor. On the death of Dillenius, he had an offer of the professorship of botany at Oxford ; the states of Holland invited him to the chair of the younger Albinus ; the king of Prussia was anxious that he should be the successor of Maupertuis at Berlin. Marshal Keith wrote to him in the name of his sovereign, offering him the chancellorship of the university of Halle, vacant by the death of the celebrated Wolff. Count Orlow invited him to Russia, in the name of his mistress the empress, offering him a distinguished place at St. Petersburgh. The king of Sweden conferred on him an unsolicited honour, by raising him to the rank of knighthood of the order of the polar star ; and the emperor of Germany did him the honour of a personal visit; during which he thought it no degradation of his character to pass some time with him in the most familiar conversation.

Thus honoured by sovereigns, revered by men of literature, and esteemed by all Europe, he had it in his power to have held the highest rank in the republic of letters. Yet, declining all the tempting offers which were made to him, he continued at Gottingen, anxiously endeavouring to extend the rising fame of that medical school. But after seventeen years residence in that university, an ill state of health rendering him less fit for the duties of the important office which he held, he solicited and obtained permission from the regency of Hanover to return to his native city of Bern. His fellow-citizens, who might at first have fixed him among themselves, with no less honour than advantage to their city, were now as sensible as others of his superior merit. A pension was settled upon him for life, and he was nominated at different times to fill the most important offices in the state. These occupations, however, did not diminish his ardour for useful improvements. He was the first president, as well as the greatest promoter, of the Oeconomical Society at Bern ; and he may be considered as the father and founder of the Orphan Hospital of that city. Declining health, however, restrained his exertions in the more active scenes of life, and for many years he was confined entirely to his own house. Even this, however, could not put a period to his utility : for, with indefatigable industry, he continued his favourite employment of writing till within a few days of his death ; which happened in the 70th year of his age, on the 12th of December 1777. His *Elementa Physiologiæ* and *Bibliotheca Medicinæ* will afford, to latest posterity, undeniable proofs of his indefatigable industry, penetrating genius, and solid judgment. But he was not less distinguished as a philosopher than beloved as a man ; and he was not more eminent for his improvement in every department of medical science, than for his piety to God, and benevolence to all mankind.

HA'LO, (*αλων*, from *αλος*, *an area, or circle)* ; a name for the red circle surrounding the nipple, which becomes somewhat brown in old people, and is beset with many sebaceous glands. It derives this name from the bright circle occasionally found to surround the celestial luminaries.

HALLUCINA'TIO, (from *hallucinor*, to err) ; an error of the imagination, from a fault of the external organs : or deceptions of the imagination, from a fault, rather in the bodily organs, than in the mind. In Cullen's Nosology it is synonymous with *Dysæsthesiæ.*

HAM, a part of the leg, forming the inner or hind part of the knee ; or the ply or angle in which the leg and thigh, when bent, incline to each other.

HAM, a leg or thigh of pork, dried, seasoned, and prepared, to make it keep, and to give it a savoury agreeable flavour. Westphalia hams, so much in vogue, are prepared by salting them with saltpetre, pressing them in a press eight or ten days, then drying them by the smoke of juniper wood. Common hams form a very general article of food. How far their preparation tends to render them less soluble in the stomach is shown under the article ANIMAL FOOD.

HA'MULUS, (dim. of *hamus*, a hook) ; a term in anatomy, applied to any hook-like process, as the *hamulus* of the pterygoid process of the sphænoid bone.

HAND, the terminating portion of the upper extremity. The hand is composed of the carpus or wrist, metacarpus, and fingers. The arteries of the hand are the *palmary arch* and the *digital arteries.* The veins are the *digital*, the *cephalic of the thumb*, and the *salvatella.* The nerves are the *cutaneus externus* and *internus.* The mechanism of the hand is excellently contrived to fit it for various uses and occasions. It consists of a compages of muscles, tendons, and little bones connected with each other, which give it a degree of strength, and at the same time an unusual flexibility, to enable it to handle adjacent bodies, lay hold of them, and grasp them, in order either to draw them toward us or thrust them off. Anaxagoras is represented by ancient authors, as maintaining, that man owes all his wisdom, knowledge, and superiority over other animals, to the use of his hands. But man, according to Galen, is not the wisest creature because he has hands; but he had hands given him because he was the wisest creature. He truly said, it was not our hands that taught us arts, but our reason which directed us in the use of our hands.

HANGING, a common name given to the method of inflicting death on criminals, by suspending them by the neck. Physicians are not agreed as to the manner in which death is brought on by hanging. De Haen hanged three dogs, whom he afterwards opened. In one, nothing remarkable appeared in the lungs. In another, from whom half an ounce of blood was taken from the jugular vein, the dura and pia mater were of the natural appearance; but the lungs were much inflamed. In the third, the meninges were sound, and there was no effusion of blood in the ventricles of the brain, but the left lobe of the lungs was turgid with blood. Wepser, Littræus, Alberti, Bruhierius, and Boerhaave, affirm that hanged animals die apoplectic. Their arguments for this are chiefly drawn from the livid colour of the face; from the turgescency of the vessels of the brain; the inflammation of the eyes; and from the sparks of fire which those who have survived hanging allege they have seen before their eyes. On the contrary, Bonetus, Petit, Haller, and Lancisci, from observing that death is occasioned by any small body falling into the glottis, have ascribed it to the stoppage of respiration. Others, deeming both these causes ill-founded, have ascribed it to a *luxation* of the vertebræ of the neck, which, however, it is well known, scarcely ever takes place. De Haen adduces the authority of many eminent authors to prove the possibility of recovering hanged persons: and observes, in general, that it may be effected with bleeding in the jugular vein, and anointing the neck with warm oil. The same remedies, at least, are to be employed in this case as for the recovery of suffocated or drowned people. See RESUSCITATION.

HARDNESS, in physics, a property in bodies directly opposite to fluidity; by which they resist the impression of any other substance, sometimes in an extreme degree. As fluidity has been found to consist in the motion of the particles of a body upon one another, in consequence of a certain action of the universal fluid or elementary fire among them; we must conclude that hardness consists in the absence of this action, or a deficiency of what is called *latent heat.* This is confirmed by observing, that there is an intermediate state betwixt hardness and fluidity, in which bodies will yield to a certain force, though they still make a considerable resistance. This is principally observed in the metals, and is the foundation of their ductility. It appears, indeed, that this last property, as well as fluidity, is entirely dependent on a certain quantity of latent heat absorbed, or otherwise acting within the substance itself; for all the metals are rendered hard by hammering, and soft by being put again into the fire and kept there for some time. The former operation renders them hot as well as hard; probably, as Dr. Black observes, because the particles of metal are thus forced nearer one another, and those of fire squeezed out from among them. By keeping them for some time in the fire, that element insinuates itself again among the particles, and arranges them in the same manner as before, so that the ductility returns. By a second hammering this property is again destroyed, returning on a repetition of the heating, or *annealing* as it is called; and so on, as often as we please.

Hardness appears to diminish the cohesion of bodies in some degree, though their fragility does not by any means keep pace with their hardness. Thus, glass is very hard and very brittle; but flint, though still harder than glass, is much less brittle. Among the metals, however, these two properties seem to be more connected, though even here the connection is by no means complete. Steel, the hardest of all the metals, is indeed the most brittle; but lead, the softest, is not the most ductile. Neither is hardness connected with the specific gravity of bodies; for a diamond, the hardest substance in nature, is little more than half the weight of the lightest metal. As little is it connected with the coldness, electrical properties, or any other quality with which we are acquainted: so that though the principle above laid down may be accepted as a general foundation for our inquiries, a great number of particulars remain yet to be discovered before we can offer any satisfactory explanation.

All bodies become harder by cold; but this is not the only means of their doing so, for some become hard by heat as well as cold. Thus, water becomes hard by cold when it is frozen, but it becomes much harder when its steam is passed over red-hot iron, and it enters the substance of the metal, by an union with which it becomes almost as hard as glass. Mr. Quist and others have constructed tables of the hardness of different substances; constructed on the order in which they are able to cut or make an impression upon one another.

HARE-LIP, (from the Gr. λαγοχειλος; seu *labia leporina)*, a natural defect in some part of the upper or under lip; so named from a fancied resemblance, in the diseased lip, to that of a hare. In some cases the division is large, and a great part of the lip appears to be defective. The fissure may be either *single, double*, or *complicated.* The single has an angular point, somewhat like the reversed Roman letter Λ, except that the sides and points are not regular; the double is more inclined to the form of the letter M; the complicated, is when either of the former is attended with a division of the palate on each side, in part, or extending to the back nostrils and uvula, in which case the latter often proves defective. There is no means of remedying this natural defect but by an operation, in which a thin portion of the fissure on each side is taken off, by a smooth incision; after which the parts are brought into contact by the twisted suture (see SUTURE), and secured in that state till a firm union takes place. The pins used in this operation are commonly made of gold or silver; and, in order to make them pass with greater ease, steel points are usually added to them. In *performing this operation*, the divided parts intended to be re-united, must, by the hands of an assistant, be brought nearly into contact; leaving just as much space between the edges of the sore as to allow the surgeon to see that the pins are carried to a proper depth. This being done, one of the pins must be introduced through both sides of the wound, by entering it on one side externally, pushing it forwards and inwards to within a little of the bottom of the wound, and afterwards carrying it outwardly through the opposite side, to the same distance from the edge of the sore that it was made to enter at on the other.

The distance at which the needle ought to enter from the edge of the sore must be determined by the depth of the wound, and by the degree of retraction produced in the divided parts. In general, however, it is a proper regulation, in deep wounds, to carry the pins nearly to the same distance from the side of the sore as they are made to penetrate in depth: and whatever the deepness of the wound may be, the pins ought to pass within very little of its bottom: otherwise the parts which lie deep, will run a risk of not being united; a circumstance which must always give rise to troublesome collections of matter.

The first pin being passed in this manner, very near to one end of the sore, and the parts being still supported by an assistant, the surgeon, by means of a firm waxed ligature, passed three or four times round and across the pin, so as nearly to describe the figure of 8, is to draw the parts, through which it has passed, into immediate and close contact: and the thread being now secured with a loose knot, another pin must be introduced in the same manner at a proper distance from the former: and the thread, with which the other was fixed, being loosened, and in the same manner carried round this pin, others must be introduced, at proper distances, along the whole course of the wound; and the same ligature ought to be of a sufficient length for securing the whole. See Instruments.

The *number of pins* to be used must be determined entirely by the extent of the wound. Whenever this suture is practised, a pin ought to be introduced very near each end of the wound, otherwise the extremities of the sore are apt to separate so as not to be afterwards easily re-united. In large wounds, if the pins are introduced at the distance of three quarters of an inch from one another, it will in general be found sufficient; but in cuts of smaller extent, a greater number of pins becomes necessary in proportion to the dimensions of the sores. Thus in a wound of an inch and a half in length, three pins are absolutely requisite; one near to each end, and another in the middle of the sore: whereas five pins will always be found fully sufficient for a wound of three inches and a half in extent, allowing one to be within a quarter of an inch of each extremity of the wound, and the others to be placed along the course of the sore at the distance of three quarters of an inch from one another. The pins being all introduced and secured in the manner directed, nothing remains to be done, but to apply a piece of lint wet with mucilage all along the course of the wound, with a view to exclude the external air and confine the parts in their present situation.

When the pins remain long, they generally do harm, by the unnecessary irritation and consequent retraction of parts with which they are always attended; and if they are not continued for a sufficient length of time, that degree of adhesion is not produced between the divided parts, which is necessary for their future retention; so that the effect of the operation comes to be in a great measure, if not entirely, lost.

In wounds of no great depth, for instance, of three quarters of an inch or so, a sufficient degree of adhesion always takes place in the space of five days; and six, or at most seven days, will generally be found sufficient for wounds of the greatest depth. But with respect to this circumstance, it must always be understood, that the patient's state of health must have a considerable influence on the time necessary for producing adhesion between divided parts.

When the pins are withdrawn, the uniting bandage may be applied with great advantage; but as slips of leather spread with ordinary glue, when applied to each side of the cicatrix, may, by means of ligatures properly connected with them, be made to answer the purpose more effectually, this mode of supporting the parts ought of course to be preferred.

HARMATTAN, the name of a remarkable periodical wind which blows from the interior parts of Africa towards the Atlantic ocean. Of this wind the following account is given in the Philosophical Transactions, vol. 71. by Mr. Norris, a gentleman who had frequent opportunities of observing its singular properties and effects.

On that part of the coast of Africa which lies between Cape Verd and Cape Lopez, an easterly wind prevails during the months of December, January, and February, which, by the Fantees, a nation on the Gold-coast, is called the *Harmattan.* Cape Verd is in 15 N. latitude, and Cape Lopez in 1 S. latitude; and the coast between these two capes, runs in an oblique direction, nearly from W.S.W. to E.S.E. forming a range of upwards of 2100 miles. At the Isles de Los, which are a little to the northward of Sierra Leone, and to the southward of Cape Verd, it blows from the E.S.E. on the Gold-coast from the N.E. and at Cape Lopez, and the river Gabon, from the N.N.E. This wind is, by the French and Portuguese, who frequent the Gold-coast, called simply the N.E. wind, the quarter from which it blows. The English, who sometimes borrow words and phrases from the Fantee language, which is less guttural and more harmonious than that of their neighbours, adopt the Fantee word Harmattan.

The harmattan comes on indiscriminately at any hour of the day, at any time of the tide, or at any period of the moon, and continues sometimes only a day or two, sometimes five or six days, and it has been known to last fifteen or sixteen days. There are generally three or four returns of it every season. It blows with a moderate force, not quite so strong as the sea-breeze (which every day sets in during the fair weather season from the W. W.S.W. and S.W.); but somewhat stronger than the land wind at night from the N. and N.N.W.

1. A fog or haze is one of the peculiarities which always accompanies the harmattan. The gloom occasioned by this fog, is so great, as sometimes to make

even near objects obscure. The English fort at Whydah stands about the midway between the French and Portuguese forts, and not quite a quarter of a mile from either, yet very often from thence neither of the other forts can be discovered. The sun, concealed the greatest part of the day, appears only a few hours about noon, and then of a mild red, exciting no painful sensation in the eye.

2. Extreme dryness makes another extraordinary property of this wind. No dew falls during the continuance of the harmattan; nor is there the least appearance of moisture in the atmosphere. Vegetables of every kind are very much injured; all tender plants, and most of the productions of the garden, are destroyed; the grass withers, and becomes dry like hay; the vigorous ever-greens likewise feel its pernicious influence; the branches of the lemon, orange, and lime trees droop, the leaves become flaccid, wither, and if the harmattan continues to blow for ten or twelve days, are so parched, as to be easily rubbed to dust between the fingers: the fruit of these trees, deprived of its nourishment, and stinted in its growth, only appears to ripen, for it becomes yellow and dry, without acquiring half the usual size. The natives take this opportunity of the extreme dryness of the grass and young trees, to set fire to them, especially near their roads, not only to keep those roads open to travellers, but to destroy the shelter which long grass and thickets of young trees would afford to skulking parties of their enemies. A fire thus lighted flies with such rapidity as to endanger those who travel: in that situation, a common method of escape is, on discovering a fire to windward, to set the grass on fire to leeward, and then follow your own fire. There are other extraordinary effects produced by the extreme dryness of the harmattan.

The parching effects of this wind are likewise evident on the external parts of the body. The eyes, nostrils, lips, and palate, are rendered dry and uneasy; and drink is often required, not so much to quench thirst as to remove a painful aridity in the fauces. The lips and nose become sore, and even chapped; and though the air be cool, yet there is a troublesome sensation of prickling heat on the skin. If the harmattan continues four or five days, the scarf skin peels off, first from the hands and face, and afterwards from the other parts of the body, if it continues a day or two longer. Mr. Norris observed, that when sweat was excited by exercise on those parts which were covered by his clothes from the weather, it was peculiarly acrid, and tasted, on applying his tongue to his arm, something like spirits of hartshorn diluted with water.

3. Salubrity forms a third peculiarity of the harmattan. Though this wind is so very prejudicial to vegetable life, and occasions such disagreeable parching effects on the human species, yet it is highly conducive to health. Those labouring under fluxes and intermitting fevers, generally recover in an harmattan. Those weakened by fevers, and sinking under evacuations for the cure of them, particularly bleeding, which is often injudiciously repeated, have their lives saved, and vigour restored, in spite of the doctor. It stops the progress of epidemics: the small-pox, remittent fevers, &c. not only disappear, but those labouring under these diseases, when a harmattan comes on, are almost certain of a speedy recovery. Infection appears not then to be easily communicated even by art. In the year 1770, there were on board the Unity, at Whydah, above 300 slaves; the small-pox broke out among them, and it was determined to inoculate. Those who were inoculated before the harmattan came on, got very well through the disease. About seventy were inoculated a day or two after the harmattan set in, but no one of them had either sickness or eruption. It was imagined that the infection was effectually dispersed, and the ship clear of the disorder; but in a very few weeks it began to appear among those seventy. About fifty of them were inoculated a second time; the others had the disease in a natural way: an harmattan came on, and they all recovered, excepting one girl, who had an ugly ulcer on the inoculated part, and died some time afterwards of a locked jaw.

This account differs remarkably from that given by Dr. Lind, who calls the harmattan a malignant and fatal wind. As to the nature of the soil over which it blows, it appears, that, excepting a few rivers and some lakes, the country about and beyond Whydah is covered for 400 miles back with verdure, open plains of grass, clumps of trees, and some woods of no considerable extent. The surface is sandy, and below that a rich reddish earth: it rises with a gentle ascent for 150 miles from the sea, before there is the appearance of a hill, without affording a stone of the size of a walnut. Beyond these hills there is no account of any great ranges of mountains.

HARMO'NIA, (αρμονια, from αρω, to fit together), harmony; in an anatomical sense, a species of synarthrosis, or immoveable connection of bones, in which bones are connected together by means of rough margins, not dentiform. It is in this manner that most of the bones of the face are connected together.

HARROWGATE, a village in the West Riding of Yorkshire, in the parish of Knaresborough, 206 miles from London, remarkable for its medicinal springs. These are three in number, all different in their qualities, notwithstanding their contiguity. 1. The *Tewet water*, or sweet spa, a chalybeate spring, of a sort of milky taste, used in gravelly cases, was discovered by Mr. Slingsby in 1638. Formerly this only was used internally, and the sulphureous spring was exclusively employed as an external remedy. 2. The *sulphur spring*, used in dropsical, scorbutic, and gouty cases, rises in the town, and is received into four basons, in four different inclosures: at one it is drunk, at the others used for hot or cold baths. It is perfectly clear; but the taste and smell, a composition of rotten eggs, sea-water, and sulphur, and extremely salt. Bathing is the most general mode of using it, the water being heated to about 92 degrees. It is the strongest sulphur water in Great Britain; and from the superior strength of the impregnating sulphur, it does not lose the sulphureous smell even when exposed to a scalding and almost boiling heat: even in distilling it, when three pints had been taken off from a gallon of it, the last was as strong as the first, and smelled intolerably. It is generally reckoned discutient and attenuating, and a warm bath of it is of great benefit in pains and aches, strains and lameness; dissolving hard swellings, amending old ulcers, and removing scrophulous complaints. It is also a powerful cleanser of the stomach and bowels. But, above all, its effects are reckoned the most considerable in lepra, and other cutaneous affections. Dr. Willich adds, that it is likewise a safe, and often a powerful remedy for the piles, as well as against the round worm, and ascarides, if such a quantity be drunk as will prove a brisk purgative. In general, such draughts are taken as will produce a sensible effect on the bowels: for this purpose, three or four glasses, containing somewhat more than half a pint each, should be swallowed in the morning, at moderate intervals. 3. *St. Mungo's well*, is so called from Kentigern, a Scotch saint, much honoured hereabouts, whom his tutor Servanus, bishop of Orkney, out of affection for him, called *Mongah*, which, in the Norish or Norway language, signifies a dear friend. The Harrowgate season is from May to Michaelmas; and the company assemble and lodge in five or six large houses or inns on the heath, a mile from the village, each house having a long room and an ordinary: the best company used to lodge at Knaresborough, which is three miles off. When first drawn, the Harrowgate water is transparent, and emits a few air bubbles. It possesses a strongly fetid sulphureous smell, similar to that of bilge-water; and is of a bitter, nauseous, and strongly saline taste. After being exposed for several hours to the open air, it becomes turbid, assumes a greenish colour, loses its sulphureous smell, and deposits sulphur at the bottom and sides of the vessels. When first drunk, this water causes a slight giddiness and head-ach, but is speedily attended with a mild purgative effect, and its laxative properties continue, even after being kept for a moderate length of time.

The water ought to be used cold and fresh from the spring, if the stomach can support it. In order to correct the nauseous flavour, Dr. Garnett advises patients to eat a small portion of sea-biscuit, or coarse bread, instead of taking aromatic seeds, sugar-comfits, &c. By the former expedient, the offensive taste will be speedily removed, and the stomach not be cloyed; a circumstance of the first consequence to invalids.

In his essay on warm-bathing as a *rational luxury*, Count Rumford has given a singular account of his own recovery from a bad state of health, by employing the sulphur water under a regulation which was not then common; but which has since been universally practised, not only at Harrowgate, but at Bath and other places. It had been the custom to take the bath in the evening, and afterwards to go to bed, in warm blankets, to encourage perspiration; but this practice disagreeing with the Count, he was advised by a friend to go into the bath in the forenoon, and the difference to his state of health was wonderful, for he perfectly recovered from a long indisposition. The truly interesting and philosophical account to which we allude, is highly deserving of being referred to by the reader, who, in the mean time, may be gratified with a part of the subject detailed in the article Baths.

HARTFELL-WATER; a vitriolated iron spring, which issues from a lofty mountain of the same name, about five miles from Moffat, in the county of Annandale, in Scotland. The rock abounds with iron pyrites, aluminous schistus, and argillaceous stone, mixed with iron in different states. From the decomposition of these materials, the spring acquires its medicinal properties. When first drawn from the spring the Hartfell-water appears perfectly clear, but it deposits gradually part of its ferruginous ingredient, even when closely corked; it retains, nevertheless, a large quantity of iron in solution, and has a strong astringent taste, similar to that of ink. If it be preserved in close bottles, its properties remain undiminished for a considerable time.

This spring is said to be of considerable service in curing several obstinate disorders of the stomach and bowels; in dysenteric complaints, as well as in several periods of pulmonary consumption; and in all cases of general debility. Much benefit has likewise been derived from the use of this vitriolated mineral spring, when employed both internally, and as an external application, to old and languid ulcers.

The sensible effects of the Hartfell-water are sometimes giddiness and sickness, especially when a larger portion has been swallowed than the stomach can bear. Hence, persons of delicate and irritable habits should at first take very small doses; for too large a draught is frequently rejected by the stomach, and occasions gripings in the intestines; hence it ought never to be employed as a direct purgative. Dr. Willich says, an English pint is about the quantity which the generality of patients may safely consume in the course of the day, though its use may, with advantage, be continued for a considerable time. To render it, however, more suitable to weakly habits, it will be adviseable to warm the water before it is drunk, as the difference of temperature will produce no material change in its medicinal properties.

HARTSHORN. See Cornu cervi.

HARTSHORN SHAVINGS; *rasura cornu cervi.* See Cornu cervi.

HART'S-TONGUE. See Scolopendrium.

HART-WORT. See Seseli.

HART-WORT OF MARSEILLES. See Seseli Marsiliense.

HARVEY (Dr. William), an eminent English physician in the 17th century, was born at Folkstone, in Kent, in 1578, completed his studies at the university of Cambridge, went to Padua, and was there admitted to the degree of doctor, with unusual marks of approbation, in 1602. He was incorporated doctor of physic in Cambridge, afterwards admitted into the college of physicians in London, and was appointed lecturer of anatomy and chirurgery in that college. He examined the valves with more accuracy than his master Fabricius; and explained their use in a treatise which he published some time after. It is uncertain when he first conceived his celebrated doctrine of the circulation; but about 1616 he taught it in his lectures, and printed it in 1628, in his *Exercitatio anatomica de motu cordis et sanguinis.* He was the first author who spoke consistently of the motion of the blood, and who, unbiassed by the doctrine of the ancients, drew rational conclusions from his experiments and observations. His books present us with many indications of a great mind, acute discernment, unwearied application, original remark, bold inquiry, and a clear, forcible, and manly reasoning; and every one who considers the surprise which his doctrine occasioned among the anatomists of those days, the strong opposition that it met with from some, and those numerous and powerful prejudices which it had to encounter from the sanction of time and of great names, must allow it was new, and that the author has, from its importance, a title to rank in the first class of eminent discoverers ancient or modern. His discovery showed, that in most animals the blood circulates in arteries and veins, and through the medium of one, two, or of more hearts: that in arteries it moves from the trunk to the branches; and that, meeting there with the branches of veins, it returns in a languid stream to the heart; that the heart communicates a new impulse; that it drives it on to the trunk of the arteries; and that the arteries, by the thickness of their coats, exerting a force, propel it onwards again into the veins.

Harvey was physician to King James I. and to King Charles I. and adhered to the royal cause. His works have eternized his memory. In 1651 he published his *Exercitationes de generatione animalium*, a very curious work; but it would have been more so had not his papers been destroyed during the civil wars. In 1654 he was chosen president of the college of physicians, in his absence; but his age and weakness were so great, that he could not discharge the duty of that office; and therefore desired them to choose Dr. (afterwards Sir John) Pringle. As he had no children, he settled his paternal estate upon the college. He had, three years before, built a combination-room, a library, and a museum; and in 1656 he brought the deeds of his estate, and presented them to the college. He was then present at the first feast, instituted by himself, to be continued annually, together with a commemoration-speech in Latin, to be spoken on the 18th of October, in honour of the benefactors to the college; he having appointed a handsome stipend for the orator, and also for the keeper of the library and museum, which are still called by his name. He died in 1657. This great physician had the happiness, in his life-time, to find the clamours of ignorance, envy, and prejudice against his doctrine, totally silenced, and to see it universally established. It has, by length of time, been more and more confirmed, and every man now sees and knows it from his own experience. It appears to be of the utmost importance in medicine; as it is perhaps impossible to define health and sickness in fewer words, than that the one is a free, and the other an obstructed, circulation. Dr. Harvey was not only an excellent physician, but an excellent man: his modesty, candour, and piety, were equal to his knowledge; the farther he penetrated into the wonders of nature, the more he was inclined to venerate the Author of it.

HASTA'TUS, (from *hasta*, a spear), in botany, a term applied to a leaf which resembles the head of a halbert.

HASTE'LLÆ, (dim. of *hasta*, a spear), an ancient term for the splints used in fractures.

HAY, CAMEL'S. See JUNCUS ODORATUS.

HAZEL-NUT, the fruit of the *Corylus*, Linn. a well-known nut in this country. The kernels of this fruit, though difficult of digestion, have a mild, farinaceous, oily taste, which is agreeable to most palates; yet *filberts* are said to be more nourishing: both, however, operate as a cathartic, when chewed small, and taken in considerable quantities; but produce constipations of the bowels, if swallowed in large pieces; and dysentery, if eaten unripe. A kind of chocolate has been prepared from this fruit, which has also occasionally been converted into bread. An expressed oil is obtained from the nuts, which is little inferior to that of almonds: it is often preferably used by painters, as it readily dries; and chemists employ it as the basis of fragrant oils, artificially prepared, because it easily combines with, and retains, odours. Dr. Willich says, an emulsion may be made of the kernels, and taken with some old mead, as a remedy for an inveterate dry cough.

HEAD, the uppermost part of the human body, being elevated on the neck. Besides the brain, which is contained within the cranium, the head presents to us the organs of sight, of sound, of smell, of taste, and the greater part of those which serve for deglutition. Besides the external integuments of the head, viz. the hair, skin, and cellular substance, called the *scalp*, there are two other expansions on the head; the first is the tendon of the occipito-frontalis muscle; the second is the pericranium, which covers the external surface of all the bones of the cranium.

The external part of this membrane may be said to separate from the other at the semicircular plane upon the cranium, and becomes a very strong aponeurosis, which covers the temporal muscle, and is afterwards fixed to the external process of the os frontis, and to the upper edge of all the zygoma. The rest of the pericranium is connected to the other parts of the head.

The head, being considered in general as one of the three principal cavities of the human body, has this peculiar to it, that its outside is the seat and basis of several very complex particular organs; whereas on the inside it contains only one, which is indeed the primum mobile of the whole animal economy, namely, the brain, the mechanism of which is very little known; and the structure of its different parts, even of those which we are supposed to be most acquainted with, is very difficult to be demonstrated. See CEREBRUM.

In this temperate climate, Dr. Willich says, young persons may with safety be accustomed to go with their heads uncovered; but, in those countries where either of the two extremes of heat or cold prevail, the opposite practice must be adopted. In fact, many diseases might be avoided, were the trite, but true maxim of "keeping the head cool," more strictly attended to. Hence the wearing of thick and warm night-caps, whether at night, or in the day-time, cannot be too much reprobated; as those who indulge in this whimsical habit, render themselves continually liable to take cold from the slightest change in the atmosphere: thus baldness, violent head-achs, and not unfrequently a lethargic stupor, or insanity, are among the many fatal effects which sooner or later follow this imprudent custom.

HEAD-ACH. See CEPHALALGIA. That species named *Cephalalgia spasmodica,* or *sick head-ach,* Dr. Fothergill observes, is not the complaint of any particular age, sex, constitution, or season, but it is incident to all; yet the sedentary and inactive, persons of relaxed habits, and who are incautious respecting their diet, are the most exposed to it.

These, he observes, generally awake early in the morning with a *head-ach,* which seldom affects the whole head, but one particular part of it, most commonly the forehead: over one frequently, sometimes over both eyes. It is sometimes fixed about the upper part of the parietal bone, of one side only; sometimes the occiput is the part affected: sometimes it darts from one to another of these places. From the time it commences, until it wholly ceases, it is sometimes more, sometimes less tolerable. With this is joined more or less of sickness, which in some is just barely, in many not sufficient, without assistance, to provoke vomiting. If this pain does happen, as it most commonly comes on early in the morning, and before any meal is taken, seldom any thing is thrown up but thin phlegm, unless the straining is severe, when some bitter or acid bile is brought up. In this case the disease soon begins to abate, leaving a soreness about the head, a squeamishness at the stomach, and a general uneasiness, which induces the sick to wish for repose. Perhaps, after a short sleep, they recover perfectly well, only a little debilitated by their sufferings. The duration of this conflict is very different in different persons: in some, it goes off in two or three hours; in others, it will last twenty-four hours or longer, and with a violence scarcely to be endured, when the least light or noise seems to throw them on the rack. In young persons, it most commonly goes off soon; if it continues to harass them many years, as it sometimes does, the fit is of longer duration, and leaves the whole frame in so weak a condition, as to require some length of time to recover. Its returns are very irregular; some have it every two or three days, some once in two or three weeks, others in as many months, and some yet seldomer.

This disease Dr. Fothergill reckons spasmodic. He says, it attacks the patient after digestion is performed, when the bile has acquired its full activity, undiluted by fresh supplies of liquid, and the nerves are exposed to irritation. From numerous circumstances, it appears mostly to proceed from the stomach, but sometimes also from the duodenum. For the most part it proceeds from inattention to diet, either in respect to kind or quantity, or both; and without exact conformity to rule in this respect, medicine proves ineffectual. In general, mischief arises from eating butter and other fat substances, pepper or other spices, meat pies, rich baked puddings, drinking strong liquors, and also a very free use of malt liquor. Quantity, as well as quality of diet, is to be considered. Bile, if very acid or bitter, is a frequent cause. There are habits in which the bile, whether acid or bitter, will purge, and these this disorder rarely affects. Bitter medicines, too, are sometimes found not to agree.

In order to afford relief, an emetic, or mild cathartic, and sometimes after it an anodyne, Dr. Fothergill says, will carry off the complaint. In a few days, however, it may return, though in some a month or more, even to a year, will pass, before another fit is repeated. If disposed to costiveness, mild laxatives should be so used as to keep the belly open: where bile abounds, tincture of aloes, with a small quantity of kali, are proper. Some are also relieved by small doses of stomach-bitters, with alkali, or a chalybeate; some by mineral or vegetable acids, and a proper diet. Pil. aloes cum myrrha, or magnesia and rhubarb, in small doses, daily continued, will often prove useful in cases of bile, where the bowels are inactive.

This disease is perhaps less the effect of any sudden and accidental cause, than of reiterated errors in diet, or in conduct, which, by weakening the organs of digestion, and otherwise disordering the animal functions, have affected their secretions, so as to require a steady perseverance in the use of medicines. This change cannot, indeed, be effected speedily; it requires a patient observance of proper regimen, in respect both to medicine and diet. The former ought therefore to be so contrived as to be taken without disgust for several weeks together, and to be repeated at proper distances, till the end is obtained, digestion rightly performed, and the bile secreted and discharged as health requires; by which means, all that train of evils, which are the consequence of its detention, will be gradually removed. Unless the whole plan of diet, both in kind and quantity, are made to accord with medical prescription, the benefits arising from this are hourly annihilated by neglect or indulgence. It demands attention to observe the just medium, and no less resolution to keep to it, which the stomach invariably points out in respect to quantity. How much must be determined by every individual, and those who are happy enough to abstain at the first sensation of satiety, have made great progress in the art of maintaining such a command of appetite, as, under most chronic indispositions, is one of the greatest aids of recovery; and, in health, one of the surest preservatives against them. These patients are often subject to false appetite, a craving that does not arise from the demands of health, but from the morbid piquances of the juices in the stomach, which prompts them to eat more, and more frequently, than nature requires, whence many take more than can be digested, &c. by which their sufferings are increased, and the disease gains ground.

In the majority of instances, however, of this harrasing complaint, no medicine whatever, nor any the most rigid rules of diet, will avail. Hence, in general, patients are found to suffer patiently under its attacks; relying only on some simple means of evacuating the stomach, and the recurrence of natural sleep, for a termination of each successive paroxysm. Accident, however, has led to the discovery of particular remedies in some instances; such are, strong infusions of coffee, and even of green tea; tincture of opium in small doses, alone, or with a suitable proportion of antimonial wine, or of æther; antim. tartaris. gr. $\frac{1}{8}$ dissolved in the tea usually drunk morning and afternoon; a piece of flannel, dipped in volatile spirits, and applied to the pit of the stomach; the use of the warm-bath, &c. But it generally happens, that these remedies have not similar effects, even in cases which seem closely to resemble each other, so that all is doubt and uncertainty as to the preference due to any one. Dr. Dyce, in the Med. and Phys. Jour. recommends the *malic acid* (cyder, &c.) in the sick head-ach; and some have spoken favourably of the carbonated alkaline waters, used as common drink. See ACIDULOUS WATERS.

HEAD-MOULD-SHOT, a disease in children, wherein the sutures of the skull, generally the coronal, *ride;* that is, have their edges shot over one another: and are so closely locked together, as to compress the internal parts, the meninges, or even the brain itself. The disease is supposed to occasion convulsions, and to admit of no cure, unless room could be given, by manual operation or a divulsion of the sutures. The head-mould-shot is considered, by nurses, as the disorder opposite to the *horse-shoe-head;* but the existence of such a disease is doubted by modern practitioners in midwifery.

HEALING, in its general sense, includes the whole process of curing or removing a disorder, and recovering health. In this sense, medicine is defined the art of healing. In its more restrained sense, as used in surgery, &c. healing denotes the uniting or consolidating the lips of a wound or ulcer.

HEALTH; a proper disposition of the several constituent parts of the body, by which they are enabled to perform their respective functions, without any impediment. The continuance of health depends chiefly on what have been named the six *non-naturals*; namely, air, food, exercise, the passions, evacuation and retention, sleep and waking.

That part of the medical system which lays down rules for the preservation of health, and prevention of diseases, (anciently termed *hygeine)* is not to be strictly understood as if it respected only those people who enjoy perfect health, and who are under no apprehensions of disease, for such seldom either desire or attend to medical advice; but should rather be considered as relating to valetudinarians, or to such as, though not actually sick, may yet have sufficient reasons to fear that they will soon become so: hence it is, that the rules must be applied to correct morbific dispositions, and to obviate the various circumstances that we know to be the remote or possible causes of disease.

From the way in which the several temperaments are usually mentioned by systematic writers, it should seem as if they meant that every particular constitution must be referred to one or other of the four; but this is far from being reducible to practice, since by much the greater number of people have constitutions so indistinctly marked, that it is hard to say to which of the temperaments they belong.

When we actually meet with particular persons who have evidently either, 1. Too much strength and rigidity of fibre, and too much sensibility; 2. Too little strength, and yet too much sensibility: 3. Too much strength, and but little sensibility; or, 4. But little sensibility, joined to weakness;—we should look on such persons as more or less in the valetudinary state, who require that these morbific dispositions be particularly watched, lest they fall into those diseases which are allied to the different temperaments.

People of the first-mentioned temperament being liable to suffer from continued fevers, especially of the inflammatory species, their scheme of preserving health should consist in temperate living, with respect both to diet and exercise; they should studiously avoid immoderate drinking, and be remarkably cautious lest any of the natural discharges be checked. People of this habit bear evacuations well, especially bleeding: they ought not, however, to lose blood but when they really require to have the quantity lessened; because too much of this evacuation would be apt to reduce the constitution to the second-mentioned temperament, wherein strength is deficient, but sensibility redundant.

Persons of the second temperament are remarkably prone to suffer from painful and spasmodic diseases, and are easily ruffled; and those of the softer sex who have this delicacy of habit, are very much disposed to hysterical complaints. The object here should be, to strengthen the solids by moderate exercise, cold bathing, the cortex, and chalybeate waters; particular attention should constantly be had to the state of the digestive organs, to prevent them from being overloaded with any species of saburra which might engender flatus, or irritate the sensible membranes of the stomach and intestines, from whence the disorder would soon be communicated to the whole nervous system. Persons of this constitution should never take any of the drastic purges, nor stronger emetics; neither should they lose blood, but in cases of urgent necessity. But a principal share of management, in these extremely irritable constitutions, consists in avoiding all sudden changes of every sort, especially those with respect to diet and cloathing, and in keeping the mind as much as possible in a state of tranquillity: hence the great advantages which people of this frame derive from the use of medicinal waters drunk on the spot; because of that freedom from care and serious business of every kind, which generally obtains in all the places laid out for the reception of valetudinarians.

The third-mentioned temperament, where there is an excess of strength and but little sensibility, does not seem remarkably prone to any distressing or dangerous species of disease; and therefore it can hardly be supposed that persons so circumstanced will either of themselves think of any particular scheme of management, or have recourse to the faculty for their instructions: such constitutions, however, we may observe, bear all kinds of evacuations well, and sometimes require them to prevent an over-fulness, which might end in an oppression of the brain, or some other organ of importance.

But the fourth temperament, where we have weakness joined to want of sensibility, is exceedingly apt to fall into tedious and dangerous diseases, arising from a defect of absorbent power in the proper sets of vessels, and from the remissness of circulation in general: whence corpulency, dropsy, jaundice, and different degrees of scorbutic affection. In order to prevent these, or any other species of accumulation and depravation of the animal fluids, the people of this constitution should use a generous course of diet, with brisk exercise, and be careful that none of the secretions be interrupted, nor any of the natural discharges suppressed. These constitutions bear purging well, and often require it; as also the use of emetics, which are frequently found necessary to supply the place of exercise, by agitating the abdominal viscera, and are of service to prevent the stagnation of bile, or the accumulation of mucous humours, which hinder digestion, and clog the first passages. The free use of mustard, horse-radish, and the like sort of stimulating dietetics, is serviceable in these torpid habits.

When the general mass of fluids is accumulated beyond what is conducive to the perfection of health, there arises what the writers term a *plethora*, which may prove the source of different diseases; and therefore, when this overfulness begins to produce languor and oppression, care should be taken in time to reduce the body to a proper standard, by abridging the food and increasing the natural discharges, using more exercise, and indulging less in sleep.

But in opposite circumstances, where the fluids have been exhausted, we are to endeavour the prevention of further waste, by the use of strengthening stomachics, nourishing diet, and indulgence from fatigue of body or mind.

Vitiated fluids are to be considered as affected either with the different kinds of general acrimony, or as betraying signs of some of the species of morbific matter which give rise to particular diseases, such as gout, rheumatism, stone, scurvy, &c.

During the state of infancy, we may sometimes observe a remarkable acidity, which not only shows itself in the first passages, but also seems to contaminate the general mass of fluids. As it takes its rise, however, from weak bowels, our views, when we mean to prevent the ill consequences, must be chiefly directed to strengthen the digestive organs, as on their soundness the preparation of good chyle depends; and hence small doses of rhubarb and chalybeates (either the natural chalybeate waters mixed with milk, or the *ferrum ammoniacale*, in doses of a few grains, according to the age of the child), are to be administered; and the diet is to be so regulated as not to add to this acid tendency. Brisk exercise is likewise to be enjoined, with frictions on the stomach, belly, and lower extremities.

Where the fluids tend to the putrefactive state, which shows itself by rottenness of the teeth, sponginess and bleeding of the gums, a bloated look and livid cast; the diet then should be chiefly of fresh vegetables and ripe fruits, with wine in moderation, brisk exercise, and strengthening bitters. Where acrimony shows itself by itching eruptions, uncommon thirst, and flushing heats, nothing will answer better than such sulphureous waters as the Harrowgate and Moffat in Britain, or the Lucan and Swadlinbar in Ireland; at the same time using a course of diet that shall be neither acrid nor heating.

So far with respect to those kinds of morbific matter which do not invariably produce a particular species of disease: but there are others of a specific nature, some of which are generated in the body spontaneously, and seem to arise from errors in diet, or other circumstances of ill management, with respect to the animal economy; and hence it is sometimes possible, in some degree, if not altogether, to prevent their ill consequences. Thus, there are instances where returns of the *gout* have been prevented by adhering strictly to a milk diet. The rheumatism has also been sometimes warded off by wearing a flannel shirt, or by using the cold bath without interruption. The *stone* may be retarded in its progress, and prevented from creating much distress, by the internal use of soap and lime-water, or by soap-lees taken in milk or in veal-broth. The *scurvy* may be prevented by warm clothing and perseverance in brisk exercise, by drinking wine or cyder, and eating freely of such vegetable substances as can be had in those situations where this disease is most apt to show itself.

In constitutions where there is an hereditary disposition to the scrofula, if early precaution be taken to strengthen the solids by cold bathing, a nourishing course of diet, and moderate use of wine, the acrimony which gives rise to the disease will probably be prevented from producing any very bad effects.

The other kinds of morbific matter, which are of the specific nature, are received into the body by infection or contagion. The infection of a putrid fever or dysentery, is best prevented by immediately taking an emetic on the first attack of the sickness or shivering; and if that does not completely answer, let a large blister be applied between the shoulders: by this method the nurses and other attendants on the sick, in the naval hospitals, have often been preserved. As to other infectious or morbific matter, see the articles Hydrophobia, Poisons, &c. See also Fumigation, nitrous.

The ill effects that may arise from the different species of saburra are to be obviated, in general, by the prudent administration of emetics, and carefully abstaining from such kinds of food as are known to cause the accumulation of noxious matters in the first passages.

Crude vegetables, milk, butter, and other oily substances, are to be avoided by persons troubled with a sourness in the stomach: active exercise, especially riding, is to be used, and they are to refrain from fermented liquors: the common drink should be pure water; or water with a very little of some ardent spirit, such as rum or brandy. Seltzer and soda waters are to be drunk medicinally; and aromatic bitters, infusions, or tinctures, with the acid of vitriol, will be found serviceable, in order to strengthen the fibres of the stomach, and promote the expulsion of its contents, thereby preventing the too hasty fermentation of the alimentary mixture. In order to procure immediate relief, the *magnesia*, or *creta præparata*, will seldom fail; and these may be made into lozenges, with sugar and mucilage; and in that form carried about, and taken occasionally, by persons afflicted with the acid saburra.

In constitutions where there is an exuberance or stagnation of bile, and a troublesome bitterness in the mouth, it is necessary to keep the bowels always free, by taking occasionally small doses of aloes, *oleum ricini*, cream of tartar, some of the common purging salts, or the natural purging waters. See Acidulated waters.

When there is a tendency to the empyreumatic and rancid saburra, people should carefully avoid all oily and high-seasoned things, generally termed *made-dishes*, and eat sparingly of plain pudding, or roast and boiled meat, without rich sauces or much gravy; and in these cases the properest drink is pure water.

There can be no doubt that, in general, *temperance is the true foundation of health;* and yet the ancient physicians, as we may see in the rules laid down by Celsus, did not scruple to recommend indulgence now and then, and allow people to exceed, both in eating and drinking. But it is safer of the two, to proceed to excess in drink than in meat; for if the former should create any extraordinary degree of pain or sickness, or a temporary fever should ensue, there are two ways of shaking it off, either to lie in bed and encourage perspiration, or to get on horseback, and by brisk exercise, restore the body to its natural state. The choice of these two methods must always be determined by the peculiar circumstances of the parties concerned, and from the experience which they may have had which agrees best with them.

If a person should commit excess in eating, especially of high-seasoned things, with rich sauces, a draught of Seltzer water, or of simple water, acidulated with vitriolic acid, or with vitriolic æther, will take off the sense of weight at the stomach, and assist digestion, by moderating and keeping within bounds the alimentary fermentation, and thus preventing the generation of flatus. The luxury of ices may be here of real service at the tables of the great, as producing similar effects with the cold water acidulated. Persons, in these circumstances, ought not to lay themselves down to sleep, but should keep up and exercise until they are sensible that the stomach is unloaded, and that they no longer feel any oppressive weight about the præcordia.

If a man is obliged to fast, he ought, if possible, during the time, to avoid laborious work: after suffering severe hunger, people ought not at once to gorge and fill themselves; nor is it proper, after being overfilled, to enjoin an absolute fast: neither is it safe to rest totally immediately after excessive labour, nor suddenly fall to hard work after having been long without motion. In a word, all changes should be made by gentle degrees; for though the constitution of the human body be such that it can bear many alterations and irregularities without much danger, yet, when the transitions are extremely sudden, they cannot fail of producing some kind or degree of disorder.

It is also the advice of Celsus, to vary the scenes of life, and not confine ourselves to any settled rules: but as inaction renders the body weak and listless, and exercise gives vigour and strength, people should never long omit riding, walking, or going abroad in a carriage: fencing, playing at tennis, or dancing, as each shall be found most agreeable and convenient, are to be used in their turns, according to the circumstances and tendency to any particular species of disease. But when the weakness of old age shall have rendered the body incapable of all these, then dry frictions, with the flesh-brush, will be extremely requisite to preserve health, by accelerating the flow of humours through the smallest order of vessels, and preventing the fluids from stagnating too long in the cellular interstices of the fleshy parts.

Sleep is the great restorer of strength; for, during this time, the nutritious particles appear to be chiefly applied to repair the waste, and replace those that have been abraded and washed off by the labour and exercise of the day: but too much indulgence in sleep has many inconveniences, both with regard to body and mind, as it blunts the senses, and encourages the fluids to stagnate in the cellular systems; whence corpulency, and its necessary consequences, languor and weakness.

The proper season for sleep is the night season, when darkness and silence naturally brings it on: therefore day-sleep, in general, is not so refreshing; and to some people is really distressful, as creating an unusual giddiness and languor, especially in persons addicted to literary pursuits. Custom, however, frequently renders sleep in the day necessary; and in those constitutions where it is found to give real refreshment, it ought to be indulged.

With regard to the general regimen of diet, it has always been held as a rule, that the softer and milder kinds of aliment are most proper for children and younger subjects; that grown persons should eat what is more substantial; and old people lessen their quantity of solid food, and increase that of their drink.

HEARING, one of the senses, which is placed by physiologists among the animal actions. It is that sensation which is produced by the sound of sonorous bodies. As the sense of hearing perceives the elastic tremors or impulsions of the air, so we observe the sensitive organ of the ear to be composed in a different manner from that of any of the other senses. It consists, for the most part, either of hard bones, or elastic cartilages and membranes, which are the most exquisitely enabled to receive and communicate the necessary tremors. As we have already described the parts that compose this complicated organ (see their several names, and the article Ear), we shall here speak of its physiology.

The sonorous pulses of the air flow into the external ear, and these, from the known principles of mechanics, are by it collected together. Elastic air receives, and is the principal means of transfering, sonorous tremors; for sound is increased in condensed air, and is lost in vacuo. Other bodies, however, have the property of conveying sound; and Dr. Monro has shown, in his Physiology of Fishes, that water conveys sound nearly as quick as the atmosphere. The transfering medium receives these tremors, either from some body striking against it, or from the medium itself colliding against another body, or lastly, from the collision of two bodies against each other. Every particle of the body which produces sound, ought to tremble or vibrate in such a manner as alternately to elevate and depress its plain surface into the form of arches or curves, so as to produce the abovementioned sonorous waves. These oscillations or impulsions of the air are required to succeed each other with a certain velocity; and, in order to render them audible, they must not be fewer than thirty in a second.

Acute sounds are, in general, produced from bodies that are hard, brittle, and violently shaken or struck; but grave sounds from bodies of a contrary nature. Those sounds, in general, are called *acute*, which are produced from more numerous tremors in an equal time; and those *obtuse* or *grave*, which are produced from few tremors. As to any medium between acute and grave sounds, there is none but what is arbitrary. Cords, or other bodies, that yield the same number of vibrations in a given time, are said to be in *unison;* if one cord vibrates twice while another vibrates once, it produces an *octave;* if one vibrates thrice while the other vibrates twice, it produces a *fifth;* and other proportions between the number of vibrations produce different tones or notes. Shorter cords produce sharper tones, and the contrary; and the tensions being the same, the sharpness of the tones will be inversely proportioned to their lengths. The lengths being the same, the sharpness will be in the subduplicate proportion of the stretching force. Experiments to this purpose are very easily made with a monochord, or a series of cords stretched with weights.

The sound thus produced, whether acute or grave, strong or weak, is carried through the air with a velocity equal to about 1142 feet in a second, or above 13 miles in a minute; and that with an uniform velocity, without abating in the larger distances; but a contrary wind, causing the vibrations to extend more slowly, retards the progress of sound about one-twelfth of its velocity. Density and dryness of the air increase the sound, as a rarefaction and moisture of the air lessen it. Hence, in summer time, sounds move swifter; and in Africa it has been observed to pass at the rate of 1170 feet in a second.

The sound, thus every way extended, meets with certain particles in all adjacent bodies, even in water and mercury, to which it communicates similar tremors or vibrations; not only to such as are in unison with the original tone, but also to others. From hence it is, that every sound which we hear is a mixture of the original tone, produced by the trembling body, in conjunction with secondary tones, generated from the elastic tremors of the surrounding bodies. The strength of sound is increased, if one audible or primary tone follows the other so closely, that their succession cannot be distinguished by the ear; but, if they follow each other so slowly as to be distinguished by the ear, they produce an echo; but, to produce this, requires an interval of six-thirds of time, or the distance of 55 feet between the echoing body and the ear.

The sonorous waves of the elastic air, being driven into the cartilaginous funnel of the ear, are repelled and collected together, by alternate reflections from its elastic sides, into the cavity of the concha, whence they proceed through the auditory passage; where their force is increased (in proportion to the difference between the surface of the outer ear and the area of the passage), by being contracted into so narrow a compass. They are likewise increased by new sounds from the percussion of the elastic cartilages and hard bones, which mix imperceptibly with the primitive sounds.

The bottom or end of the auditory passage is terminated internally by the *membrana tympani;* which, Haller says, is not naturally perforated, as far as he has been able to discover; and the transmission of tobacco-smoke from the mouth through the ear is fabulous. Authors, in general, agree with him now in the former of these opinions; but, that an accidental opening has sometimes happened, and that the smoke of tobacco has been blown through it during life, is certain. Upon the surface of this membrane, and more especially upon its conical cavity pointed inward, the sonorous waves strike, after they have received their last reflections from the auditory passage, by which the elastic fabric of this membrane is supposed to be forced into oscillation.

The membrane is stretched over the *tympanum*, containing the little bones to which the small muscles of the internal ear are fixed. By means of the tensor of the malleus, the membrane of the tympanum is the better disposed to hear weak sounds; and the other muscle serves to moderate those that are too violent, by drawing the malleus from the incus; by which means the propagation of the sonorous tremors is interrupted. If the membrane of the tympanum be broken, or the bones of hearing dislocated, the person becomes at first hard of hearing, and afterwards, says Dr. Haller, perfectly deaf. There have been instances, however, where the membrana tympani has been partly destroyed, and yet the person has retained the sense of hearing, nearly, if not quite, as distinctly as before. See Tympanum.

The malleus returns the tremors impressed upon the membrane of the tympanum, to the incus, which sends it inwards to the next bones.

The *stapes*, aptly enough so called from its figure, lies inclined, and is covered by its own muscle, which seems to draw it upward, so that it may lie higher, under the back part of the fenestra ovalis, and pass out of it before. Thus the nervous pulp of the vestibulum is pressed by the basis of the stapes, and by the air of the tympanum; and the *Eustachian tube*, by the action of the circumjacent muscles, may be compressed and closed, and probably a little relaxed and opened again, by the circumflex muscle of the moveable palate. By this canal the inspired air enters into the tympanum, to be changed or renewed: and it also serves to convey the mucus that covers the little bones and the tympanum: nor is it at all improbable, that the air enters by this tube, to support the tympanum when it is pressed inward by the more violent sounds; for sounds themselves, received into the mouth, are this way conveyed to the organ of hearing. In inspiration, the air presses the membrane of the tympanum outward; and from thence proceeds that clashing or whispering noise, by which the hearing is obscured, in yawning; for then the air entering more abundantly through the cavity of the tube, to the tympanum, resists the tremors of the external air.

With respect to the nerve which is distributed through the vestibulum and semicircular canals, there is no doubt but it is struck by the tremors of the external air, propagated to the stapes; from whence the tremors immediately pass through the fenestra ovalis, to press upon the naked pulp of the nerve; and it is probable that the spiral plate of the cochlea, spread full of nerves, is agitated with tremors from the oscillations of the membrane of the tympanum, by which the air in the cavity of the tympanum is agitated, so as to press the membrane of the fenestra rotunda, which again agitates the air contained in the cochlea.

This conjecture is, at least, plausible; since the spiral plates form a triangle, with a very acute vertex, on whose surface it is possible that a number of transverse nervous cords may be stretched; and these cords, being of different lengths, will be in unison with a variety of tones, so as to tremble isochronally with them; namely, the longest cords in the basis of the cochlea with grave sounds; and the shortest cords, nearer the tip or apex, with sharper sounds. Query—are sounds perceived in the middle semicircular canals, since these alone are found in all classes of animals? Are they detained in these canals, in the cochlea, and by the membrane suspended through the vestibulum? This some have thought to be the case.

From what has been said, it appears that the elastic waves or tremors of the air come through the outer and auditory paſſage, to the membrane of the tympanum; which last being injured, one would think the hearing in a great measure would be lost. This seems to be stretched, for hearing weak sounds, by the muscles of the malleus. From this membrane the sound is conveyed through the small bones to the vestibulum; for, these bones being destroyed, the hearing is quite abolished. The bony sides of the vestibulum, by their tremulation, agitate the small quantity of aqueous fluid surrounding the nervous pulp. It seems to be struck by the nervous pulp suspended in the vestibulum, and that tremor seems to be continued through the continuous pulp of the cochlea and semicircular canals. Of more than this we are not certain; but, by undoubted experiments, tremors, and even elastic sounds, communicate themselves by the internal Eustachian tube, and through all the bones of the skull, so as to impress their force upon the auditory nerve.

The distinction of sounds proceeds from the celerity of the tremors excited in the auditory nerve, according as they succeed each other more or less swiftly. It is not necessary that the mind should number them; it is sufficient that we perceive their numbers to be different, and that this difference excites a variation in the thoughts and ideas thence arising. Does the harmony or agreeableness of sounds arise from the number of parts sounding together in unison? and does the mind number the degrees of consonance, so as to please herself in a majority of them? These are questions denied by the most expert musicians, who make it appear, that there is an agreeableness, and that very considerable, in sounds approaching the least to a consonance, and which are in a proportion very difficult to determine. Why do sounds often become too sharp for the ear? because our auditory nerves seem to be so strained upon the spiral plates, as to be in danger of breaking. Thus, drinking glasses are broken by sharp sounds; and the hearing is sometimes almost lost for a while by the violently shrill whistlings of the inhabitants of the Canary islands.

HEART, the most important of the viscera in man as well as in all other warm-blooded animals, since it is the immediate fountain of life.

1. The *heart* is a muscular body, situated in the cavity of the thorax, on the anterior part of the diaphragm, between the two laminæ of the mediastinum. It is nearly of a conical figure, flatted on the sides, round at the top, and oval at the basis. Besides its apex, it has two edges, the one right and the other left; and two sides, one of which is generally flat and inferior, the other more convex and superior.

Besides the muscular body, which chiefly forms what what we call the heart, its basis is accompanied by two appendices, called *auricles*, and by large blood vessels, of which elsewhere: and all these are included in the pericardium.

2. *Ventricles.*—The heart is hollow within, and divided by a septum which runs, between the edges, into two cavities, called *ventricles;* one of which is thick and solid; the other thin and soft. This latter is generally termed the *right ventricle*, the other the *left ventricle;* though, in their natural situation, the right ventricle is placed more anteriorly than the left, as we shall see hereafter. Each ventricle opens at the basis by two orifices; one of which answers to the auricles, the other to the mouth of a large artery; and accordingly one of them may be termed the *auricular orifice*, the other the *arterial orifice.* The right ventricle opens into the right auricle, and into the trunk of the pulmonary artery; the left into the left auricle, and into the great trunk of the aorta. At the edges of these orifices are found several moveable pelliculæ, called *valves* by anatomists; of which some are turned inward toward the cavity of the ventricles, called *tricuspides;* others are turned toward the great vessels, called *semilunares*, or *sigmoidales.* The valvulæ tricuspides of the left ventricle are likewise termed *mitrales.*

The inner surface of the *ventricles* is very uneven, many eminences and cavities being observable in it. The most considerable eminences are thick fleshy productions, called *columnæ*. To the extremities of these pillars are fastened several tendinous cords, the other ends of which are joined to the valvulæ tricuspides. There are likewise other small short tendinous ropes, along both edges of the septum, between the ventricles. These small cords lie in an oblique transverse situation, and form a kind of net work at different distances. The cavities of the inner surface of the ventricles are small deep fossulæ, or lacunæ, placed very near each other, with small prominent interstices between them. The greatest part of these lacunæ are orifices of the venal ducts, to be described hereafter.

The fleshy or muscular fibres, of which the heart is made up, are disposed in a very singular manner, especially those of the right or anterior ventricle; being either bent into arches or folded into angles. The fibres which are folded into angles are longer than those which are only bent into arches. The middle of these arches, and the angles of the folds, are turned toward the apex of the heart, and the extremities of the fibres toward the basis. These fibres differ not only in length, but in their directions, which are very oblique in all, but much more so in the long or folded fibres than in the short ones, which are simply bent.

All these fibres, regard being had to their different obliquity and length, are disposed in such a manner, as that the longest form partly the most external strata on the convex side of the heart, and partly the most internal on the concave side; the middle of the arches and the angles meeting obliquely and successively to form the apex. The fibres situated within these long ones grow gradually shorter and straighter all the way to the basis of the heart, where they are very short, and very little incurvated. By this disposition the sides of the ventricles are very thin near the apex of the heart, and very thick toward the basis.

Each ventricle is composed of its proper distinct fibres; but the left ventricle has many more than the right, its substance being considerably thicker. Where the two ventricles are joined, they form an impervious septum which belongs equally to both. Opposite to this septum a groove is seen on the outside of the heart; one running longitudinally on its upper, the other on its under surface: in these grooves the great branches of the coronary arteries and veins are lodged.

There is this likewise peculiar to the left ventricle, that the fibres which form the innermost stratum of its concave side, form the outermost stratum of the whole convex side of the heart, which consequently is common to both ventricles; so that, by carefully unravelling all the fibres of the heart, we find it to be made up of two bags contained in a third.

The anterior or right ventricle is somewhat larger than the posterior or left, as was well observed by the ancients, and clearly demonstrated by Helvetius. The left is a little longer than the right, and in some subjects they end exteriorly in a kind of double apex. But it appears from experiments, that the inequality between the parts of the right and those of the left side of the heart are not so great during life as after death; for, in the hearts of animals killed by cutting across the vessels of the neck, and in those of persons who have died in battle from a wound in the vena cava or pulmonary artery, the inequality is less than we commonly find it. This was first observed by M. Vieussens, professor of anatomy at Altorf. Sabatier also made numerous experiments on animals, the result of which is nearly the same with that mentioned above.

All the fibres are not directed the same way, though they are all more or less oblique: for some end toward the right, others toward the left, some forward, some backward, and others in the intermediate places; so that, in unravelling them, we find that they cross each other gradually, sometimes according to the length of the heart, and sometimes according to its breadth. The tubes which cross each other transversely are much more numerous than those which cross longitudinally; which ought to be taken notice of, that we may rectify the false notions that have been entertained concerning the motion of the heart, namely, that it is performed by a contortion or twisting like that of a screw, or that the heart is shortened in the time of contraction, and lengthened in dilatation. The fibres which compose the inner or concave surface of the ventricles do not all reach to the basis, some of them running into the cavity, and there forming the fleshy columnæ, to which the loose floating portion of the tricuspidal valves is fastened by tendinous bands.

Besides these fleshy pillars, which have been named *carneæ columnæ* by anatomists, the internal fibres form a great many eminences and depressions, which not only render the inner surface of the ventricles uneven, but give it a great extent within a small compass. Some of these depressions are the orifices of the venal ducts, found in the substance of the ventricles, which have been already mentioned. The circumferences of the great opening at the basis of the heart are tendinous, and may be looked upon as the common tendon of all the fleshy fibres of which the ventricles are composed.

3. *Valves.*—The valves at the orifices of the ventricles are of two kinds: one kind allows the blood to enter the heart, and hinders it from going out the same way; the other kind allows the blood to go out of the heart, but hinders it from returning. The valves of the first kind terminate the auricles; and those of the second lie in the openings of the great arteries. The first are termed *semilunar* or *sigmoidal valves:* the others, *triglochines*, *tricuspidal*, or *mitral.*

The tricuspidal valve of the right ventricle is of a circular form, and is fixed to the opening of the auricle, while the other end is attached to the internal surface of the ventricle. The circular membrane of the valve soon divides into many parts, three of which are more considerable than the rest; and these have got the name of *tricuspid valves*, though they are now generally considered as forming one. That which is next the mouth of the pulmonary artery is the largest, and some anatomists think that it prevents the blood from getting into the artery while the ventricle is filling. It has three triangular productions, very smooth and polished on that side which is turned toward the auricle;

but on the side next the cavity of the ventricle, they have several membranous and tendinous expansions, and their edges are notched or indented. The valve of the auricular orifice of the left ventricle is of the same shape and structure, but it is only divided into two parts; and, from some small resemblance to a mitre, has been named *mitralis.* That which is next the mouth of the aorta is the largest.

The *semilunar valves* are six in number, three belonging to each ventricle, situated at the mouths of the great arteries; and they may be properly enough named *valvulæ arteriales.* Their concave sides are turned toward the cavity of the arteries, and their convex sides approach each other. In examining them with a microscope, we find fleshy fibres lying in the duplicature of the membranes of which they are composed. They are truly semilunar, or in form of a crescent, on that side by which they adhere; but their loose edges are of a different figure, each of them representing two small crescents; the two extremities of which meet at the middle of this edge, and there form a kind of small papilla, first described by Arantius, and afterwards by Morgagni, and therefore named from them.

4. *Large vessels.*—The great artery that goes out from the left ventricle, is termed *aorta.* As it goes out, it turns a little toward the right, and then bends obliquely backward, to form what is called *aorta descendens;* which we shall have occasion to mention hereafter. At the beginning of the aorta, and behind the semilunar valves, three elevations are observed on the outside: these correspond to an equal number of pits on the inside, which, from their discoverer, have been called *sinuses of Valsalva.* Their use is not well known. From about the middle of the convex side of this curvature three great branches arise, which furnish an infinite number of ramifications to the head and upper extremities of the body; as the descending aorta does, in the same manner, to the thorax, abdomen, and lower extremities.

The trunk of the artery which goes out from the right ventricle is called *arteria pulmonaris.* This trunk, as it is naturally situated in the thorax, runs first of all directly upward for a small space; then divides laterally into two principal branches, one for each lung; that which goes to the right lung being the longest, for a reason that shall be given hereafter.

5. *Auricles.*—These are muscular bags situated at the basis of the heart, and their capacities are in proportion to those of their respective ventricles; one towards the right ventricle, the other towards the left, and joined together by an inner septum and external communicating fibres, much in the same manner with the ventricles; one of them being named the *right auricle,* the other the *left.* They are very uneven on the inside, but smoother on the outside; and terminate in a narrow, flat, indented edge, representing a cock's comb, or in some measure the ear of a dog. This properly gets the name of *auricle,* the larger and smooth part of the cavity being called *sinus venosus;* but, as the two parts make one general cavity, the name of *auricle* is commonly applied to the whole. They open into the orifices of each ventricle, called *auricular orifices;* and they are tendinous at their opening, in the same manner as the ventricles.

The right auricle is larger than the left; and it joins the right ventricle by a common tendinous opening, as has been already observed. It has two other openings united into one, and formed by two large veins which meet and terminate there, almost in a direct line, called *vena cava superior* and *inferior.* Highmore has described an eminence in form of a valve, placed between the mouths of the two venæ cavæ: this he supposes to direct the blood from the veins into the auricle. Afterwards Lower described and delineated it; and other anatomists have called it *tuberculum Loweri,* till Morgagni denied its existence in the human subject. At the mouth of the inferior cava we find a membrane in form of a crescent, described by Eustachius, and named from him. Its convex edge is fixed to the union of the vein and the right auricle, while its concave edge is turned upwards over the mouth of the vein. It is most complete in the fœtus; but it is found likewise in persons of advanced age, though it sometimes, from use, has a reticular appearance. It is said to prevent the blood in the auricle from returning into the cava; but it has a different use in the fœtus. The notched edge of this auricle terminates obliquely in a kind of obtuse point, which is a small particular production of the great bag, and is turned toward the middle of the basis of the heart.

The whole inner surface of the right auricle is uneven, by reason of a great number of prominent lines which run across the sides of it, and communicate with each other by smaller lines, which lie obliquely in the interstices between the former. The lines of the first kind represent trunks; and those of the other, small branches in an opposite direction to each other. In the interstices between these lines, the sides of the auricle are very thin, and almost transparent, seeming to be formed merely by the external and internal coats of the auricle joined together, especially near the point.

The left auricle is, in the human body, a kind of muscular bag or reservoir, of a considerable thickness, and unequally square, into which the four venæ pulmonares open, and which has a distinct appendix belonging to it, like a third small auricle. This bag is very even on both surfaces, and is therefore called *sinus venosus;* but, to distinguish it from the one on the right side, it is called *sinus venosus sinister.* However, the bag and appendix have but one common cavity; and therefore they may still be both comprehended under the common name of the *left auricle.* In men, the small portion may likewise be named *the appendix of the left auricle;* but, in other animals, the case is different.

This small portion or appendix of the left auricle is of a different structure from that of the bag or large portion. Exteriorly, it resembles a small oblong bag, bent different ways, and indented quite round the edges. Interiorly, it is like the inside of the right auricle. The whole common cavity of the left auricle is smaller in an adult subject than that of the right; and the fleshy fibres of this left auricle cross each other obliquely, in strata differently disposed.

6. *Coronaries.*—Besides the great common vessels, the heart has vessels peculiar to itself, called *the coronary arteries* and *veins*, because they in some measure crown the basis of the heart. The coronary arteries, which are two in number, go out from the beginning of the aorta, and afterwards spread themselves round the basis of the heart, to the substance of which they send numerous ramifications.

Vieussens believed that some of the branches of the coronary artery opened into the cavities of the ventricles and auricles; for, by throwing a fine injection into these arteries, he found it run out on all sides of the right ventricle and auricle. Thebesius being nearly of the same opinion, endeavoured to prove, that there were veins which carried part of the blood from the coronary arteries immediately into the cavities of the heart; and these have therefore got the name of *veins of Thebesius*, though he is not the first discoverer. Winslow, Haller, and several others, describe such veins; but Duverney, after injecting the heart of an elephant, doubts of their existence. Senac, who has paid much attention to this subject, denies it altogether; and Sabatier coincides with him in opinion.

There are seldom more than two arteries; of which one lies toward the right, the other toward the left of the anterior third part of the circumference of the aorta. The right coronary artery runs in between the basis and right auricle, all the way to the flat side of the heart, and so goes half way round. The left artery has a like course between the basis and left auricle; and, before it runs on the basis, it sends off a capital branch, which runs in between the two ventricles. Another principal branch goes off from the union of the two arteries on the flat side of the heart: this, running to the apex, there joins the other branch.

The coronary veins are distributed exteriorly, much in the same manner. The largest opens into the posterior inferior part of the right auricle, by an orifice which is furnished with a valve, first described by Eustachius. Besides the coronary veins, the heart has other anterior veins, which have been called by Vieussens *venæ innominatæ*. Some of them go into the right auricle, others end in the right ventricle; and there are other veins still smaller, which are found in the substance of the heart, and which terminate in the right auricle.

7. *Nerves.*—These are derived from the par vagum and great sympathetics. They form the cardiac plexus, which sends off branches to the pericardium, to the roots of the great vessels, and are spent at last on the different parts of the heart.

With regard to the *particular situation of the heart*, Dr. Monro observes, that it lies almost transversely on the diaphragm, the greatest portion being in the left cavity of the thorax, and the apex turned toward the bony extremity of the sixth true rib. The basis is toward the right cavity; and both auricles, especially the right, rest on the diaphragm; but the situation of the heart during life, changes a little, according to the state of respiration, and to the position of the body.

The origin or basis of the pulmonary artery is, in this natural situation, the highest part of the heart on the foreside; and the trunk of this artery lies in a perpendicular plane, which may be conceived to pass between the sternum and the spina dorsi. Therefore some part of the basis of the heart is in the right cavity of the thorax; and the rest, all the way to the apex, is in the left cavity; and it is for this reason that the mediastinum is turned toward that side.

According to this true and natural situation of the heart, the parts commonly said to be on the *right* side are rather *anterior*, and those on the *left* side *posterior;* and that side of the heart which is thought to be the foreside is naturally the upper side, and the backside consequently the lower side. The lower side is very flat, lying wholly on the diaphragm; but the upper side is a little convex through its whole length, in the direction of the septum between the ventricles. And it may be proper here to remark, that, though commonly received terms of art may be still retained, yet it is necessary to prevent their communicating false ideas to those who have not had an opportunity of making observations themselves, or of being instructed by others.

The heart, and the parts which belong to it, are the principal instruments of the *circulation of the blood.* Dr. Monro considers the two ventricles as two syringes, so closely joined together as to make but one body, and furnished with suckers placed in contrary directions to each other, so that by drawing one of them, a fluid is let in, and forced out again by the other.

The heart is composed of a substance capable of contraction and dilatation. When the fleshy fibres of the ventricles are contracted, the two cavities are lessened in an equal and direct manner, not by any contortion or twisting, as the false resemblance of the fibres to a figure of 8 has made anatomists imagine. For, if we consider attentively in how many different directions, and in how many places, these fibres cross each other, as has been already observed, we must see clearly that the whole structure tends to make an even, direct, and uniform contraction, more according to the breadth or thickness, than according to the length of the heart; because the number of fibres situated transversely, is much greater than the number of longitudinal fibres.

The fleshy fibres thus contracted do the office of pistons, by pressing upon the blood contained in the ventricles; which blood being thus forced toward the basis of the heart, presses the tricuspidal valves against each other, opens the semilunares, and rushes with impetuosity through the arteries and their ramifications, as through so many elastic tubes.

The blood thus pushed out by the contraction of the ventricles, and afterwards pressed by the elastic arteries, enters the capillary vessels, and is from thence forced to return by the veins to the auricles, which, like receptacles, porches, or antichambers, receive and lodge the blood returned by the veins during the time of a new contraction. This contraction of the heart is, by anatomists, termed *systole.*

The contraction or systole of the ventricles ceases immediately, on the relaxation of their fleshy fibres;

and, in that time, the auricles which contain the venal blood, being contracted, force the blood through the tricuspidal valves into the ventricles, the sides of which are thereby dilated, and their cavities enlarged. This dilatation is termed *diastole*, but the effects of both these will be considered under Circulation.

In Pl. V. Fig. 1, represents the heart and its principal vessels. *a*, Is its left side, exhibiting the coronary vessels on the surface. *b*, Part of the right auricle. *c*, The left auricle. *d*, The apex. *e*, The trunk of the vena cava. *f*, The pulmonary artery, which conveys the blood into the lungs from the right ventricle. *g*, The pulmonary vein, which conveys the blood from the lungs into the left auricle and ventricle. *h*, The aorta, springing from the left ventricle.

Fig. 2, shows the heart, with its left ventricle laid open. *a*, The inside of the pulmonary vein. *b*, The aorta laid open. *c*, The septum which divides the two ventricles. *d*, The left auricle, and trunk of the pulmonary vein. *h*, Trunk of the pulmonary artery. *e e*, Two of the three semilunar valves of the aorta, expanded, as when preventing the regurgitation of the blood during the heart's diastole. *f f*, The two mitral valves of the pulmonary vein. *g g g*, Carneæ columnæ.

Fig. 3. The heart with its right ventricle exposed. *a*, The inside of the right auricle. *b*, The left auricle entire. *c*, The coronary vessels. *d*, Part of the right ventricle laid open. *e*, A portion of the pulmonary artery expanded. *f f f*, The three semilunar or sigmoid valves.

The motions of the heart and arteries constitute what is called the pulse. See Pulse. This important viscus is not only liable to morbid affection from secondary causes, but is liable to topical diseases, few of which, however, can exist long, so immediately necessary to life are its functions, without producing a fatal result. Dilatation of its cavities, which is slowly augmented, may be, and often is, endured for a time, as well as morbid irregularities arising from aneurisms of its principal vessels; but their terminations are uniformly fatal, as appears from various cases upon record, nor, in the present state of medicine, are we provided with any remedies for their alleviation.

Various affections of the heart are spoken of under Carditis, Angina Pectoris, Fever, &c.

HEART-BURN. See Cardialgia.

HEART'S-EASE. See Viola tricolor.

HEAT. See Caloric, Animal heat, Temperature, and Fire.

HEAT, ABSOLUTE; a term applied to the whole quantity of caloric existing in a body in chemical union.

HEAT, ANIMAL. See Animal heat. The heat of animals is very various, both according to the variety of their kinds, and the difference of the seasons; accordingly, zoologists have divided them into hot and cold-blooded, reckoning those to be hot that are near or above our own temperature, and all others cold whose heat is below ours, and consequently affect us with the sense of cold; thus making the human species a medium between the hot and cold-blooded animals, or at least the lowest order of the hot-blooded.

The heat of the human body, in its natural state, according to Boerhaave, is such as to raise the mercury in the thermometer to 92° or at most to 94°; and Dr. Pitcairn makes the heat of the human skin the same. Indeed it is evident that different parts of the human body, and its different states, as well as the different seasons, will make it show of different temperatures. Thus, by various experiments at different times, the heat of the human body is thus estimated by the following authors:

Boerhaave and Pitcairn - - -	92°
Amontons - - - -	91, 92, or 93
Sir Isaac Newton - - - -	95½
Fahrenheit and Musschenbroek, the blood	96
Dr. Martine, the skin - - -	97, or 98
———, the urine - - - -	99
Dr. Hales, the skin - - - -	97
———, the urine - - - -	103
Mr. John Hunter, under his tongue, -	97
———, in his rectum - -	98½
———, his urethra at 1 inch, -	92
at 2 inches, -	93
at 4 inches, -	94
The ball of the therm. at the bulb of the urethra	97

For the powers of animals to bear various degrees of heat, ascertained by many experiments, see the Philos. Trans. vol. 65, 68, &c.

There is hardly any subject of philosophical investigation that has afforded a greater variety of hypotheses, conjectures, and experiments, than the cause of animal heat. Dr. Black supposed that animal heat is generated altogether in the lungs by the action of the air on the principle of inflammability, and is thence diffused over the rest of the body by means of the circulation. But Dr. Leslie urges several arguments against this hypothesis, tending to show that it is repugnant to the known laws of the animal machine; and he advances another hypothesis, instead of it, viz. that the subtile principle, by chemists termed phlogiston, which enters into the composition of natural bodies, is, in consequence of the action of the vascular system, gradually evolved through every part of the animal machine, and that during this evolution heat is generated. This opinion, he candidly acknowledges, was first delivered by Dr. Duncan of Edinburgh; and that something similar to it is to be found in Dr. Franklin's works, and in a paper of Dr. Mortimer's in the Philosophical Transactions.

HEAT, FREE. If the heat which exists in any substance be not confined, or prevented from quitting that substance, and combining with others that surround it, then such heat is said to be free, or *sensible*, until the equilibrium is restored. See Caloric.

HEAT, LATENT. When any body is in equilibrio with the bodies which surround it, with respect to its heat, that quantity which it contains is not perceptible by any external sign or by the organs of sense, and is therefore termed combined, or latent heat. See Caloric.

HEAT, SENSIBLE. See Heat, free.

HEAT, SPECIFIC. The property of certain bodies to acquire different quantities of caloric, indicating the same temperature to the thermometer, was termed, by Dr. Black, *the capacity of a body for heat;* and the quantity of caloric itself he called specific heat.

HECTIC FEVER, a frequent disease reckoned by Dr. Cullen to be merely symptomatic; as indeed seems very probable, since it very generally accompanies absorptions of pus into the blood from internal suppurations, or indeed from such as are external, provided they be very large or of a bad kind. He describes it "a fever returning every day, with meridian and evening accessions; a remission in the morning, but seldom a total freedom from fever; for the most part attended with night sweats, the urine depositing a furfuraceous, lateritious, sediment."—To which he adds, that as all nosologists have admitted the *hectic* amongst the number of fevers, he has given its character; but that he never had observed a fever of this sort, except as a symptomatic one, therefore he could not admit it to be enumerated amongst idiopathic fevers. In many examples given by Sauvages, it is manifest, that the species of this fever are in fact symptomatic. It may be called *febris remittens chronica non critica*, as it has no crisis, and is of long continuance. Dr. Heberden describes the appearance of the hectic fever as not unlike that of the genuine intermittent, from which, however, it very much differs in reality, while at the same time it is much more dangerous. In the true intermittent, the three stages of cold, heat, and sweat, are far more distinctly marked, the whole fit is much longer, the period which it observes is more constant and regular, and the intermissions are more perfect, than in the hectic fever. For in the latter, even in the clearest remission, there is usually a feverish quickness perceptible in the pulse, which seldom fails to exceed the utmost limit of a healthy one by at least ten strokes in a minute.

The chillness of the hectic fever is sometimes succeeded by heat, and sometimes immediately by a sweat without any intermediate state of heat. The heat will sometimes come on without any remarkable chillness preceding; and the chillness has been observed to go off without being followed either by heat or sweat. The duration of these stages is seldom the same for three fits together; and as it is not uncommon for one of them to be wanting, the length of the whole fit must vary much more than in the true intermittent; but in general it is much shorter. A patient subjected to hectic fever is little or nothing relieved by the coming on of the sweat; but is often as anxious and restless under it as during the chillness or heat. When the sweat is over, the fever will sometimes continue; and in the middle of the fever the chillness will return; which is a most certain mark of this disease.

The hectic fever will return with great exactness, like an intermittent, for two or perhaps three fits; but Dr. Heberden says he does not remember ever to have known it keep the same period for four fits successively. The paroxysm will now and then keep off for ten or twelve days; and at other times, especially when the patient is very ill, it will return so frequently on the same day, that the chillness of a new fit will follow immediately the sweat of the former. It is not unusual to have many threatenings of a shivering in the same day; and some degree of drowsiness is apt to attend the cessation of a fit.

The urine, in a true intermittent, is clear in the fits and turbid in the intervals; but in the hectic fever it is liable to all kinds of irregularity. It will be equally clear or turbid in both stages, or turbid in the fits and clear in the intervals; and sometimes it will be, as in a true intermittent, clear during the fever, and thick at the going off.

Hectic patients often complain of pains like those of the rheumatism; which either affect by turns almost every part of the body, or else return constantly to the same part; which is often at a great distance from the seat of the principal disorder, and, as far as is known, without any peculiar connection with it. Those pains are so violent in some patients, as to require a large quantity of opium. As far as Dr. Heberden has observed, they are most common where the hectic arises from some ulcer open to the external air, as in cancers of the face, breast, &c. Joined with this fever, and arising probably from one common cause, he has been surprised to see swellings of the limbs, neck, or trunk of the body, rise up almost in an instant, as if the part was all at once grown fatter. These swellings are not painful, hard, or discoloured, and they continue for several hours.

This fever will attack those who seemed in tolerable health, in a sudden and violent manner, like a common inflammatory one; and like that, also, in a very short time bring them into imminent danger of their lives; after which it has begun to abate, and to afford hopes of a perfect recovery. But though the danger might be over for the present, and but little of a fever remain; yet that little has soon demonstrated, that it was kept up by some great mischief within; and, proving unconquerable by any remedies, has gradually undermined the health of the patient, and never ceased except with his life. This manner of its beginning, however, is extraordinary. It much oftener dissembles its strength at first; and creeps on so slowly, that the subjects of it, though they be not perfectly well, yet, for some months, hardly think themseves ill; complaining only of being sooner tired with exercise than usual, of want of appetite, and of falling away. But gentle as the symptoms may seem, if the pulse be quicker than ordinary, so as to have the artery to beat 90 times and perhaps 120 times in a minute, there is the greatest reason to be apprehensive of the event. In no disorder, perhaps, is the pulse of more use to guide our judgment than in the hectic fever; yet even here we must be upon our guard, and not trust entirely to this criterion; for one in about twenty patients, with all the worst signs of decay from some incurable cause, which irresistibly goes on to destroy his life, will show not the smallest degree of quickness, nor any other irregularity of the pulse, to the day of his death.

Mr. Hunter considers this disease as one of the remote constitutional sympathetic affections, arising from an origin very different from the other sympathizing effects which he has described in his Treatise on the Blood, &c. "When it is a consequence," says he, "of a local disease, it has commonly been preceded by the first process of the former, viz. inflammation and suppuration, but has not been able to accomplish granulation and cicatrization, so as to complete the cure. It may be said to be a constitution affected with a local disease, or irritation, which the constitution is conscious of, and of which it cannot relieve itself, and cannot cure; for while the inflammation lasts, which is only preparatory, and an immediate effect of most injuries, and in parts which can only affect the constitution, so as to call up its powers, there can be no hectic.

"We should distinguish well between a hectic arising from a local complaint entirely, where the constitution is good, but only disturbed by too great an irritation; and a hectic arising principally from the badness of the constitution, which does not dispose the parts for a healing state: for in the first, it is only necessary to remove the part (if removeable), and then all will do well; but in the other we gain nothing by a removal, except the wound made by the operation is much less, and much more easily put into a local method of cure; so that this bad constitution falls less under this (the operation taken into the account) than under the former state; but all this depends on nice discrimination.

"The hectic comes on at very different periods after the inflammation, and commencement of suppuration, owing to a variety of circumstances. First, some constitutions much more easily fall into this state than others, having less powers of resistance. The quantity of incurable disease must be such as can affect the constitution, and in whatever situation, or whatever parts, it will be always as to the quantity of disease in those situations or parts in the constitution, which will make the time to vary very considerably. In many diseases it would appear, from the manner of coming on, that they retard the commencement of the hectic, such as lumbar abscesses. But when such abscesses are put into that state, in which the constitution is to make its efforts towards a cure, but is not equal to the task, then the hectic commences."

Hectic fever will supervene whenever there is a great collection of matter formed in any part of the body; but it more particularly attends upon the inflammation of a scirrhous gland, and even upon one that is slight and only just beginning; the fever growing worse in proportion as the gland becomes more inflamed, ulcerated, or gangrenous. And such is the lingering nature of thoseglandular disorders, that the first of those stages will continue for many months, and the second for some years.

If this scirrhous inflammation be external, or in the lungs, or some of the abdominal viscera, where the disturbance of their functions plainly points out the seat of the disorder, no doubt can be entertained concerning the cause of the fever. But if the part affected be not obvious to the senses, and its precise functions be not known, the hectic, which is there only part of the train of another disease, may be mistaken for the primary or only one. The injuries done to the stomach and liver by hard drinking are attended with similar symptoms, and terminate fatally.

Lying-in women, on account of the violence sustained in delivery, generally die when affected with this fever. Women of the age of near fifty and upwards are particularly liable to it. For, upon the cessation of their natural discharge, the glands of the breasts, ovaries, or womb, too commonly begin to grow scirrhous, and proceed to be cancerous. Not only these, but the glandular parts of all the abdominal viscera, are disposed to be affected at this particular time, and to become the seats of incurable disorders.

Dr. Heberden observes, that the slightest wound by a fine-pointed instrument is known upon some occasions to bring on the disturbance, and the most alarming symptoms, nay even death itfelf. For not only the wounded part will swell and be painful, but by turns almost every part of the body; and very distant parts have been known to come even to suppuration. These symptoms are constantly accompanied with this irregular intermittent, which lasts as long as any of them remain.

Mr. Hunter, speaking of the cause of hectic fever, says, "it takes its rise from a variety of causes, but which I shall divide into two species, with regard to diseased parts, viz. the parts *vital*, and the parts *not vital*. The only difference between these two is, probably, merely in time, with respect to its coming on, and its progress when come on; but what is very similar to the disease of a vital part, is quantity of incurable disease.

"The causes of hectic, arising from diseases of the vital parts, may be many, of which a great proportion would not produce the hectic if they were in any other part of the body; such, for instance, as the formation of tumors, either in, or so as to press upon, some vital part, or a part whose functions are immediately connected with life. Scirrhi in the stomach, or mesenteric glands, which tumors any where else would not produce the hectic; many complaints too of vital parts, as diseased lungs, liver, &c. all of these produce the hectic, and much sooner than if the parts were not vital. In many cases where those causes of the hectic come on quickly, it frequently follows so quick upon the sympathetic fever, that the one seems to run into the other: this we have often seen in the lumbar abscess. They also produce symptoms according to the nature of the part injured, as coughs, when in the lungs; sickness and vomiting, when in the stomach; and probably bring on many other complaints, as dropsies, jaundice, &c. but which are not peculiar to the hectic.

"When the hectic arises from a disease in a part not vital, it sooner or later commences, according as it is in the power of the parts to heal, or continue the disease. If far from the source of the circulation, with the same quantity of disease, it will come on sooner. When in parts not vital, it is generally in those parts where so great a quantity of disease can take place (without the power of being diminished in size, as is the case with the diseases in most joints) as to affect the constitution, and also in such parts as have naturally but little powers to heal. We must at the same time include parts that are well disposed to take on such specific diseases as are not readily cured in any situation; such parts are principally the larger joints, both of the trunk and extremities: but in the small joints of the toes and fingers, although the same local effects take place, as in the larger, yet the constitution is not made sensible of it; we therefore find a scrofulous joint of a toe or finger going on for years, without affecting the constitution.

"The ankle, wrist, elbow, and even the shoulder, may be affected much longer than either the knee, hip-joint, or loins, before the constitution sympathizes with their want of powers to heal.

"Although the hectic commonly arises from some incurable local disease of a vital part, or of a common part when of some magnitude, yet it is possible for it to be an original disease in the constitution. The constitution may fall into the same mode of action, without any local cause whatever, at least that we know of.

"Hectic may be said to be a slow mode of dissolution: the general symptoms are those of a low, or slow fever, attended with weakness, but more with the action of weakness than real weakness; for, upon the removal of the hectic cause, the action of strength is immediately produced, as well as every natural function, however much it was decreased before.

"The particular symptoms are debility; a small, quick, and sharp pulse; the blood forsaking the skin; loss of appetite; often rejection of all aliment by the stomach; wasting; a great readiness to be thrown into sweats; sweating spontaneously when in bed; frequently a constitutional purging; the urine clear."

This disease has been, and is in general laid to the charge of the absorption of pus into the constitution, from a sore: but Mr. Hunter imagines that an absorption of pus has been too much blamed as the cause of many of the bad symptoms which frequently attack people who have sores. He says this symptom almost constantly attends suppuration when in particular parts, such as the vital parts, as well as many inflammations before actual suppuration has taken place, as in many of the larger joints called white swellings; while the same kind and quantity of inflammation and suppuration in any of the fleshy parts, and especially such of them as are near the source of the circulation, have in general no such effect; in those cases, therefore, it is only an effect upon the constitution, produced by a local complaint, having a peculiar property.

Thus, with all diseases of vital parts, the constitution sympathizes more readily than with diseases of any other parts; and all diseases of vital parts are also more difficult of cure in general than those which are not vital. Likewise, all the diseases of bones, ligaments, and tendons, affect the constitution more readily than those of muscles, skin, cellular membrane, &c. and we find that the same general principles are followed in the universal remote sympathy, produced by local diseases of those parts.

"When the disease is in vital parts, and is such as not to kill by its first constitutional effects, the constitution then becomes teased with a complaint which is disturbing the necessary actions of health, the part being vital; there is, besides, the universal sympathy with a disease which gives the irritation of being incurable.

"In the large joints it continues to harass the constitution with a disease, where the parts have no power, or, what is more probable, have no disposition to produce a salutary inflammation and suppuration: the constitution, therefore, is also irritated with an incurable disease."

This being Mr. Hunter's *theory of the cause of the hectic*, he proceeds to consider how far the absorption of matter may be justly supposed a cause of the disease. "If," says he, "the absorption of matter always produced such symptoms, I do not see how any patient, who has a large sore, could possibly escape this disease; because we have as yet no reason to suppose, that any one sore has more power of absorption than another. If in those cases where there is an hectic constitution, the absorption is really greater than when the habit is healthy, it will be difficult to determine whether this increase of absorption is a cause or an effect. If it be a cause, it must arise from a particular disposition in the sore to absorb more at one time than common, even while it was in a healthy state; for the sore must be healthy and then absorb, which hurts the constitution; moreover, as the sore is a part of that constitution, it must of course be affected in turn; and what reason we have to suppose that a healthy sore of a healthy constitution should begin to absorb more at one time than another, I must own I cannot discover. If this increase of absorption does not depend upon the nature of the sore, it must then take its rise from the constitution; and if so, there is then a peculiarity in the constitution, so that the whole of the symptoms cannot arise entirely from the absorption of matter as a cause, but must depend on a peculiar constitution, and absorption combined.

"If absorption of matter produced such violent effects as are commonly ascribed to it (which, indeed, are never of the inflammatory kind, but of the hectic), why does not the venereal matter do the same? We often know that absorption is going on by the progress of buboes; and I have known a large bubo, which was just ready to break, absorbed, from a few days' sickness at sea, while the person continued at sea for twenty-four days after; yet, in such cases, no symptoms appear till the matter begins to have its specific effects, and these very symptoms are not similar to those which are called hectic. From reasoning, we ought to expect that the venereal matter would act with greater violence than the common matter from a healthy sore. Although matter too is frequently formed on the inside of veins, in cases of inflammation of their cavities, and this matter cannot fail of getting into the circulation, yet in these cases we have not the hectic disposition, but only the inflammatory, and sometimes death. We likewise find very large collections of matter, which have been produced without visible inflammation, such as many of the scrofulous kind, and which are wholly absorbed, even in a very short time, yet no bad symptoms follow.

"We may, therefore, from hence conclude, that *the absorption of pus*, from a sore into the circulation, *cannot be a cause* of so much mischief as is generally supposed; and, if it was owing to matter in the constitution, I do not see how these symptoms could ever cease, till suppuration ceased, which does not readily happen in such constitutions, their sores being tedious in healing. We find, however, that such patients often get well of the hectic before suppuration ceases, even when no medicine was given: and in the case of veins, there is great reason to believe, that after all the bad symptoms are removed, suppuration is still going on, as we find it so in a sore; pus may, therefore, still pass into the constitution from the veins, and yet the hectic may not be produced, which would certainly be the case if those bad symptoms were occasioned by the matter getting into the circulation."

Mr. Hunter, however, very much doubts the fact of absorption going on more in one sore than another; and even if it does, he thinks it of no consequence. "I am" says he, "much more inclined to believe, that this hectic disposition arises from the effect which irritation of a vital organ, and some other parts, such as joints (being either incurable in themselves, or being so to the constitution for a time), have on the constitution.

"We may remark, that in large abscesses which have not been preceded by inflammation, the hectic disposition seldom or never comes on till after they are opened (although they may have been forming matter for months); but in such cases, the disposition often comes on soon after opening, and in others very late. Till the stimulus for restoring parts is given, no such effect can take place; and if the parts are well disposed to heal, no hectic disposition comes on, neither is the constitution at all affected. In diseased joints also, which are attended with inflammation, if the parts were capable of taking on a salutary inflammation, we should have only the first sympathetic fever; but as they seldom are capable of doing this, the constitution becomes teased with a complaint, not taking on the immediate and salutary steps towards a cure. In the venereal disease too, where we know that the venereal matter has got into the constitution, and that the matter is producing its specific effects, yet no hectic comes on, till the constitution is harassed with an incurable disease, and this not till long after all the parts are healed, with regard to recent disease, and no matter is formed for further absorption. That absorption does take place in sores, we have reason to believe, and upon this fact a mode of dressing sores has been advised. The following is a remarkable instance of it in a bubo: A young man had a chancre and three buboes, one of which appeared when the other two were almost cured. This was very large, at the bottom of the belly. When it had suppurated, and was pretty near breaking, it diminished very quickly, and in two or three days was entirely gone. While this was going on, he observed his urine wheyish and thick, while making it, which went entirely off when the bubo had subsided. Before the bubo began to subside, he was rather mending in his health, which continued to mend, nor did the diminution of the bubo alter the state of his health.

"The hectic, from what has been said, appears in some measure to depend on the parts being stimulated to produce an effect which is beyond their powers: that this stimulus is sooner or later in taking place in different cases, and that the constitution becomes affected by it. The hectic disposition arises from diseased lungs, lumbar abscesses, white swellings, scrofulous joints, &c.

This anomalous fever is never less dangerous than when it belongs to a kindly suppuration, into which all the diseased parts are melted down, and for which there is a proper outlet. The symptoms and danger from some small punctures, with their concomitant fever, most frequently give way in a few days; though in some persons they have continued for two or three months, and in others have proved fatal. The inflammation of internal scirrhous glands, or of those in the breasts, sometimes goes off, and the fever, which depended upon it, ceases; but it much oftener happens, that it proceeds to cancerous and gangrenous ulcers, and terminates only in death. Death is also, almost universally, the consequence of hectic fever from tubercles of the lungs, which have, in general at least, been considered as glandular bodies in a scirrhous state.

On the termination of this disease, Mr. Hunter says, "If the local disease does not or cannot heal, and is such as to affect the constitution, it then brings on the hectic, and sooner or later dissolution takes place; for the hectic is an action of disease, and of a particular kind; but dissolution is giving way to disease of every kind, therefore has no determined form arising from the nature of the preceding disease.

"It has been supposed," continues Mr. Hunter, "that this disease arises from the absorption of matter. It appears to be in many cases an effect arising from violent and long-continued inflammations and suppurations, although not incurable in themselves (therefore, in those respects, not similar to the hectic); and which, in many instances, are known to produce the greatest changes in the constitution. Such often arise from very bad compound fractures, from amputations of the extremities, especially the lower, and more particularly the thigh, in which cases the sympathetic fever has run high, which would appear to be necessary, or preparatory; but in the hectic, it is not necessary, that the constitution should have suffered at all in the first stages of the disease; dissolution seems to be more connected with what is past, than with the present alone, which is the reverse of the hectic. We never find this disease take place in consequence of small wounds, or such wounds as have affected the constitution but little in its first stages; but which may affect the constitution much in its second, such as small wounds producing the locked jaw. It would appear to take place in our hospitals more generally than in private houses, and more readily in large cities than in the country. We shall find that the hectic and this are by no means the same disease, differing exceedingly in their causes, and in many of their effects; for in the cases of compound fracture and amputations, we find the constitution often capable of going through the inflammatory and sympathetic fever, producing suppuration and granulation, as well as continuing the production of these for some time, yet sinking under them at last, and often immediately, without a seeming cause. This effect will more readily take place, if the person was in full health before the accident or operation, than if he had been somewhat accustomed to the other, or true hectic; for the symptoms of dissolution seldom or never take place, if the violence committed has been to get rid of a hectic cause. It sometimes takes place early, in consequence of local injury, and would seem to be a continuation of the sympathetic fever; as if the constitution was not able to relieve itself of the general affection, or that the parts could not go into the true suppurative disposition. We see this frequently after removing a limb, especially in the lower extremity, and after cutting for the stone in very fat men, above the middle age, and who have lived well.

"The first symptoms are generally those of the stomach, which produce shivering: vomiting very soon follows, if not an immediate attendant; there is great oppression and anxiety, the persons conceiving they must die. There is a small quick pulse; perhaps bleeding from the whole surface of the sore, often mortification, with every sign of dissolution in the countenance; as it arises with the symptoms of death, its termination is pretty quick. Here is a very fatal disease taking place; in some almost immediately, when all appeared to be within the power of the machine, and therefore cannot immediately arise from the sore itself; for it is very common after such operations as usually do well; but the hectic always takes place in consequence of those sores which seldom or never get well in any case; yet the sore certainly assists in bringing on dissolution, because we never see the disease take place when the sore is healed, nor in those where the constitution seems not to be equal to the task, as is the cause of the hectic.

"The hectic is much slower in its progress, and seems to be a simple and an immediate effect, arising from a continued cause which is local: by removing the cause, therefore, the effect ceases, and the havock made on the constitution is soon restored; persons, therefore, do much better in consequence of the hectic having in some degree taken place, prior to the removal of the cause. But dissolution is a change of the constitution in consequence of causes which now do not wholly exist, and in many cases it does not take place till the constitution appears to be capable easily of performing all its functions, and a removal of the parts does not relieve, as in the hectic; for dissolution does not depend for its continuance upon the presence of the disease.

"Death or dissolution appears not to be going on equally fast in every vital part; for we shall have many people very near their termination, yet some vital actions shall be good, and tolerably strong; and if it is a visible action, and life depends much upon this action, the patients shall not appear to be so near their end as they really are: thus we have seen dying people whose pulse was full and strong as usual, on the day previous to their death, but it has sunk almost at once, and then become extremely quick, with a thrill: on such occasions it shall arise again, making a strong effort, and after a short time, a moisture shall probably come on the skin, which shall in this state of pulse be warm; but upon the sinking of the pulse, shall become cold and clammy: breathing shall become very imperfect, almost like short catchings, and the person shall soon die."

Mr. Hunter has observed that, in many cases, disease produces such weakness as at last to destroy itself: nay even that the symptoms or consequences of the disease disappear before death. Even when in the state of approaching death, he says, we often find a soft, quiet, and regular pulse, having not the least degree of irritability in it, and this when there is every other sign of approaching death; such as entire loss of appetite, no rest, hickup, the feet cold, and partial, cold, clammy sweats, &c.

With regard to the *cure*, it is not to be expected that the same remedies will in every case be adapted to a fever which, arising from very different causes, is attended with a variety of symptoms. Dr. Heberden observes, that a mixture of asafœtida and opium has in some persons seemed singularly serviceable in this fever, when brought on by a small wound; but in most other cases, the principal, if not the sole, attention of the physician must be employed in relieving the symptoms, by tempering the heat, by preventing both costiveness and purging, by procuring sleep, and by checking the sweats. If, at the same time, he put the body into as good general health as may be, by air, exercise, and a proper course of mild diet, he can perhaps do nothing better than to leave all the rest to nature. In some few fortunate patients, nature appears to have such resources, as may afford reason for entertaining hopes of cure, even in very bad cases. For some have recovered from this fever attended with every symptom of an abdominal viscus incurably diseased, after all probable methods of relief from art had been tried in vain, and after the flesh and strength were so exhausted as to leave scarce any hopes from nature. In those deplorable circumstances, there has arisen a swelling not far distant from the probable seat of the disorder, and yet without any discoverable communication with it. This swelling has advanced to an abscess; in consequence of which the pulse has soon returned to its natural state, as have also the appetite, flesh, and strength. What nature has performed in those rare cases, Dr. Heberden acquaints us, he has often endeavoured to imitate, by making issues or applying blisters near the seat of the disease; but he cannot say with the same success.

It seems at present, Dr. Heberden observes, the opinion of many practitioners, that some gangrenes will be stopped, and suppuration become more kindly, by the use of Peruvian bark; and therefore this remedy is always either advised or permitted in the irregular fever, joined with suppurations and gangrenes. But he affirms he does not remember ever to have seen any good effect from the bark in this fever unattended with an apparent ulcer; and even in gangrenes it so often fails, that in successful cases, where it has been administered, there must be room for suspicion that the success was owing to another cause. Dr. Heberden acknowledges at the same time, that he never saw any harm from the bark, in these, or indeed in any other cases, except a slight temporary purging or sickness, where it has happened to disagree with the stomach, or where the latter has been loaded by taking the medicine too fast, especially in dry boluses wrapped in wafer-paper.

In hectic illnesses, where all other means have proved ineffectual, a journey to Bath is usually proposed by the friends, and wished for by the sick; but Dr. Heberden justly observes, that, besides the fatigue and many inconveniences of a journey to a dying person, the Bath waters are peculiarly hurtful in this fever, which they never fail to increase, and thereby aggravate the sufferings and hasten the death of the patient. Little more, we may observe, is to be expected from the waters of the hot-wells at Bristol.

Mr. Hunter describes the treatment of hectic in the following way: "We have as yet, I am afraid," says he, "no cure for any of the consequences above related; I believe that depends on the cure of the cause, viz. the local complaint, or in its removal; the effects, I fear, are not to be cured. Strengtheners, and what are called antiseptics, are generally recommended."

On the class of medicines called *strengtheners*, which are proposed to counteract the debility which has taken place, the author has no great reliance. Antiseptics, he says, have been employed from an idea that pus, when absorbed, gives the blood a tendency to putrefaction. To prevent both of these effects from taking place, the same medicines are commonly recommended. These are bark and wine. The former will, in most cases, only assist in supporting the constitution; and Mr. Hunter supposes it impossible to cure a disease of the constitution till the cause is removed. It may be supposed, however, that this class of remedies may make the constitution less susceptible of the disease, and also contribute to lessen the cause, by disposing the local complaints to heal: but where the hectic arises from specific disease, as from a venereal disposition, bark will enable the constitution to support it better than it otherwise could be expected, but can never remove it entirely. Wine rather does harm if it increases the actions of the machine without giving strength, which is a thing carefully to be avoided.

When hectic fever arises from local disease in any part that the constitution can bear a removal of, then, Mr. Hunter says, the diseased part should be removed: for instance, when it arises from some incurable disease in an extremity. Here, though all the symptoms above described should have already taken place, we shall find, that upon a removal of the limb, the symptoms will abate almost immediately. He has known a hectic pulse at one hundred and twenty sink to ninety *in a few hours*, upon removing the hectic cause; and persons sleep sound the first night without an opiate, who had not slept tolerably for weeks before. Cold sweats also stop immediately, as well as those called colliquative; and purging too, upon the removal of the hectic cause, and the urine drops a sediment. It is possible too, that the pain in the operation, and the sympathetic affection of the constitution, may assist in these salutary effects. Being an action diametrically opposite to the hectic, it may be said to bring back the constitution to a natural state.

HE'DERA, (from *hæreo*, to stick, because it attaches itself to trees and old walls); the ivy.

HE'DERA ARBOREA, the ivy; *hedera helix*, Linn. The leaves of this tree have little or no smell, but a very nauseous taste. Haller says, they are recommended in Germany against the atrophy of young children. By the common people in this country they are sometimes applied to running sores, and to keep issues open. The berries were supposed, by the ancients, to have a purgative and emetic quality; and an extract was made from them by water, called by Quercetanius, *extractum purgans*. Later writers have recommended them in small doses as an alexepharmic and sudorific remedy. It is said, that in the plague at London, the powder of them was given in vinegar or white wine, with advantage. It is from the stalk of this tree that a resinous juice exudes very plentifully in warm climates. See Gummi hederæ.

HE'DERA HELIX; the systematic name of the ivy tree. See Hedera arborea.

HE'DERA TERRESTRIS, ground-ivy, or gill; the *glecoma hederacea; foliis reniformibus crenatis*, Linn. Class, *Didynamia*. Order, *Gymnospermia*. This indigenous plant has a peculiar strong smell, and a bitterish somewhat aromatic taste. It is one of those plants which was formerly much esteemed for possessing great medicinal virtues, but, in the present age, it is wholly neglected by physicians. Still, in obstinate coughs it is a favourite remedy with the poor.

HEDERA'CEÆ, (from *hedera*, ivy), in botany; the name of the forty-sixth order in Linnæus's fragments of a natural method, consisting of ivy, and a few other genera, which from their general habit and appearance seem nearly allied to it.

HEDGE-HYSSOP. See Gratiola.

HEDGE-MUSTARD. See Erysimum.

HEDGE-MUSTARD, STINKING. See Alliaria.

HELCO'NIA, (from ελκος, *an ulcer*); the name of an ulcer in the external or internal superficies of the transparent cornea of the eye. It is known by an excavation and ouzing of purulent matter from the cornea.

HELE'NIUM, (ελενιον, from *Helene*, the island where they grew). See Enula campana.

HE'LICIS MAJOR; a proper muscle of the ear, which depresses the part of the cartilage of the ear into which it is inserted. It lies upon the upper or sharp point of the outward ring, arising from the upper and acute part of the *helix* anteriorly, and passing to be inserted into its cartilage a little above the tragus. Of the muscles of the external ear, some go between the cartilages and the os temporis, others are confined to the cartilages alone. Both kinds vary in different subjects, and are sometimes so very thin as to look more like ligaments than muscles. The muscles of the first kind are generally three, one posterior, and one anterior; and they are all very thin. The small muscles which are confined to the cartilages, are only small strata of fibres found on both sides of the cartilages. In many subjects they are of so pale a colour as not to look at all like muscular fibres. Of this number are those which Valsalva discovered in the different cavities on the backside of the cartilage; and those found by Santorini on the tragus, and along the convex part of the anterior portion of the helix.

HE'LICIS MINOR; a proper muscle of the ear, which contracts the fissure of that organ. It is situated below the helicis major, upon part of the helix. It arises from the inferior and anterior part of the helix, and is inserted into the crus of the helix, near the fissure in the cartilage opposite to the concha.

HELIOTRO'PII SUCCUS. See the article Litmus.

HE'LIX, (ελιξ, from ειλω, *to turn about*); the external circle or border of the outer ear, that curls inwards. See Auricula.

HELLEBORA'STRUM, (from ελλεβορος, *hellebore*), *helleboraster*, fetid hellebore, or bear's-foot; the *helleborus fœtidus*, Linn. *Helleborus caule multifloro folioso; foliis pedatis.* Class, *Polyandria.* Order, *Polygynia.* The leaves of this are recommended by many as possessing extraordinary anthelmintic powers. The smell of the recent plant is extremely fetid, and the taste is bitter and remarkably acrid, insomuch that, when chewed, it excoriates the mouth and fauces. It commonly operates as a cathartic, sometimes as an emetic, and in large doses proves as deleterious as some of the other species of hellebore. See Helleborus.

HELLEBORE, BLACK. See Helleborus niger.

HELLEBORE, WHITE. See Helleborus albus.

HELLEBORIZE; a term used by Hippocrates, and others after him, who used prepared hellebore, which they introduced into the rectum, both for the purpose of vomiting and purging. This they made stronger or weaker as they required, and the vomiting, purging, or both produced thus, they called *helleborizing* the patient.

HELLE'BORUS ALBUS, (from ελλεβορος; παρα το τη βορα ελειν, *because it destroys if eaten*), also called *Elleborum album* and *Veratrum album;* white hellebore or veratrum. It is the *Veratrum album racemo supra-decomposito, corollis erectis,* Linn. Class, *Polygamia.* Order, *Monœcia.* It is a native of Italy, Switzerland, Austria, and Russia. Every part of the plant is extremely acrid and poisonous. The dried root has no particular smell, but a durable, nauseous, and bitter taste; burning the mouth and fauces. When powdered, and applied to issues or ulcers, it produces griping and purging by being absorbed. If snuffed up the nose, it proves a violent sternutatory. Gesner made an infusion of half an ounce of this root with two ounces of water: of this he took two drachms, which produced great heat about the scapulæ and in the face and head, as well as the tongue and throat, followed by singultus, which continued till vomiting was excited. Bergius also experienced very distressing symptoms upon taking the like infusion. The root, taken in large doses, discovers such acrimony, and operates by the stomach and rectum with such violence, that blood is usually discharged. It likewise acts very powerfully upon the nervous system, producing great anxiety, tremors, vertigo, syncope, aphonia, interrupted respiration, sinking of the pulse, convulsions, spasms, and death. Upon opening those who have died of the effects of this poison, the stomach discovered marks of inflammation, with corrosions of its internal coat. The ancients exhibited this active medicine in maniacal cases, and, it is said, with great success. The experience of Greding is somewhat similar: out of twenty-eight cases in which he exhibited the bark of the root collected in the spring, five were cured. In almost every case that he relates, the medicine acted more or less upon all the excretions: vomiting and purging were very generally produced, and the matter thrown off the stomach was constantly mixed with bile; a florid redness frequently appeared on the face, and various cutaneous efflorescences upon the body; and, in some, pleuritic symptoms, with fever, supervened, so as to require bleeding; nor were the more alarming affections of spasms and convulsions unfrequent. Critical evacuations were also very evident; many sweated profusely, in some the urine was considerably increased, in others the saliva and mucous discharges: and uterine obstructions, of long duration, were often removed by its use. Veratrum has likewise been found useful in epilepsy and other convulsive complaints. But the diseases in which its efficacy seems least equivocal are those of the skin, an itch, and different prurient eruptions, herpes, morbus pediculosus, lepra, scrofula, &c. and in many of these it has been successfully employed both internally and externally. As a powerful stimulant and irritating medicine, its use has been resorted to in desperate cases only, and even then it ought first to be exhibited in very small doses, as a grain, and in a diluted state, and to be gradually increased, according to its effects, which are generally of an alarming nature. In the edition of the dispensatory, published in 1743, the London College directed a tincture of veratrum, but they have since omitted it, Dr. Cullen thinks, very justly; as he considers this plant poisonous, and, in spite of the authority of Gesner, hardly fit for any medical use. Dr. Smyth certainly succeeded with it, in two or three cases of cutaneous affection; but its actual merits have not, even in this way, been fully ascertained.

HELLE'BORUS FŒTIDUS; the systematic name of the fetid hellebore. See Helleboraster.

HELLE'BORUS NIGER, or *Melampodium,* the black hellebore, or Christmas-rose. *Helleborus niger,* Linn. *Helleborus scapo subbiflore subnudo; foliis pedatis.* Class, *Polyandria.* Order, *Polygynia.* The root of this exotic plant is the part employed medicinally. It is composed of many thick fleshy spreading fibres, crowned by a large cluster of lobed leaves, consisting each of seven or eight obtuse fleshy lobes, united to one foot-stalk; and between the leaves several thick fleshy flower-stalks, three or four inches high, surmounted by large beautiful white flowers of five roundish petals, and numerous filaments, appearing in winter, about or soon after Christmas.

The root of this plant was anciently used as a cathartic. The taste of it is acrid and bitter. Its acrimony, as Dr. Grew observes, is first felt on the tip of the tongue, and then spreads itself immediately to the middle, without being much perceived in the intermemediate part. On chewing the root for a few minutes, the tongue seems benumbed, and affected with a kind of paralytic stupor, as when burnt by eating any thing too hot. The fibres are more acrimonious than the head of the root from whence they issue. Black hellebore root, taken from fifteen to thirty grains, proves a strong cathartic; and, as such, has been celebrated for the cure of maniacal disorders, and such also as were attributed to what the ancients called the *atra bilis.* In mania, however, this root appears by no means to be possessed of any specific power. It does not indeed appear, that our black hellebore acts with so much violence as that of the ancients; whence many have supposed it to be a different species of plant: and indeed the descriptions which the ancients have left us of their hellebore, do not agree with those of any of the sorts usually taken notice of by modern botanists. Another species has been discovered in the eastern countries, which Tournefort distinguishes by the name of *helleborus niger orientalis, amplissimo folio, caule prœalto, flore purpurescente*, and supposes to be the true ancient hellebore, from its growing in plenty about mount Olympus, and in the island of Anticyra, celebrated of old for the production of this antimaniacal drug. He relates, that a scruple of this sort, given for a dose, occasioned convulsions. Our hellebore is looked upon principally as an alterative; and is sometimes employed, in small doses, for promoting the uterine and urinary discharges, &c. Dr. Mead says, it proves a powerful emmenagogue in plethoric habits, where steel is ineffectual or improper. In some parts of Germany, a species of black hellebore has been made use of, which frequently produced violent, and sometimes deleterious, effects. It appears to be the helleborastrum, or fetid kind of Linnæus, popularly called in English *settlewort, setterwort*, or *bastard hellebore.* The roots of this may be distinguished from those of the true kind, by their being less black. Dr. Cullen says, that, influenced by the authority of Dr. Mead, he tried the black hellebore as an emmenagogue, and knew it to have been tried by others, but never could say it succeeded in a single instance. This weighty authority has occasioned a pretty general neglect of this remedy of late years. The helleborus niger is an article in the celebrated remedy of Bacher, for the cure of the dropsy. See Ascites.

HELMET-FLOWER, YELLOW. See Anthora.

HELMINTHAGO'GA, (*ελμινθαγωγα*, from *ελμινς*, *a worm*, and *αγω*, *to drive out*), *helminthagogues*; or medicines which destroy or expel worms. See Anthelmintica.

HELMINTHI'ASIS, (*ελμινθιασις*, from *ελμινθις*, *which signifies any species of worm)*; a disease in which worms, or their larvæ, are bred under the skin, or some external part of the body. It is endemial to Martinique, Westphalia, Transylvania, and to some other distant places.

HELMINTHOCRO'TON. See Carolina Corsicana.

HELO'DES, (*ελωδης*, the same also as *τυφωδης*), or heloides, a particular kind of fever, attended with colliquative sweats, and, at the same time, the tongue dry and hard. Some take the *Sudor Anglicus*, which was epidemical, and described by lord Verulam in his *History of Henry the VIIth's reign*, to have been of this kind.

HELO'SIS, (of the Gr. *ηλσωις*), a disorder of the eye, consisting in an eversion of the eye-lid.

HEMERALO'PIA, (*ημεραλωπια*, from *ημερα*, *a day*, and *οπῖω*, *to see)*, crepusculary blindness. It is a defect of vision, in which the patient sees perfectly well all day, but in the crepusculary light, as in the evening, perceives little or nothing. It is often endemic to China, Barbadoes, the Brazils, and Poland.

HE'MERALOPS, (*ημεραλωψ*, from *ημερα*, *the day*, and *ωψ*, *an eye)*; one who can see in the day time only.

HEMICRA'NIA, (*ημικρανια*, from *ημισυς*, *half*, and *κρανιον*, *the head)*, a pain that affects only one side of the head. See Cephalalgia and Head-ach.

HE'MINA, (of the Gr. *ημινα*): an ancient measure of different contents in different nations; but formerly used in medicine to signify about ten ounces in measure.

HEMI'OPSIA, (*ημιοψια*, from *ημισυς*, *half*, and *ωψ*, *an eye)*; that defect of vision, in which the person sees the half, but not the whole of an object.

HEMIPLE'GIA, (*ημιπληγια*, from *ημισυς*, *half*, and *πλεσσω*, *to strike)*; a paralytic affection of one side of the body. See Paralysis.

HEMISPHERE, (*ημισφαιριον*, from the same, and *σφαιρα*, *globus*, a ball or sphere); the half of a globe, when supposed to be cut through its centre in the plane of one of its greatest circles. Anatomically, this term is applied to the two lateral portions of the brain.

HEMITRITÆ'US, (from *ημισυς*, *half*, and *τριταιος*, *third*, or *tertian)*; a semi-tertian fever, or a tertian intermittent fever that returns every day. It is oftener of the remittent rather than of the intermittent kind.

HEMLOCK. See Cicuta.

HEMLOCK-DROPWORT. See Oenanthe.

HEMLOCK, WATER. See Cicuta aquatica.

HEMP. See Cannabis.

HEMP-AGRIMONY. See Eupatorium.

HEMP, WATER. See Eupatorium.

HENBANE. See Hyosciamus.

HEPAR, (of the Gr. *ηπαρ*); the liver. See Liver.

HEPAR ANTIMONII. See Oxydum stibii sulphuratum.

HEPAR SULPHURIS; liver of sulphur. This is a *sulphuret* made either with potass or soda. It has a disagreeable fetid smell, but is in some esteem as a medicine. It is said to decompose hydrarg. muriat. when taken into the stomach, but this is better done by a solution of kali. See Poisons. With the gas arising on the decomposition of hepar sulphuris by an acid, Bergman found out a method of imitating the hot or sulphureous mineral waters, to as great perfection as the cold ones are now imitated by carbonic gas. The process consists simply in adding the vitriolic acid to hepar sulphuris, and impregnating water with the peculiar species of air that arises from this mixture; in the same manner as when water is impregnated with carbonic air arising from the mixture of that or any other acid with chalk. This *hepatic air*, as the author calls it, is very readily absorbed by water; to which it gives the smell, taste, and all the other sensible qualities of the sulphureous waters. A Swedish cantharus of distilled water, which contains 12½ Swedish cubic inches, will absorb about 60 cubic inches of this hepatic air; and on dropping it into the nitrous acid, it will appear, that a real sulphur is contained, in a state of perfect solution, in this water, to the quantity of eight grains. It does not appear that any other acid, except what the author calls the *dephlogisticated marine acid*, will produce this effect. When any particular sulphureous water is to be imitated, we scarce need to observe, that the saline, or other contents peculiar to it, are to be added to the artificial hepatic water. Instead of the liver of sulphur, the operator may use a mixture of three parts of filings of iron and two parts of sulphur melted together.

It may, perhaps, be thought, that water thus prepared does not differ from that in which a portion of the hepar sulphuris has been dissolved: but it appears evidently to differ from it in this material circumstance; that in the solution of hepar sulphuris, the sulphur is held in solution by the water, through the means of the alkali combined with it: whereas, in Mr. Bergman's process, it does not appear probable that the hepar sulphuris rises substantially in the form of air; for, in that case, its presence in the hepatic water might be detected by means of the weakest of the acids (even the mephitic), which would precipitate the sulphur from it. Nor can it be supposed that any portion or constituent part of the alkali itself (except a part of its remaining fixed air) can come over. The water, therefore, must owe its impregnation to the sulphur, raised, in some peculiar manner, into the state of an elastic vapour; permanent, when the experiment is made in quicksilver; but condensible in water, and rendered soluble in that fluid through the means of some unknown principle combined with it, and which the author supposes to be the matter of heat combined with it.

HEPATA´LGIA, (ηπαταλγια, from ηπαρ, *the liver*, and αλγος, *pain)*; a pain in the liver.

HEPATIC, (from ηπαρ, *the liver)*; any thing belonging to the liver.

HEPATIC AIR. See Sulphurated Hydrogen Gas.

HEPATIC ARTERY, *arteria hepatica;* the artery which nourishes the substance of the liver. This vessel arises from the cœliac, where it almost touches the point of the *lobulus Spigelii*. Its root is covered by the pancreas; it then turns a little forwards, and passes under the pylorus to the porta of the liver, and runs betwixt the biliary ducts and the vena portæ, where it divides into two large branches, one of which enters the right, and the other the left lobe of the liver. In this place it is enclosed along with all the other vessels in the capsule of Glisson. It is an affection of this which is concerned in the acute hepatitis. See Hepatitis.

HEPATIC DUCT, *ductus hepaticus;* the trunk of the biliary pores. This duct runs from the sinus of the liver toward the duodenum, and is joined by the cystic duct, forming the ductus communis choledochus. See Biliary Duct.

HEPATIC VEINS. See the article Liver, and Vena portæ.

HEPA´TICA, (from ηπαρ, *the liver*, so called because it was thought to be useful in diseases of the liver); the herb liver-wort.

HEPA´TICA NOBILIS, or *herba trinitatis;* the hepatica or herb trinity. This plant is the *Anemone hepatica*, Linn. It possesses mildly astringent and corroborant virtues; with which intentions infusions of it have been drank as tea, or the powder of the dry leaves given, to the quantity of half a spoonful at a time. It is now, however, neglected.

HEPA´TICA TERRESTRIS, or *Jecoraria*, liverwort; a species of *Marchantia*. It is the *polymaphia*, which is very common in this country. It has a penetrating though mild pungency, and bitter taste, sinking, as it were, into the tongue. It has been recommended as an aperient, resolvent, and antiscorbutic, though seldom used in our practice. It appears, nevertheless, to be a plant of considerable virtue.

HEPATI´TIS, (ηπατιτις, from ηπαρ, *the liver*), an inflammation of the liver. It is a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ*, of Cullen, who defines it, "febrile affections, attended with tension and pain of the right hypochondrium, often pungent, like that of a pleurisy, but more frequently dull, or obtuse; a pain at the clavicle, and at the top of the shoulder of the right side; much uneasiness in lying down on the left side; difficulty of breathing; a dry cough, vomiting, and hiccough." Sauvages, and Sayer, he says, amongst the symptoms, have placed a yellow colour of the face; and also yellow coloured, bilious urine; the serum of the blood when drawn, and also scabby eruptions, of a yellow colour: but these symptoms of a regurgitation, and resorption of the bile, he thinks, have been, very properly omitted by Linnæus and Vogel; because symptoms of this sort are not always attendant, but, in fact, occur very rarely. Of this disease, Dr. Cullen distinguishes two kinds, the acute and the chronic; though the latter very often does not discover itself except by an abscess found in the liver after death, and which perhaps was mistaken for an affection of some neighbouring part. Hence the chronic affection frequently escapes the observation of practitioners, as has been more particularly observed by Dr. Saunders, who supposes the acute inflammation of this viscus, to be more immediately connected with the arterial, or nutrient, and the chronic with the venous, or secretory, systems of blood-vessels.

The acute hepatitis is attended with considerable fever; a frequent, strong, and hard pulse; high-coloured urine; an acute pain in the right hypochondrium, increased by pressing upon the part. The pain is very often in such a part of the side as to make it appear like a pleurisy; and frequently, like that, is increased on inspiration. The disease is also commonly attended with a cough, which is generally dry, but sometimes moist; and when the pain thus resembles a pleurisy, the patient cannot lie easily except upon the side affected. The pain is frequently extended to the clavicle, and to the top of the shoulder; and is attended sometimes with hiccough, and sometimes with vomiting. Some have added jaundice, or a yellowness of the eyes, to the symptoms of this complaint; but experience shows that it has often occurred without any such symptom.

When hepatitis is of the chronic kind, depending more on an accumulation and effusion in the liver, than on an increased action of its small vessels, the patient complains rather of a sense of weight than of pain; and the fever is by no means either acute or constant: but it often returns in paroxysms somewhat resembling the attacks of an intermittent. This disease is very slow in its progress, frequently continuing for many months, and at last terminating in a very considerable suppuration. In most cases, however, it may be discovered by careful examination of the region of the liver externally. By this means, a considerable enlargement of that viscus may in general be found.

An *inflammation of the membranes of the liver* may arise from the same causes as an inflammation of the substance, but the symptoms differ as follows: the pain is more acute, it is attended with general inflammation, resembles more a pleurisy of the right side when the convex part is affected. It is nevertheless to be treated nearly in the same manner as the acute hepatitis.

The remote causes of this disease are not always to be discerned, and many have been assigned on a very uncertain foundation. It has been supposed that the disease may be an affection either of the extremities of the hepatic artery, or those of the vena portarum; and the supposition is by no means improbable. The opinion, however, most commonly adopted is, that the acute hepatitis is an affection of the external membrane of the liver, and the chronic kind an affection of the parenchyma of that viscus. The acute disease may be seated either on the convex or concave surface of the liver; and in the former case a more pungent pain and hiccough may be produced, and the respiration is more considerably affected. In the latter there occurs less pain; and a vomiting is produced, commonly by some irritation communicated to the stomach. The inflammation on the concave surface of the liver may be readily communicated to the gall-bladder and biliary ducts: and this, perhaps, is the only case of idiopathic hepatitis attended with jaundice.

The inflammation of the liver, like others, may end by resolution, suppuration, or gangrene; and the tendency to the one or to the other of those events may be known from what has been already mentioned concerning the prognosis in gastritis. The resolution of hepatitis is often the consequence of, or is attended with, evacuations of different kinds. A hæmorrhage, sometimes from the nose, and sometimes from the hæmorrhoidal vessels, gives a solution of the disease. Sometimes the same thing is accomplished by a bilious diarrhœa; and sometimes the resolution is attended with sweating, and an evacuation of urine depositing a copious sediment. Sometimes it may be cured by an erysipelas appearing in some external part. When the disease terminates in suppuration, the pus collected may be discharged by the biliary ducts: or, if the suppurated part does not adhere any where closely to the neighbouring parts, it may be discharged into the cavity of the abdomen: but if, during the first state of inflammation, the affected part of the liver shall have formed a close adhesion to some of the neighbouring parts, the discharge after suppuration may be various, according to the different seat of the abscess. When seated on the convex part of the liver, if the adhesion be to the peritonæum lining the common teguments, the pus may make its way through these, and be discharged outwardly: or, if the adhesion shall have been to the diaphragm, the pus may penetrate through this, and into the cavity of the lungs; from whence it may be discharged by coughing. When the abscess is seated on the concave part of the liver, in consequence of adhesions, the pus may be discharged into the stomach or intestines; and into these last, either directly, or by the intervention of the biliary ducts. Upon a consideration of all these different circumstances, therefore, together with the general principles of inflammation, must the prognosis of this disease be established.

On the foregoing principles, the cure of hepatitis is usually attempted by bleeding, blisters, relaxants, &c. as in other internal inflammations; but the symptoms at the beginning not alarming the patient, it is often too late before the remedies are employed; and from the slightness of the general inflammation, evacuations having less effect, this disease frequently terminates as we have said, in suppuration, which, however, is to be avoided, if possible.

For this purpose we are to bleed to twelve or fourteen ounces any time before the fifth day; especially if there be general inflammation: and the bleeding is to be repeated, if the general inflammation continues, or the patient is relieved but not cured. If there be a free passage for the bile into the *duodenum*, purgatives are also to be given. In other cases, relaxants, particularly antimonials, and blisters applied to the part, are principally to be depended on, and in all cases are useful.

The cure of hepatitis in warm climates, where the disease is much more common than it is in Britain, is chiefly trusted to mercury. Not only in cases of the chronic kind, but in acute hepatitis also, after an attempt has been made to alleviate the urgent symptoms by bleeding and blistering, recourse is immediately had to this powerful mineral. It is employed by different practitioners, and in different cases, under various forms; but many give the preference to friction with mercurial ointment over the region of the liver, thereby keeping the patient on the verge of salivation for such a length of time, as the circumstances of the case seem to require. From the liberal use of mercury, a successful resolution has no doubt been obtained in many cases, which would otherwise have infallibly terminated in suppuration. But notwithstanding the most careful employment of it in some, a suppuration has ensued; and then it is very doubtful whether any benefit could have been derived from the continuance of it. Indeed Dr. Saunders, of London, the latest writer of note on hepatitis, pointedly condemns the incautious employment of it *in the active periods of inflammation*, when, from its stimulant properties, it appears better calculated to accelerate, than to retard the suppurative process.

" It is very probable," says he, " that the attachment of the practitioners in warm climates to the *early* use of mercury, may have arisen in part from the great debility consequent on the previous excitement of the system, which debility is supposed to prevail the most, where there had been much evacuation; and this prejudice has perhaps been carried to a dangerous extreme." But there are not wanting some, he adds, who are perfectly aware of the necessity of proper distinctions, and who pay due regard to them in their practice. In the East-Indies, many judicious and successful practitioners refrain from the administering of mercury until the violence of the inflammatory action has been moderated by the antiphlogistic treatment; and *then* it is, that mercury may be employed to the greatest advantage. " Yet," says the Doctor, " it appears on attentive observation, that the transition of active inflammation into a state of resolution, is not immediately followed by a healthy condition of the part, but it remains for a time debilitated, and disposed to lapse into a chronic state. This will probably be found the proper period for the exhibition of mercury, which acts as a spur on the vascular system of this organ, and by its moderately stimulating effects, occasions a degree of action, which, when protracted to a proper length, terminates in health."

When the disposition of hepatitis to terminate in a diseased structure, either of the whole, or of a part of the liver, is so strong in some cases, as not to be resisted by a moderate mercurial action, Dr. Saunders expresses his concurrence in the use of this means, to the usual extent of gentle salivation, for the excitement of which, however, he does not see any peculiar advantage likely to arise from inunction on the region of the liver. " It is sometimes difficult in cases of diseased liver, especially if attended with dropsy, to introduce mercury into the constitution; under such circumstances, the best absorbing surface should be employed for the purpose of friction; such parts of the body as have the finest cuticle, as between the fingers, in the axilla, or groin, absorb most readily, and if the cuticle be removed by blisters, from any part of the body, such a surface will be found best adapted to the purpose of absorption. Ulcers frequently absorb better than entire surfaces, and in many cases such artificial means of promoting absorption may be admitted.—It is likewise a subject worth considering, whether still greater advantage may not be derived from the introduction of the more active chemical preparations of mercury by absorption, than by the use of the common mercurial ointment.—Ulcerated surfaces will absorb the saline preparations of mercury, while a surface covered with a cuticle, would with difficulty admit them. The quantity of mercury at any one time in a state of action in the body, is so small, as to elude all the powers of chemical inquiry. In repeated trials with the most accurate tests of various kinds, I have not been able to discover the least trace of mercury in the secretions of persons under salivation, either from the internal or external use of it."

Of the scirrhosity, which frequently takes place in the liver, and which may be considered as the remains of hepatitis, we shall speak under the article Liver. It remains for us here to notice a particular preparation of mercury, *calomel;* on the exhibition of which many practitioners, but particularly Dr. Curry, one of the physicians of Guy's Hospital in London, lays particular stress as having somewhat of a *specific* effect in these cases. In a communication to his friend Dr. Saunders who condemns the employment of mercury in *acute hepatitis*, he says, " From the general and comprehensive term *mercury*, an exception must be made in favour of calomel, in acute inflammation of the liver. Indeed when we consider the violence and rapidity of the disorder in many instances, it does not seem possible to excite a general mercurial action, sufficiently soon to overtake and arrest its progress; and if it were, it would not appear adviseable to make the attempt, lest the suddenness and violence of such action might ultimately be productive of greater mischief than would attend the original disease under any other mode of treatment. From this objection, however, calomel is entirely free; as the good effects from it may be obtained not only more speedily than in the other way, but without occasioning any *general* operation, and, consequently, without that injury which certain constitutions experience from mercury when carried to that degree.

" Whether from the greater tone of fibre in temperate and cold, than in hot climates, from the increased action of the liver as a *secretory* organ in these last, or from both of these circumstances; certain it is, that hepatitis in Europe partakes much more of the nature of simple inflammation, than hepatitis in India; and, of course, the simple antiphlogistic plan of cure will of itself be oftener successful in the former than in the latter variety of disease. From my own practice, however, in this country, as well as from comparing it with that of others, I am as firmly convinced as I can be of any medical fact, that, by *the early and free administration of calomel*, I have saved many a pound of blood which must otherwise have been taken away, to alleviate the urgent symptoms of hepatic inflammation. In proof of this I could adduce a great number of cases; but some have occurred to me lately, both in the hospital and in private practice, which are particularly illustrative of the benefit derived from calomel in all inflammatory affections in which the liver is any wise concerned; as, in the cases alluded to, from the pain being seated in the *left* side of the thorax, and no symptom present which clearly indicated hepatic affection, they were at first considered as peripneumonic or pleuritic, and treated accordingly, by local and general blood-letting, purging with infusion of senna, blisters to the part, and the use of antimonial diaphoretics. Notwithstanding these remedies, however, no considerable or permanent relief was obtained, until their failure led me to suspect, that the *liver* was the primary seat of the complaint, and the remote thoracic pain only symptomatic. Upon this impression, I immediately put in practice the mode which I had before employed with success in obvious cases of hepatic inflammation; of giving three or four grains of calomel every four or six hours, as the urgency of the symptoms required; and with the effect of entirely removing the pain and difficulty of breathing in the course of the night.

"As in most other cases, calomel given in such doses, and at such intervals, proves considerably purgative, it might be concluded, that its good effects here were entirely owing to its cathartic power. This is in a great measure true, but it is so only in a particular sense of the term *cathartic*, and therefore requires explanation. The bowels may be repeatedly cleared by other purgatives without much relief; and even calomel is often attended with little if any more advantage, if it pass very speedily through the intestines. The mode in which alone it proves effectual, is, by emulging the biliary ducts; and the evidence and measure of its salutary operation is, the quantity of bile which it evacuates by stool. Though its effects, then, be ultimately that of a cathartic, yet it is not simply as such that it is useful, but by acting specifically, and being a *cholagogue*, or evacuant of bile."

Dr. Curry here, to explain the reason why a medicine possessing such a property should be especially serviceable in hepatitis, adverts to the great relief afforded by drawing out the milk where the breast of a woman has become inflamed after lying-in; little else being necessary than emptying the lactiferous ducts at the beginning, and repeating it from time to time, as the milk re-accumulates; the inflammatory action of the vessels often subsiding spontaneously, when this cause of distension and irritation is removed. "Though," says he, "the means employed in hepatitis are necessarily different, yet the effect is the same; the general distension of the liver is lessened by emulging it of its bile, which, at the same time that it is secreted in larger quantity, from the increased action of the vena portæ, is prevented from passing freely into the duodenum, in consequence of the hepatic and common ducts partaking of the inflammatory state. The general cholagogue power of calomel, is well known to all those who have practised in hot climates, and particularly in India; and it now begins to be admitted by practitioners in this country, who are attentive to its operation. But its having this effect in acute hepatitis, can only depend on its lessening or removing, in the first instance, that inflammatory constriction of the ducts which occasions the bile to be retained in the liver; for (as has been already observed) other medicines, the general cathartic effect of which is much greater than that of calomel, are by no means of equal service. It amounts, I think, to a proof of this opinion, that even calomel fails if it pass through the bowels quickly; and that I have often been obliged to assist its relaxing power on the biliary ducts, by joining it with opium and antimonial powder, especially the former, which I give to the amount of a grain or more every six hours, or as often as the urgency of the pain renders necessary. Under this management, I have repeatedly found the urgent symptoms abate considerably, many hours before any alvine evacuation took place, and, of course, before the calomel could be said to act as a cathartic: in some cases too, where no evacuation followed, it became necessary to give cathartic medicines afterwards, in order to secure the relief which the calomel had procured, and to prevent the pain and dyspnœa from returning; which they were apt to do, if the liver was not emptied while under the relaxing influence of the calomel and opium."

Where the stomach sympathises so much with the inflammatory condition of the liver, as to become extremely irritable, and to reject every thing by vomiting, Dr. Curry says, he has, with the best effects, prescribed calomel, freed from its muriatic acid, by trituration with lime water. This appears to be so much less irritating to the stomach and bowels than calomel, that, when joined with opiates, it will be retained with ease; and the effects of it in allaying pain, retching, and other urgent symptoms in hepatic inflammation, are very remarkable.

When suppuration takes place in the liver, as soon as this is evident from the symptoms, it has been the practice of some to give the cinchona, four or five times a day, increasing the dose, so that the patient shall take from three drachms to half an ounce every twenty-four hours. This is done with a view to counteract the hectic which usually supervenes in such cases. If the abscess points externally, we are to open it as soon as possible; provided it clearly appears, from the immobility of the swelling, &c. that the liver *adheres to the peritonæum;* and the dose of the bark may then be increased to ℥j. or ℥ij. every twenty-four hours. This medicine is also used in the same manner, if from the purulent or ichorous stools of the patient, it appears that the abscess has broken into the *duodenum.* If it discharges itself into the cavity of the abdomen, it is manifest, that the chance of the patient's recovery is very little.

HEPATIRRHŒ'A, (*ηπατιρροια*, from *ηπαρ*, *the liver*, and *ρεω*, *to flow)*; a species of diarrhœa. See Diarrhœa.

HEPATOCE'LE, (*ηπατοκηλη*, from *ηπαρ*, *the liver*, and *κηλη*, *a tumor);* a hernia, in which a portion of the liver protrudes through the abdominal parietes.

HEPATO'RIUM; the same as Eupatorium. See Eupatorium.

HEPTA'NDRIA, (from *επτα*, *seven*, and *ανηρ*, *a man);* in botany, the seventh class in Linnæus's sexual method, consisting of plants with hermaphrodite flowers, which have seven stamina or male organs. The orders are four, derived from the number of styles or female organs. See Botany.

HEPTAPHY'LLUM, (from *επτα*, *seven*, and *φυλλον*, *a leaf*). See Tormentilla.

HERA'CYLUM SPONDY'LIUM; the systematic name of the *spondylium* of the shops. See Spondylium.

HERB, in botany; a name by which Linnæus denominates that portion of every vegetable, which arises from the root, and is terminated by the fructification. It comprehends, 1. The trunk, stalk, or stem. 2. The leaves. 3. Those minute external parts called by the same author, the *fulcra*, or supports of plants. 4. The buds, or, as he terms them, the *winter-quarters* of the future vegetable.

HE'RBA BRITA'NNICA. See Hydrolapathum.

HE'RBA SA'CRA. See Verbena.

HERBACEOUS, an epithet applied to plants which have succulent stems or stalks that die down to the ground every year. Of herbaceous plants, those are annual which perish, stem and root and all, every year; biennial, which subsist by the roots two years; perennial, which are perpetuated by their roots for a series of years, a new stem being produced every spring.

HERBAL, signifies a book that treats of the classes, genera, species, and virtues of plants. The same term is sometimes also used for what is more usually called *hortus siccus*. See Hortus siccus.

HERB-BENNET. See Caryophyllata.

HERB-MASTICH. See Marum vulgare.

HERB-OF-GRACE. See Gratiola.

HERB-TRINITY. See Hepatica nobilis.

HERCULES'S ALLHEAL. See Panax.

HEREDITARY DISEASE, (from *hæres*, an heir); a disease which is continued from parents to their children. See Disease.

HERMAN (Paul), a famous botanist in the 17th century, was born at Halle, in Saxony. He practised physic in the isle of Ceylon, and was afterwards made professor of botany at Leyden, where he died in 1695. He wrote a catalogue of the plants in the public garden at Leyden, and a work intitled "*Floræ Lugduno-Batavæ flores*."

HERMA'NNIA, so called in honour of Herman Boerhaave. It is the name of a herb in Africa of which Boerhaave enumerates seven species; whose virtues are similar to those of marshmallows. Linnæus describes seventeen species of this genus.

HERMAPHRODITE, (of the Greek *ερμαφροδιτος*, a compound of 'Ερμης, *Mercury*, and Αφροδιτη, *Venus*; *q. d.* a mixture of Mercury and Venus, *i. e.* of male and female); a term generally understood to signify a human creature possessed of both sexes, or who has the parts of generation both of male and female. This term, however, is applied also to other animals, and even to plants. *Hermaphroditus* was originally a proper name, applied by the heathen mythologists to a fabulous deity, whom some represent as a son of *Hermes*, Mercury, and *Aphrodite*, Venus; and who, being desperately in love with the nymph Salmasis, obtained of the gods to have his body and hers united into one. The Greeks call *hermaphrodites*, *ανδρογυνοι*, *androgini*, *q. d.* men-women. See the article Androgynes.

In a paper by Mr. Hunter, in the 69th volume of the Philosophical Transactions, hermaphrodites are divided into *natural* and *unnatural* or monstrous. The first belongs to the more simple orders of animals, of which there are a much greater number than of the more perfect. The unnatural takes place in every tribe of animals having distinct sexes, but is more common in some than in others. The human species, our author imagines, has the fewest; never having seen them in that species, nor in dogs; but in the horse, sheep, and black cattle, they are very frequent.

From Mr. Hunter's account, however, it does not appear that such a creature as a perfect hermaphrodite has ever existed. All the hermaphrodites which he had the opportunity of seeing had the appearance of females, and were generally thought such. In the horse they are very frequent; and in the most perfect of this kind he ever saw, the testicles had come down out of the abdomen, into the place where the udder should have been, and appeared like an udder, not so pendulous as the scrotum in the male of such animals. There were also two nipples, of which horses have no perfect form; being blended, in them, with the sheath or prepuce, of which there was none here. The external female parts were exactly similar to those of a perfect female; but instead of a common-sized clitoris, there was one about five or six inches long; which, when erect, stood almost directly backwards.

A foal-ass very similar to the above was killed, and the following appearances were observed on dissection. The testicles were not come down as in the former, possibly because the creature was too young. It had also two nipples; but there was no penis passing round the pubes to the belly, as in the perfect male ass. The external female parts were similar to those of the she-ass. Within the entrance of the vagina was placed the clitoris; but much longer than that of a true female, being about five inches long. The vagina was open a little farther than the opening of the urethra into it, and then became obliterated; from thence, up to the fundus of the uterus, there was no canal. At the fundus of the common uterus it was hollow, or had a cavity in it, and then divided into two, viz. a right and a left, called the *horns* of the uterus, which were also pervious. Beyond the termination of the two horns were placed the ovaria, as in the true female; but the Fallopian tubes could not be found. From the broad ligaments, to the edges of which the horns of the uterus and ovaria were attached, there passed towards each groin a part similar to the round ligaments in the female, which were continued into the rings of the abdominal muscles; but with this difference, that there was continued with them a process or theca of the peritonæum, similar to the tunica vaginalis communis in the male ass; and in these thecæ were found the testicles, but no vasa deferentia could be observed passing from them.

In most species of animals, the production of hermaphrodites appears to be the effect of chance: but in the black cattle it seems to be an established principle of their propagation. It is a well-known fact, and, as far as hath yet been discovered, appears to be universal, that when a cow brings forth two calves, one of them a bull, and the other a cow to appearance, the cow is unfit for propagation, but the bull-calf becomes a very proper bull. They are known not to breed; they do not even show the least inclination for the bull, nor does the bull ever take the least notice of them. Among the country people in England, this kind of calf is called a *free-martin;* and this singularity is just as well known among the farmers as either cow or bull. When they are preserved, it is for the purposes of an ox, or spayed heifer, viz. to yoke with the oxen, or fatten for the table. They are much larger than either the bull or the cow, and the horns grow longer and bigger, being very similar to those of an ox. The bellow of a free-martin is similar to that of an ox, and the meat is similar to that of the ox or spayed heifer, viz. much finer in the fibre than either the bull or cow; and they are more susceptible of growing fat with good food. By some they are supposed to exceed the ox and heifer in delicacy of taste, and bear a higher price at market; this, however, does not always hold, and Mr. Hunter gives an instance of the contrary. The Romans, who called the bull *taurus*, spoke also of *tauræ*, in the feminine gender, different from cows. Stephens observes, that it was thought they meant by this word *barren cows*, who obtained the name because they did not conceive any more than bulls. He also quotes a passage from Columella, lib. vi. cap. 22. " And, like the *tauræ*, which occupy the place of fertile cows, should be rejected or sent away." He likewise quotes Varro, *De re rustica*, lib. ii. cap. 5. " The cow which is barren is called *taura.*" From which we may reasonably conjecture, that the Romans had not the idea of the circumstances of their production.

Of these creatures Mr. Hunter dissected three, and the following appearances were observed in the most perfect of them. The external parts were rather smaller than in the cow. The vagina passed on, as in the cow, to the opening of the urethra, and then it began to contract into a small canal, which passed on to the division of the uterus into the two horns; each horn passing along the edge of the broad ligament laterally towards the ovaria. At the termination of these horns were placed both the ovaria and testicles, both of which were nearly about the size of a small nutmeg. No Fallopiantu bes could be found. The testicles had vasa deferentia, but imperfect. The left one did not come near the testicle; the right only came close to it, but did not terminate in the body called *epididymis.* They were both pervious, and opened into the vagina near the opening of the urethra. On the posterior surface of the bladder, or between the uterus and bladder, were the two bags called the *vesiculæ seminales* in the male, but smaller than what they are in the bull: the ducts opened along with the vasa deferentia.

Concerning hermaphrodites of the human species, much has been written, and many laws enacted about them in different nations; but the existence of them is justly disputed. Mr. Cheselden, in his popular book of Anatomy, exhibited the parts of what he calls " *an hermaphrodite negro*, which was neither sex perfect, but a wonderful *mixture of both.*" This person was twenty-six years of age, and in shape perfectly male. In his engraved figures, well known to anatomical students, he exhibits a view of the supposed *clitoris*, which, when erected, he says, appeared almost as large as a man's penis. What he denominates *labia*, is a divided scrotum; in which were found perfect testicles, with all their vessels. He also makes out the *nymphæ*, and shows the entrance into the *vagina*, where were to be seen carunculæ myrtiformes, &c. The other figure Mr. Cheselden denominates, " *another hermaphrodite*, whose shape was *rather female than male*, but too young to have female breasts, or a beard, like a male, upon the face." In this are also described the glans clitoridis, the nymphæ, the labia with testicles in them, the entrance into the vagina, &c. Unfortunately, however, there is no account of the dissection of these subjects; otherwise it is probable the circumstance of the particular sex, in either of these cases, would have been by no means equivocal. Dr. Parsons, indeed, wrote a treatise on this subject, in which he endeavoured to explode the notion as a vulgar error. According to him, all the hermaphrodites that have appeared, were only women, whose clitoris, from some cause or other, was overgrown; and, in particular, that this was the case with an Anglo-woman, shown in London as an hermaphrodite some time ago. An instance of an enlargement of this part, though by no means such as to bring the sex of the party into question, occurs under the article CLITORIS. Indeed, the examinations of modern anatomists, into the real state of those persons whom the ignorant have designated *hermaphrodites*, seems to have put an end to that absurd supposition: as these curious cases ought not to escape us, and we can no where more properly notice them, we shall here extract, from the earliest numbers of that popular work the Edinburgh Medical and Surgical Journal, an extract from Dr. A. Duncan's remarks on these singular malformations, and a concise account of two recent cases of this kind.

To render his account as complete as possible, the Dr. gives us:—1. The history of a peculiar instance in the male. 2. A description of the urinary organs. 3. An account of other deviations from the natural structure common to both sexes. 4. A description of the genital organs in the male. 5. A description of the genital organs in the female. To these he adds some general observations, for which we must refer to the work. The case of *Matthew Ussem*, a German traveller, well known in this country, is selected as a suitable example of the usual appearances in the male, and is thus described:—

In the region of the pubes, in a considerable depression formed by the penis, below two oblique protuberances at the sides and the projecting abdomen above, there is a tumor, nearly hemispherical, about two inches in diameter, and of a lively red colour. Its surface is granulated, and always moistened or covered with a white mucus. At the inferior edge on each side there is a papilla with a small aperture, from which a transparent fluid continually flows, either in drops or in small jets. Through these apertures he can introduce a bent blunt probe about four inches upon the left side, and almost five on the right. Above those papillæ the tumor is more prominent, especially on the left side, and smoother than on the rest of its surface. It appears spongy, but has a considerable degree of firmness; and it is said to have gradually increased in size, firmness, and wrinkling. From not being covered with the common teguments, it is considerably sensible, but not remarkably so, unless when rudely touched. In the morning, on getting out of bed, the tumor is less, and gradually increases in the course of the day, especially after fatigue. It cannot be reduced, nor is its size diminished by pressure. The knobs above the ureters only yield a little, but soon recover their former prominence.

Immediately under this tumor the penis is situated. They are separated by a transverse cleft, which is acutely sensible, and apparently deep, but on examination it proves shallow. The penis itself is short, being scarcely two inches long, or at most three, when in a kind of semi-erection---all that it ever attains. Its thickness and colour are natural; but the glans, which always remains uncovered, is as if cleft nearly half its depth, from above downwards, and laid open; so that its upper surface is flat, and of a lively red, being covered only with a smooth thin membrane. Between the lobes thus formed, there is a groove resembling an urethra laid open. At the end of the urethra, next the body, part of the caput gallinaginis was seen some years ago; at present it is covered with the tumor, and there is the appearance of a canal continued inwards. On the upper part of the penis the prepuce is entirely wanting; below, there is a small fold of the skin, resembling a portion of prepuce connected with the glans by a frænum.

The scrotum is large and natural in its appearance, and contains the testicles, of which the left descends a little lower that the right; and the spermatic cords may be felt descending more obliquely than usual. Some years ago, before the testicles descended, the scrotum had a triangular form, and was pointed downwards.

On each side of the tumor there is a considerable protuberance. These diverge from the root of the penis upwards; and on examining them, the spines of the ossa pubis may be distinctly felt, unnaturally separated from each other. By the anus, the separation of the ossa pubis is still more distinctly perceived, the interval being filled up partly by the deformed bladder, and below, where the corpora cavernosa join the urethra, by a transverse ligament like a cord or thick band.

The situation of the umbilicus is also uncommon, for instead of being in the middle of the abdomen, the cicatrix, where the umbilical vessels were attached, is found in the hypogastric region, connected with the top of the tumor, and a little to the left.

The malformation, Dr. Duncan says, consists in the absence of the anterior portion of the urinary bladder, while the posterior portion is protruded forward through the muscles and integuments which commonly cover it, so that the ureters open externally, and there is a constant involuntary discharge of urine through them. Thus, in fact, the interior surface of the posterior portion of the bladder is seen externally forming a tumor on the surface of the abdomen. This tumor is commonly seated very low in the region of the pubes, immediately above the parts of generation, and surrounded by a considerable depression of the neighbouring muscles and integuments. Its size varies from that of a nut to that of the fist. Its shape is somewhat hemispherical, the transverse diameter being in general the longest. Its colour is red, either pale and lively, or dark and almost liver-coloured. Its surface is irregular, being commonly wrinkled, granulated, or tuberculated. Its appearance is frequently compared to fungous or excoriated flesh, in which, in one case, a number of small glands, like millet seeds, were seen. It is, however, commonly covered with epidermis, and when more accurately examined, it appears to consist of spongy granulations, with small intervening lacunæ, or to resemble somewhat the posterior portion of the tongue, but without any follicular appearance. Its surface is moist, and often covered with mucus, to defend it from the acrimony of the urine, exactly as the internal surface of the bladder is in common cases. Its texture is described as membranous or spongy, with a considerable degree of firmness, or vascular and pulpy, or parenchymatous, with glandular pores, said to pour out, when cut into, a liquor having a urinous smell. The sensibility of this mass seems to have been exquisite in the greatest number of cases, in others by no means remarkable. In some individuals it was exceedingly subject to hæmorrhagy, and in others the acrimony of the urine had produced considerable excoriation, and even gangrene.

From the surface of the spongy tumor there is a constant exsudation of a limpid fluid. On examination, this is generally discovered to proceed from two apertures, which are commonly found on two of the principal tubercles, forming mammillary processes or papillæ. In fœtuses and infants they are placed in the transverse diameter of the tumor, but seem gradually to get lower as the child gets older, until at last, in adults, they are situated in the lower edge. In one case only they were observed in the upper edge. They are generally placed, symmetrically, one on each side, at a greater or smaller distance from each other. Through these apertures, some, of themselves, were in the habit of introducing bent probes or bougies, to the height of several inches; and when the passage of the fluid through them was obstructed, either accidentally, or by design, the uneasiness was very great until the obstruction was removed, when the urine would spout forth with considerable force.

From the mere external appearance it might have been inferred, that the apertures were the mouths of the ureters, and that the spongy mass was a portion of the bladder; but, from the internal examination of some cases of this malformation, the truth of these conclusions has been demonstrated.

In two female cases, described in the Edin. Journ. by Mr. Coates and Mr. Astley Cooper, these circumstances apply in a great degree. For that described by the former gentleman, see plate V. fig. 1, where the tumor seen in the centre of the hypogastric region, is the interior surface of the posterior portion of the bladder, inverted and protruded through the abdominal muscles and integuments. Behind the centre of the upper edge of this tumor, the umbilical scar is concealed. The chink in the centre of the lower edge is the urethra inferioris. At the sides of this chink are two papillæ, through which the ureters open externally. Below it, is the impervious vagina; and, immediately below the vagina, the anus is seen thrown remarkably forwards. The two pyramidal tumors at the sides of the vagina, Mr. Coates says, are probably substitutes for the external labia, and the small triangular bodies within them are perhaps nymphæ.

The external appearances in Mr. Cooper's case are shown in the plate, at fig. 2. *a*, Is the inverted portion of the bladder, forming a fungus, with various projections. *b*, A cicatrix, showing where the umbilical vessels passed, above the fungus, and close to it. *c*, *c*, External orifices of the ureters. *d*, The vagina. *e*, The anus.

When examined after death, the external labia pudendi, in this subject, were found to recede from each other more than usual, and discovered the total want of the nymphæ and meatus urinarius; as the lower part of the fungus extended downwards so as to occupy the usual situation of the glans clitoridis and meatus. The vagina maintained its usual situation, but was destitute of any appearance of hymen, and had no extension of perinæum over its orifice. It was of the common size of the virgin vagina.

Upon dissection, it was discovered that the bones of the pubes, at their symphysis, were separated from each other to the distance of an inch and a half, or two inches, and that the abdominal muscles immediately above the usual situation of the symphysis were wanting; so that the bladder was devoid of any covering from these. On opening the abdomen, and looking into the cavity of the pelvis, the urinary bladder was seen forced through the aperture of the skin and abdominal muscles, but with its anterior portion wanting; so that the fungous surface upon the anterior part of the abdomen was the posterior part of the bladder, with the ureters terminating in it. From within, it appeared puckered at its edges, and adhered firmly to the margin of the abdominal muscles and skin. The ureters, which opened through the lower part of the fungus, were uncommonly large, and had served the purpose of reservoirs. The kidneys were also more than double their usual size, owing entirely to their pelves and infundibula being enlarged; for the secreting part did not appear altered. The corpora cavernosa of the clitoris were attached, in the usual manner, to the bones of the pelvis. Their muscles, though small, were distinctly formed, as were also the *plexus retiformes*. The corpora cavernosa did not pass on either side in a straight line towards the glans, but in a semicircular direction; and, on tracing them towards the upper part of the vagina, they appeared terminating on each side in a glans situated in the middle of the labium, and covered with a portion of skin resembling the prepuce. The glans of one side was about two inches distant from the glans on the other. The uterus and its appendages were unaltered, the other viscera of the abdomen were in a sound state, and the rectum terminated in its usual manner in the anus.

The explanation of these appearances, which have necessarily deranged the genital system, though without the smallest trace of *interference with the other sex*, Mr. Cooper says, is simple. The lusus naturæ consists, as in other cases, in a deficiency of the skin and abdominal muscles anterior to the urinary bladder; in the want of the anterior half of the bladder; and in the projection of the posterior part through the opening in the abdominal muscles, where it forms a raw tumor, upon the surface of which the ureters open.

In his account of the *sexual organs of the male*, Dr. Duncan says, the aberration from the natural structure of the *penis* is abundantly evident. In a great majority of cases, its shortness, its bifid appearance, its breadth at the root, its being impervious, and the deficiency or total absence of prepuce, are all remarkable. These deviations also present considerable varieties, although generally they are of the same kind. In one circumstance they all necessarily agree, viz. the imperforation of the penis, as there is no cavity in the bladder to which the canal of the urethra could lead. The situation of the *urethra* proves very remarkable; for in very few instances on record does it seem to have run, as it naturally does, in the lower angle formed by the junction of the corpora cavernosa, but commonly in the upper angle, giving the penis and glans the appearance of being inverted. In the texture of the *glans* nothing remarkable seems to have been observed, except the thickness of its cuticle, and this probably owing to its never being covered by a prepuce, which was either entirely wanting, or very deficient, and even when large enough, unnaturally thickened, and never covering the glans, but attached only to the lower half, from which it hung down in the form of a crescent. The prepuce, in these cases, is always connected to the glans by a frænum, which sometimes is prolonged, bisecting the glans, and connecting it with the fungus; or taking an opposite direction, binding the prepuce back on the scrotum. In a few cases, however, the deviation from the natural structure has appeared to be much greater. The *testicles* seem always to have been natural, except that in a few cases they were rather small. In some instances they were continued in the scrotum, in others they had not descended, although there was a scrotum, and, again, in some there seemed to be no scrotum. The latter, when existing, from the separation of the bones of the pubes, has been so much distended in breadth, as to be rarely pendulous, but rather to form a crescent-shaped appendage to the perinæum. It has often, in other cases, been very much wrinkled, or even corrugated, without much appearance of raphe. Dr. Baillie observed that the cellular membrane was not spongy as usual, but of a very firm compact texture; and that the septum dividing it into natural cavities was remarkably strong. The *prostate gland* was either natural, or indurated, or small, or wanting. The *vesiculæ seminales* also were either natural, or small, or wanting. They were either attached to the bottom of the back part of the bladder, and occupied their situation between the bladder and rectum as usual, or they were placed immediately below the kidneys, and adhered to their infundibula. The *epididymis* seems always to have been natural, and to have terminated in the *vasa deferentia.* The termination of these, however, was exceedingly various. The sexual appetite in some of the adults was strong, in others weak, and in others altogether wanting. From the malconformation of the penis, it is evident that none of them were capable of procreating the species.

In his account of the deviations from the natural structure, as common to both sexes, Dr. Duncan particularly remarks as the most uniform, the separation (as in Mr. Cooper's case) of the bones of the pubes, laying the foundation of many other deviations as a consequence. The accumulation of fat in the direction of the spermatic vessels, is another general appearance, as are the variations in the position of the anus, which is most commonly thrown very forward, so as to leave little or no perinæum. Where the anus is thrown forwards, the rectum forms a large curve in the pelvis, so that the bladder does not lie upon, but forms a right angle with it. Another remarkable and common occurrence in these cases, appears to be the unnaturally low position of the *umbilicus;* for in very few instances only is it found to occupy its natural situation. Most commonly it is placed in the hypogastric region, in the upper edge of the protruded bladder, with which, in some instances, it has been so blended, that scarcely any vestiges of it could be discovered after it had cicatrized; and as the birth of some of these cases did not fall under the inspection of professional men, or the connexion with the placenta had been destroyed during delivery, or previous to it, these have been adduced, though without any appearace of reason, as proofs that the fœtus may live and be well nourished in the uterus, although not connected with it by a vascular cord.

Among the reptile tribe, such as worms, snails, leeches, &c. hermaphrodites are very frequent. In the memoirs of the French academy, we have an account of the very extraordinary kind of hermaphrodites, which not only have both sexes, but do the office of both at the same time. Such are earth-worms, round-tailed worms found in the intestines of men and horses, land-snails, and those of fresh waters, and all the sorts of leeches. And, as all these are reptiles, and without bones, M. Poupart concludes it probable, that all other insects which have these two characters are also hermaphrodites.

The method of coupling practised in this class of hermaphrodites, may be illustrated in the instance of earth-worms. These little creatures creep, two by two, out of holes proper to receive them, where they dispose their bodies in such a manner as that the head of the one is turned to the tail of the other. Being thus stretched lengthwise, a little conical button or papilla is thrust forth by each, and received into an aperture of the other. These animals, being male in one part of the body, and female in another, and the body flexible withal, M. Homberg does not think it impossible but that an earth-worm may couple with itself, and be both father and mother of its young; an observation which appears very extravagant.

Among the insects of the soft or boneless kind, there are great numbers indeed, which are so far from being hermaphrodites, that they are of no sex at all. Of this kind are all caterpillars, maggots, and worms, produced of the eggs of flies of all kinds: but the reason of this is plain; these are not animals in a perfect state, but disguises under which animals lurk. They have no business with the propagating of their species, but are to be transformed into animals of another kind, by the putting off their several coverings, and then only they are in their perfect state, and therefore then only show the differences of sex, which are always in the distinct animals, each being only male or female. These copulate, and their eggs produce other creatures, which show no sex till they arrive at that perfect state again.

HERMAPHRODITE FLOWERS, in botany. These are so called by the sexualists, on account of their containing both the antheræ and stigma, the supposed organs of generation, within the same calyx and petals. Of this kind are the flowers of all the classes in Linnæus's sexual method, except the classes *monœcia* and *diœcia;* in the former of which, male and female flowers are produced on the same root; in the latter, in distinct plants from the same seed. In the class *polygamia,* there are always hermaphrodite flowers, mixed with male or female, or both, either on the same or distinct roots. In the plantain tree, the flowers are all hermaphrodite: in some, however, the anthera or male organ, in others the stigma or female organ, proves abortive. The flowers in the former class are styled *female hermaphrodites;* in the latter, *male hermaphrodites.* Hermaphrodites are thus as frequent in the vegetable kingdom as they are rare and scarce in the animal one.

HE'RMES, (Ερμης, the Greek name of *Thoth*, or *Thouth;* whom the Latins call *Mercury).* He was Chaanaan, the son of Cham; and to him they ascribed the invention of all arts, particularly that of medicine. From him chemistry was called the *Hermetic art.*

HERMETICAL MEDICINE; that system or hypothesis in the art of healing, which explains the causes of diseases, and the operation of medicines, on the principles of the hermetical philosophy, and particularly on the system of alkali and acid. It has been long exploded.

HERMETICAL SEAL; a manner of stopping or closing glass vessels, for chemical operations, so very accurately, that nothing can exhale or escape, not even the most subtile spirits. It is performed by heating the neck of the vessel in the flame of a lamp, till it be ready to melt, and then, with a pair of pincers, twisting it close together. This they call putting on *Hermes's seal.* There are other ways of sealing vessels hermetically ; viz. by stopping them with a plug or stopple of glass, well luted into the neck of the vessel ; or, by turning another ovum philosophicum upon that wherein the matter is contained.

HERMODACTYL. See HERMODACTYLUS.

HERMODA'CTYLUS, (of the Gr. ερμοδακτυλος; *hermodactyl.* Etymologists have always derived this word from Ερμης, *Mercury*, and δακτυλος, *a finger.* It is probably named from *Hermus*, a river in Asia, upon whose banks it grows, and δακτυλος, *a date*, which it is like) ; the root of a species of colchicum, not yet ascertained. Some reckon it the root of the *colchicum variegatum*, or else of the *iris tuberosa.* But it is most generally supposed to be that of the *colchicum Illyricum* of Linnæus. It is of the shape of a heart, flattened on one side, with a furrow on the other ; of a white colour, compact and solid, yet easy to cut or powder. This root, which has a viscous, sweetish, farinaceous taste, and no remarkable smell, is imported from Turkey. This remedy is totally laid aside in the practice of the present day. Formerly the roots were esteemed as cathartics, which power, however, is wanting in those that are brought to this country.

HE'RNIA, (from ερνος, *a branch* ; because it protrudes forwards) ; a swelling produced by the falling down, or protrusion, of some part or parts, which ought naturally to be retained within the cavity of the belly. Dr. Cullen places this genus of disease in the Class *locales*, and Order *ectopiæ ;* and defines it an *ectopia*, or displacing of a soft part, though still covered with the skin and other integuments. In strictness, the name of *hernia* might, with propriety, be applied to every swelling occasioned by the dislodgment of parts from those boundaries within which, in a state of health, they are contained ; but the general acceptation of the term is more limited.

The parts of the human body in which herniæ usually appear, are the groin, scrotum, labia pudendi, the upper and fore part of the thigh, the umbilicus, and different points between the interstices of the abdominal muscles. If the situation of such tumors be various, the viscera which produce them are still more so ; instances having occurred of the stomach, uterus, liver, spleen, and bladder, being found to form their contents. But a part of the intestinal canal, or a portion of the omentum, are, from experience, known to be the most frequently concerned in their formation.

From these circumstances of situation and contents, all the different appellations are derived by which herniæ are distinguished. Thus they are termed *inguinal*, *scrotal*, *femoral*, *umbilical*, and *ventral ;* from their appearing in the groin, scrotum, thigh, navel, or belly. When the tumor is confined to the groin, the hernia is said to be incomplete, and is termed *bubonocele ;* but when the swelling reaches down to the bottom of the scrotum, the rupture is then supposed to be complete, and the disease obtains the name of *scrotal rupture.* Of these disorders the inguinal hernia is by much the most frequent ; and next to that is the femoral. The umbilical is seldom observed in men, or even in women who have not borne children.

The causes which tend to the production of hernia in its more usual form are these :—1. The containing parts of the abdomen we know to be elastic and compressible ; whatever, therefore, tends to produce a diminution of capacity in the cavity of the abdomen, must occasion a proportional degree of risk of some of the contained parts being pushed from their natural situations. Violent coughing, crying, laughter, or great bodily exertion, are attended with more or less contraction of the abdominal muscles, and particularly of the diaphragm ; and as the contraction of these muscles must always diminish the abdominal cavity, these causes therefore are frequently found to be productive of herniæ. 2. Falls, in consequence of the derangement they produce in the abdominal viscera, from the sudden and violent shock with which they are often attended, are not unfrequently the immediate causes of herniæ. 3. Persons of a preternatural laxity of frame are very liable to herniæ. The containing parts of the abdomen, from the want of a sufficient tone and firmness, are unable, in such people, to resist on all occasions the weight of the different viscera : and they are therefore more particularly exposed to disorders of this kind on the slightest application of any of the causes already mentioned. 4. Sprains are apt to induce a laxity of the part injured ; and have therefore a similar influence, in inducing herniæ, with general laxity. 5. It has been observed, that the people of those countries where oil is much used as an article of diet are particularly liable to herniæ.

In whatever parts the parietes of the abdomen happen to be weakest, these various causes will most readily operate in producing hernia ; and accordingly we find, that descents of the bowels usually occur only in such parts.

In whatever situation a protrusion of any portion of the intestines occurs, except in the case of the *hernia congenita*, as all the viscera are contained within the peritonæum, a portion of that membrane, it is evident, must be carried down, together with the parts protruded ; and in every such instance, it is this portion of the peritonæum which goes down along with the gut, that is termed the *hernial sac.* The size of this sac is various in different subjects, and in different stages of the same disorder. On the first appearance of the disease, it is commonly of no very considerable size, as such swellings seldom acquire any great bulk at once : but by repeated descents of the bowels, it comes to be pushed lower and lower, till in some instances its bulk becomes very considerable indeed ; and when in this advanced period of the disorder the sac happens to be laid open, it is found to contain either large quantities of omentum or intestine, and frequently large portions of each. As the peritonæum has this property in common with many other parts of the body, of thickening according to the degree of any gradual extension applied to it, so in many instances the thickness and firmness of the hernial sac are become considerable.

All the bad symptoms which are found to occur in herniæ, proceed, as may be readily supposed, either from obstruction to the passage of the fæces when the intestinal canal forms the tumor, or from a stoppage of circulation occasioned by stricture on the prolapsed parts: so that the attending symptoms, it is evident, will be always more or less hazardous, according to the nature of the parts so protruded. Thus, when omentum alone forms the substance of hernial swellings, as that organ does not appear to be so immediately necessary for life as many of the other viscera, such tumors accordingly are not so frequently productive of bad consequences, at least they are seldom in any degree so hazardous, as when a part of the alimentary canal is either protruded by itself or along with omentum.

Although this, however, is in general the case, yet it does sometimes happen, that even an omental rupture is productive of no small degree of danger. When a stricture so complete upon it occurs, as to occasion a stoppage of circulation in the protruded part, mortification, with all its bad consequences, must be the certain event: and besides, the connection between the omentum, stomach, and other viscera, is such, that a sudden descent of any considerable portion of the former, sometimes brings on vomiting, hickup, and other troublesome symptoms: and lastly, although a rupture containing omentum only might not of itself produce any thing bad; yet, as the passage through which the omentum has slipped, must of necessity continue open so long as that viscus remains protruded, and as that circumstance alone must, so long as it continues, render it more easy for a portion of gut likewise to get down, this of itself is a sufficient reason for entitling even this species of hernia to the serious attention of practitioners.

But whatever the contents of such swellings may be, as their remaining, in some instances, for a considerable length of time, without being productive of any bad symptoms, must proceed entirely from the circulation continuing to go freely on, notwithstanding the derangement of parts; so, whenever a stricture occurs on the protruded viscera, sufficient to produce either a stoppage of the circulation, or of the fæcal contents of the alimentary canal, when a portion of gut forms the disease, the following, in general, are the symptoms which accrue.

An elastic colourless swelling is observed at the part affected; a slight pain is felt not only in the swelling itself, but, if part of the alimentary canal is down, an universal uneasiness is perceived over the whole abdomen; and this pain is always rendered worse by coughing, sneezing, or any violent exertion. The patient complains of nausea; frequent retching; can get no discharge by stool; becomes hot and restless; and the pulse is commonly found quick and hard. When the swelling is formed entirely by a portion of gut, if no fæces be contained in it, it has a smooth, equal surface; and is easily compressible, but instantly returns to its former size on the pressure being removed: but in gut-ruptures of long standing, where hard fæces have been collected in the protruded bowels, considerable inequalities are detected. When again the tumor is composed both of gut and omentum, its appearance is always unequal, it feels soft and somewhat like dough, and of course is not so elastic as when part of the intestinal tube only is down; for although, like the other, it is compressible, it does not so readily regain its former dimensions on the pressure being taken off.

It will be readily supposed, that the symptoms we have described never can happen from the presence of omentum *only;* for although stricture produced on a portion of omentum, even when no part of the intestinal tube is down, does now and then occasion a good deal of distress, such as pain in the part, sickness, vomiting, and twitching pains through the whole belly; yet no obstruction of the gut ever occurs from this, and of course none of the symptoms ever prove so alarming as when any part of a gut is affected.

If the symptoms described as being produced by a strangulated gut, are not obviated by a removal of the stricture which produced them, the nausea and retching terminate in frequent vomitings, first of a bilious, and afterwards of a more fetid matter; the belly becomes tense; the pain grows more violent; a distressing convulsive hickup comes on; the fever, which before was not apparently of much consequence, now becomes very formidable; and a total want of rest, with a very disagreeable state of anxiety, continues through the whole course of the complaint. These symptoms having gone on with violence for some time, the patient is at last commonly relieved, on a sudden, from all manner of pain; and then he flatters himself that all danger is over. But instead of that, the pulse, from having been hard and frequent, becomes languid and interrupted; cold sweat breaks out over the whole body, but especially on the extremities; the eyes acquire a kind of languor; the tenseness of the abdomen subsides, and the swelling of the part affected disappears; the teguments covering the parts, which before were either of a natural appearance, or had somewhat of a reddish inflamed cast, now acquire a livid hue, and a windy crepitous feel is distinguishable all over the course of the swelling. If the protruded parts have not of themselves gone entirely up, their return is now in general easily effected by a small degree of pressure, and the patient then discharges freely by stool; but the cold sweats increasing, the hickup turns more violently, and death itself is at last ushered in by its usual forerunners, subsultus tendinum, and other convulsive twitchings.

These are the ordinary symptoms of what is termed a *strangulated* or *incarcerated hernia:* that is, when the parts protruded become so affected by stricture as to produce pain; and do not either return to their natural situations on the patient's getting into a horizontal posture, or cannot even be immediately replaced by the hands of a practitioner.

In whatever situation a strangulated hernia occurs, the only rational mode of cure, it is evident, must consist in the removal of that stricture which prevents the return of the protruded parts. It is that stricture which ought to be considered as the cause of all the mischief; and unless it be removed, nothing effectual can be done for the relief of the patient.

Various methods have been attempted by practitioners for the removal of stricture in these disorders; all of which may be comprehended under two general heads. 1. Such as effect a reduction of the protruded parts, without the interposition of incision, or any chirurgical operation properly so called; and,—2. A division of the parts producing the stricture, so as to admit of a replacement of the deranged viscera, constituting what is termed the *operation for the hernia*.

The remedies to be employed for accomplishing the first of these are, a proper posture of the patient, with the manual assistance of a practitioner; blood-letting, stimulating clysters, opiates, the warm bath, and proper applications to the tumor itself. If these fail, there is then no other means of cure left, but the operation of dividing the integuments, and replacing the viscera.

As soon as the assistance of a practitioner is desired for the removal of symptoms in cases of hernia, the first circumstance requiring his attention is the placing his patient in such a posture as will most probably favour the return of the protruded parts. Placing the patient's feet over the shoulders of another person, while his body is allowed to hang downwards, and causing him to be a somewhat jolted about, has on some occasions answered, when other means have failed.

The surgeon should, at the same time, endeavour to assist the return of the bowels, by means of gentle pressure with his hands and fingers. In the inguinal or scrotal hernia, this pressure should be made obliquely, upwards and outwards, to correspond with the opening in the external oblique muscle; in the femoral hernia it ought to be made directly upwards; in the umbilical and ventral hernia directly backwards. The swelling should be grasped with one hand, at the bottom, while with the fingers of the other hand an attempt is made to push gently the contents of the tumor into their place, always observing, that the parts last protruded be first reduced. This operation is, by authors, termed the *taxis*.

When the means now mentioned have failed, no remedy affords more relief than blood-letting. The quantity to be drawn out is chiefly to be determined by the strength of the patient. There is scarcely any disease, however, where such large quantities of blood can with propriety be taken from weak people. Bleeding till the patient is in a state of deliquium animi, is frequently known to produce a more effectual relaxation of the muscles, than can be done by any other means. On that account it is sometimes advised in cases of hernia, and the practice is now and then attended with advantage.

As an obstinate costiveness is commonly one of the most alarming symptoms of hernia, it has been a common practice to exhibit a variety of stimulating purgatives, both by the mouth and anus; but they are very seldom of much service, and in that case almost universally do injury, by increasing not only the sickness at stomach, but the tension and pain of the tumor. Whenever they are employed, they ought to be thrown up by the anus. For this purpose aloes and other stimulating substances, but particularly tobacco-smoke, are injected; and although this last remedy, which is to be thrown in by double bellows, &c. does not always act as a purgative, it may be usefully employed as an anodyne. Where an evacuation by stool is wanted, it may in general be readily procured by the injection of warm water, in which a little Castile soap is dissolved, in the proportion of a drachm, or a drachm and a half, of the latter to a pound of the former. Warm bathing is another remedy greatly extolled; either by general immersion, or local application by means of warm water, put into ox-bladders, covered with flannel, and laid across the abdomen.

To diminish the size of the tumor, remedies of an opposite quality from these have been used; and though by some this practice has been considered as hazardous, yet by others, particularly by the late Dr. Monro and Mr. Benjamin Bell, more advantage has been found from cooling applications than from those of a different nature. Snow, ice, or cloths dipped in a recent solution of ammon. muriat. in water and vinegar, or cold saturnine applications, or cold water and vinegar, have been employed with advantage. If, notwithstanding these remedies, the disease becomes worse, and no probability remains of success, the division of the parts producing the stricture can alone save the life of the patient.

To determine the *exact time at which to proceed to an operation*, has been considered as one of the nicest points in surgery. In general, when every attempt has failed, and no repetition of the former remedies is likely to succeed, the surgeon ought certainly to proceed to the operation. A few hours, even when assistance has been early applied, is perhaps all the time which ought ever to be consumed in trials of this nature. But however necessary this operation may be when a patient's life is in danger, as it is always attended with some degree of hazard, it ought never to be practised where symptoms of strangulation do not exist.

In that kind of hernia called *chronic*, the circulation in the part forming the hernia, as well as the peristaltic motion of such parts of the alimentary canal as have been protruded, go freely and regularly on. There are many instances of large herniæ falling down even to the bottom of the scrotum, and continuing there for many years, without producing any interruption to the usual discharge by stool. All that can be done here is, to prevent any accumulation of fæces in the intestine, by prescribing a proper diet, and the occasional use of gentle laxatives; and obviating any inconvenience which might arise from the weight of the tumor, by the application of a proper truss or suspensory bandage; to warn them of the risk to which they are constantly liable, and to caution them against violent exercise, particularly leaping, and every sudden exertion. The truss ought to be fitted exactly to the part for which it is intended, for without the utmost nicety in this respect, it must always do more harm than good; for the sole purpose of a bandage, in cases of hernia, is to prevent effectually the falling down of such parts as have been newly replaced. If therefore the pad or bolster of the bandage does not bear properly against the opening upon which it is placed, a portion of gut may slip out, and be materially injured by the pressure of the pad. Under the article TRUSS are described, a truss for an inguinal or femoral hernia of one side, a truss for the same disease in both sides, and a truss for an umbilical hernia, &c.

When *the operation for the hernia* is required, the circumstances to be attended to in performing it, in general, are these: A table of convenient size and height being placed in a proper light, the patient must be so laid on it as to relax the diseased parts as much as possible, and then secured by proper assistants. To lessen the contents of the abdomen as much as possible, the bladder ought to be emptied previous to the operation. An incision is to be made with a common round-edged scalpel through the skin and part of the cellular substance, long enough to allow the stricture to be fully exposed. The rest of the cellular substants is then to be divided with the greatest attention. That part of the muscle forming the stricture, or ring, must next be laid distinctly in view. A small portion of the protruding sac must also be exposed; after which a directory is to be passed between the ring and the sac. A straight probe-pointed scalpel is now to be introduced into the groove of the directory, and by it the ring is to be dilated till the point of the finger can be introduced. The finger is here considered as the safest director; for it being insinuated into the aperture in the tendon, immediately above the protruded parts, the point of the knife is easily introduced upon it; and by keeping the end of the finger always a little before the knife, the opening may be enlarged to any necessary extent, without risk of wounding any of the contiguous parts.

By the ease with which the finger is introduced, the operator will be enabled to judge when the ring is sufficiently dilated; and if the strangulation was entirely in the ring, it will now be evident that every obstacle to the reduction must be removed, and of consequence that the prolapsed parts may be returned with little difficulty. If the patient be young, or if the disease has continued a considerable time, such a degree of inflammation frequently ensues in the neck of the sac as to produce thickening and straitness; so that, after the sac and its contents have been entirely freed from the stricture of the ring, the intestines cannot be reduced. We judge this to be the case when, after the stricture of the ring has been removed, the parts prolapsed do not extend into their natural size, and further, when they make resistance when we attempt to return them. In this case, the neck of the sac must be opened with the utmost caution, to avoid wounding the parts within it.

If the hernial sac, under the straitened part of its neck, be thin and transparent, and there is little or no reason to suspect an adhesion of the bowels to the sac, the best method, as Dr. Monro, in his publication on the bursæ mucosæ, observes, will be to make a small hole in the sac below the stricture, and then to introduce a small furrowed probe, and to cut cautiously upon it. But if the sac be thick and dark coloured, and there is likewise a suspicion that the bowels may adhere to it, the easiest and safest method will be to make the hole in the peritoneum above the stricture; then to introduce a common probe, bent near its point into a semicircle, with its point directed downwards through the stricture into the sac; and, upon the point of it, to make, with great caution, another small hole; after which we may either cut upon the probe, or introduce a furrowed probe, and divide the neck of the sac.

After this, the bowels are to be returned by pressure upon the sac, without opening it further; and the sides of the wound in the skin are to be brought together, and kept so by means of slips of adhesive plaster, though stitches made at the distance of a finger breadth from each other will exclude the air, and prevent the return of the bowels more effectually. Over these are to be laid several folds of lint, and the whole is to be secured by a bandage adapted to the nature of the part.

With regard to the *subsequent treatment*, the patient, upon being carried to bed, should be so placed as to have the part upon which the operation was performed higher than the rest of his body, or at least as high as the situation of the part operated upon will allow, in order to prevent a return of the disease. After the operation, opiates are particularly useful, and ought to be repeated as circumstances may require. It is likewise necessary that the patient be kept cool. In plethoric habits, blood-letting is proper, together with a rigid attention to low diet. A frequent use of clysters and gentle laxatives, to keep the belly moderately open, ought not to be neglected. When the constitution has been previously much reduced, instead of blood-letting and a low diet, a nourishing regimen is necessary. The dressings ought not to be removed till the third or fourth day after the operation, when the sides of the wound will be found almost adhering together; and if attention be paid to the subsequent treatment, the sore will be generally healed in two or three weeks. As soon as the wound is firmly cicatrized, a truss ought to be properly fitted to the part, and should never, on any future period of life, be laid aside.

When the hernia is of *long standing*, and when there is reason to think *adhesions* have taken place between the sac and the gut, or that *mortification* has already begun, or that some filaments run across the sac, and prevent the reduction, or that there is water in the sac, or that the gut is in danger of being entangled from a part of the omentum being down, a different method of operating becomes necessary.

The patient is to be placed as already directed. The operator is to grasp the tumor with one hand, so as to make the skin tense on the fore part of it, while with the scalpel in the other he divides the skin from one end of the tumor to the other. The cellular substance is, by gentle strokes, to be divided, till not only the ring, but the whole length of the sac, is laid bare. An opening is now, in the most cautious manner, to be made into the sac, by slight scratches, to avoid hurting any of its contents.

In making this perforation, which is considered as the nicest part of the operation, considerable assistance is obtained from the use of the small directory, upon the point of which the fibres of the sac are to be successively raised and divided, till an opening is made. The opening is to be enlarged till it admit the fore-finger of the left hand, which serves as a director for conducting the straight probe-pointed scalpel with which the sac is to be divided through its whole length.

The sac being laid open, the parts contained in it ought to be examined with the nicest attention, to discover whether they are all sound or not; and if, upon an attentive inspection, it is found that they are not evidently in a gangrenous state, even although they seem considerably inflamed, they should be immediately returned into the abdomen. When adhesions take place between different parts of the protruded gut, the greatest caution is necessary in separating them. When one part of a gut adheres so firmly to another, as not to be separated but with difficulty, it is much better to return the whole, even in that state, into the abdomen, than to run the risk of hurting the intestine materially, by using much force. When adhesions occur between the hernial sac and the gut, or between the gut and omentum, if the filaments producing the connection cannot be otherwise removed, as there is no great hazard in wounding the omentum, and still less in hurting the sac, a very small portion of these may be dissected, and returned with the gut into the abdomen. When the intestine cannot be reduced with ease, the ring is to be dilated by the blunt-pointed scalpel in the manner already directed. After returning the contents of the sac into the cavity of the abdomen, it has been proposed, by some authors, to pass a ligature round the neck of the sac, with a view of procuring a reunion of its sides, so as to prevent a future descent of the rupture; and various other methods, even actual and potential cauteries, have been proposed: but as none of them yet attempted have been found sufficiently to answer the purpose, the only thing that can be recommended is a well-made truss.

When the bowels are actually *in a state of gangrene*, as the returning of such mortified parts might be attended with the very worst consequences, a great degree of caution is necessary. When the omentum is found in a mortified state, as the excision of a portion of this substance is not attended with much risk, it is the common practice to cut away the diseased parts; and to obviate any inconvenience which might ensue from the hemorrhagy, we are advised to make a ligature on the sound parts, previous to the removal of those which are mortified; whilst the ends of the ligature being left hanging out of the wound, the surgeon has it in his power to remove them when circumstances appear to render it proper. These ligatures on the omentum, however, are frequently productive of bad consequences. No hemorrhagy of any importance ever occurs from a division of this membrane, even in a sound unmortified state; such parts as have become gangrenous may, therefore, be freely cut off, and the remaining sound parts be afterwards without the intervention of ligatures, safely introduced into the abdomen. If a vessel of any size in the omentum, has been divided, a ligature may be passed above the vessel itself, and the ends left hanging out of the wound; the threads may be afterwards pulled away at pleasure. When a rupture has been of long duration, it sometimes happens, that from the pressure made by the truss, and other circumstances, portions of the omentum are collected together into hard lumps. If these be small, they may be returned into the abdomen, without producing any inconvenience; but if from their bulk and hardness they are likely to do mischief, they ought to be cut off. When part of the omentum is to be removed, it ought to be previously expanded and divided with scissars, which will be more convenient than any other instrument. When again a small portion of gut is found mortified, we are to endeavour, by means of a needle ligature, to connect the sound part of the gut immediately above the mortified spot, to the wound in the abdomen already made. By this means, when the mortified part separates, or, perhaps, what is better, when it has been immediately cut off, the fæces are discharged by the wound; and there are different instances where, after such a discharge has continued for some time, the wound has entirely healed.

But when the mortified portion of gut is of considerable extent, and includes the whole circumference of the intestines, all that can be done is to remove it, and to draw, by means of a ligature, the upper end of the gut towards the under, and afterwards connect them to the inner edges of the wound. This, at least, affords a chance of the ends of the gut being brought to reunite; and if unfortunately that event should not take place, a passage for the fæces will still be secured. All such mortified parts as are to be removed, ought to be cut off, and the remaining sound intestine retained, before the opening in the ring can be dilated with safety, lest the gangrenous portion slip in together with the sound. The parts forming a hernia being all completely replaced, when the sac in which they were contained is found thick, hard, and much enlarged, as in such a state no good suppuration can take place, and as its preservation cannot be in any degree useful, such parts of it as can be cut away with propriety, ought to be removed. All the lateral and fore parts of the sac may be cut off with safety; but as it is commonly firmly connected with the spermatic vessels behind, this part of it ought not to be touched.

Mr. Astley Cooper, in his splendid work on the Anatomy and Surgical Treatment of Herniæ, recommends, when the whole cylinder of the intestine is mortified, that such mortified portion should be cut away, and the ends brought into contact, and secured by four ligatures. This practice is countenanced by the result of various experiments made upon quadrupeds, in which a division of the intestine was easily reunited by this expedient. Mr. Cooper, however, observes, that there is a striking difference in the facility with which a longitudinal and transverse wound of the intestine unite: the transverse incision heals readily, whilst the longitudinal unites with difficulty.

Both these facts were confirmed by Mr. Thompson, of Edinburgh, by various experiments made on the intestines of the dog.

"These," says Mr. Cooper, "greatly asssist in elucidating the treatment of a mortified gut in hernia. Instead of endeavouring to maintain a diminished canal, by sewing the intestine longitudinally, the surgeon should not only cut out the mortified part, but also all the remaining part of the cylinder of the intestine, and then, approximating its extremities, he should endeavour to unite it in the manner in which a transverse division of the intestine is treated, by making four sutures upon it, and confining it, by means of the mesentery, to the mouth of the hernial sac."

On this important branch of surgery, various innovations or improvements have been suggested, by modern writers: few of these, however, appear to deserve particular notice. Some difference of opinion on the subject of the *degree of force* necessary to be employed, is evinced in the "*Remarks on incarcerated Herniæ*," published in the Med. and Phys. Jour. by Mr. Ward, surgeon to the Manchester infirmary. That gentleman recommends strongly the *inverted position* whilst the taxis is applied; by which it is meant, that the patient should be held by the legs, on the shoulder of an assistant, as suggested above; his body being allowed to hang down. Another assistant is then to support his head and shoulders, and to incline them a little forwards, so as to relax the abdominal muscles, and by that means favour the return of the intestine. The effects of this practice Mr. Ward has shown in a series of cases, which he closes by the following remarks:

"If," says he, "we admit the propriety of placing the patient, when the taxis is to be applied, in such a position as may most effectually co-operate with the surgeon, the inverted position seems, in every point of view, fairly entitled to a preference, not only in the inguinal and scrotal, but also in the congenital and femoral herniæ; and whoever will reflect on the connection which subsists between the parts above and below the stricture, will be inclined, I think, to draw a similar conclusion. But this is a matter which does not rest on theory entirely; the experience I have already had of its utility, enables me to say, that more benefit actually takes place from the taxis when the patient is placed in an inverted position, and with less violence or injury to the displaced viscera, than when any other position is made use of; an equal degree of pressure being applied in both cases."

Some occasional essayists have dwelt on the good effects of *digitalis*, in the reduction of herniæ; but, from a due consideration of all the arguments adduced in favour of this remedy, we perceive no reason for preferring it to the *nicotiana*, which indeed, in its effects, it very nearly resembles.

Some valuable cases and observations on strangulated hernia, appear in the Transactions of the Society for promoting Medical and Chirurgical Knowledge, by Mr. Home. "Some writers," says he, "require an operation to be performed a few hours after strangulation has taken place, while others admit of an operation being much longer delayed. There are general symptoms common to all such cases, but these different kinds appear to have also symptoms peculiar to themselves. To ascertain these peculiar symptoms would enable us to decide upon the nature of each particular case, and to determine the most proper time for performing an operation."

In one case the symptoms were, from the beginning of the attack, those of an inflamed intestine: the operation arrested the progress of the inflammation, and prevented mortification from taking place; but the inflammation had proceeded too far to admit of resolution, and the patient died.

Mr. Home observes, on the second case, that there was no inflammation in the strangulated part of the gut, though it remained four days and a half in that state. The symptoms arose entirely from the obstruction to the passage of the contents of the bowels, producing irritation in the stomach, and the other effects which the author has enumerated.

In the third case, the patient, a woman, was relieved by an operation, and she got well in a fortnight. In her case, the symptoms indicated inflammation, and the appearance of the intestine, when exposed in the operation, proved that inflammation had taken place. There were also the symptoms of compression having obstructed the bowels, as these remained in an indolent state for some time after the operation.

Mr. Home says, we learn from these cases, that the symptoms correspond with the state of the intestine. When the stricture is only sufficient to compress the intestine, and to prevent the contents from passing through the strangulated part, there is vomiting, hiccup, thirst, and general uneasiness, which symptoms come on some hours after the protrusion of the gut, and are very slow in their increase.

When the stricture is in so great a degree as to produce inflammation on the compressed part of the gut, the symptoms come on immediately; the vomiting does not cease upon the stomach discharging its contents, but the retchings continue: there is a considerable tenderness over the whole belly; the pulse is quick and very small, and the spirits of the patient are much depressed. These symptoms are more or less violent, and their progress is more or less rapid, in proportion to the degree of the inflammation. If it only produces adhesions, the pulse is less contracted, there is less tenderness over the abdomen, and less depression of spirits. When the stricture is so tight as to obstruct the circulation of the blood in the part, all these symptoms are met with in the greatest degree of violence; an unusual coldness is felt over the surface of the body, and mortification takes place in the strangulated portion of the intestine.

As in all the cases here alluded to, the author had an opportunity both of tracing the symptoms, and examining the state of the intestine, the conclusions which he has drawn are the more to be depended on; and should they be confirmed by future observations, they will assist us considerably in judging of the expediency of performing the operation at an earlier period in some cases than in others. Mr. Home rather believes, that they are strongly in favour of immediate operation in cases which are in general thought to admit of delay.

The femoral rupture, he says, on account of the strength of Poupart's ligament, will be more liable to have the parts compressed in a greater degree, and consequently to be more violently affected by inflammation. In such cases the operation should be sooner performed: whereas, on the contrary, surgeons have been more inclined to delay it, from the difficulty and danger arising from the parts which are liable to be hurt in performing the operation.

Constitutions are very differently affected by the same local mischief; some patients recover after mortification has taken place in the portion of strangulated intestine, while others sink under a much less violent degree of inflammation; it is therefore in general right, even in the most hopeless cases, to perform the operation. There is, however, one symptom that comes on in the last stage of this disease, which appears to be the immediate forerunner of death, and after it has taken place, Mr. Home apprehends the operation will always prove ineffectual. This is a general coldness, attended with moisture over the surface of the body; it is, to the feel, even colder than the skin of the same person when dead; but the real degree of cold has, probably, never been measured by a thermometer. Mr. Home observes, that, in every case which occurred to him, where this symptom had taken place, the patient was lost. In some the operation was performed, in others not; but in all, the patients continued to sink gradually, and died in less than twenty-four hours.

We shall close this article with the account of a *singular variety of hernia*, communicated to the Royal Society of Edinburgh, and read on the 7th of March 1803, by Mr. Russel. This case occurred to him while he was delivering Clinical lectures in conjunction with Dr. Brown and Mr. Thomson. The latter gentleman dissected the parts with great care and accuracy, and discovered certain peculiarities, which makes the knowledge of this variety a real addition to the pathology of the disease. It is a modification of Inguinal Hernia; but as the circumstances of difference are constant and essential, it may fairly be regarded as a distinct species. In the common cases of inguinal hernia, the viscera which are to form the protrusion enter the upper and internal orifice of the abdominal ring, along with the spermatic cord, accompany the cord through the whole length of the passage, and come out along with it at the inferior and external orifice of the ring. Thus the hernia is formed by the dilatation of a natural passage. But in this new and hitherto undescribed variety, the viscera burst through the common parietes of the abdomen, exactly opposite to the lower and external orifice of the ring, where they come into contact with the spermatic cord, and descend along with it directly into the scrotum. This hernia, therefore, resembles a ventral hernia in its commencement, by beginning to protrude where there is no natural opening; and it resembles an inguinal hernia, by passing through the lower and external orifice of the abdominal ring, where the protrusion of the common inguinal hernia is completed. Thus, it is a hernia of a mixed nature, forming an intermediate species, between a simple and pure ventral hernia, and the common and perfect inguinal hernia.

Another essential circumstance respects the position of the hernia, with regard to the course of the epigastric artery. In ordinary cases of inguinal hernia, the epigastric artery runs on the inside of the hernia; but in this variety it constantly runs on the outside. This leads to some important considerations in practice, though Mr. Russel does not enter fully into the application of the pecularities, either to practical points, or to the explanation of various curious circumstances in the history of hernial swellings.

The palliative cure of hernia, by mechanical assistance, need not be enlarged on in this place. It forms, however, a very important object for the attention of surgeons, and will be considered under the article Truss, already referred to.

HE′RNIA CONGE′NITA, *(congenita*, because it is, as it were, *born with* the patient). The testes in the fœtus, are, till about the time of delivery, lodged in the cavity of the abdomen. When they descend into the scrotum, they push before them a portion of the peritonæum, which afterwards forms the vaginal coat. The passages by which they descend are soon shut up; but sometimes the contrary happens, and then a portion of some of the abdominal viscera passing down, forms that species of hernia to which new-born infants are liable, termed by Haller the *hernia congenita.* The testicle and protruded intestine being here in contact with one another, the tunica vaginalis testis forms the hernial sac.

It has been affirmed by some of the latest writers, that hernia congenita cannot be distinguished from that contained in the common hernial sac; and that though there should be a distinction, it could be of no material use in practice. But Dr. Monro observes, that a hernia congenita may be distinguished in an adult by an evident external mark; which is, that the bowels push down between the sac and the fore part and sides of the testicle, so as often in a great measure to conceal it; whereas in the common hernia, every part of the testicle can be felt distinctly: and that it is of material use to make the distinction; because in whatever manner we operate in hernia congenita, unless we take the utmost care to exclude the air, there will be a more violent inflammation, and greater distress than in common cases, because the testicle will partake of the inflammation.

In the *treatment* of ruptures of the *congenital kind*, little difference occurs from the management of the common scrotal hernia; only a truss ought never to be applied to infants, unless the testicle can be felt in the scrotum, after the contents of the hernia have been reduced; as it would entirely prevent the descent of the testicle, which yet remains in the abdomen. If any operation has been performed, the testicle should, immediately after the bowels are reduced, be covered with the vaginal coat, and at each dressing care should be taken that the air be excluded. In every other respect the treatment of congenital hernia is the same with that of hernia in general.

HE'RNIA CRURA'LIS; the *crural* or *femoral* hernia. There is no difference between an inguinal and crural hernia, but what arises from the places where they are formed. Men are most subject to inguinal, and women to crural hernia, proceeding from the figure of the pelvis, which is largest in women, while the uterus and the bladder concur, by their bulk, to force the intestines on each side the *ossa ilia:* these spread more in them than in men, affording larger spaces for the parts to be received on the sides, and to recede from the groin. The seat of this species of hernia is upon the upper and forepart of the thigh; the protruded gut passing out at the same opening through which the large blood-vessels of the thigh are transmitted from the abdomen; and of consequence under that part of the tendon at the upper end of the abdomen, known by the name of *Poupart's ligament.* Sometimes the bowels which protrude are situated immediately over the femoral vessels, sometimes on the outside of these, but more frequently they lie upon their inner side. The femoral hernia is more in danger of being confounded with inguinal hernia than with any other; the tumor, however, is deeper, and the ring of the abdominal muscles, which lies entirely above the tumor in femoral hernia, completely surrounds the parts in that of the inguinal kind. In the inguinal hernia, the *colon* is sometimes found, and the *cæcum* very seldom; but in crural hernia, the bag of the cœcum is very frequently seen.

In the *treatment of crural hernia*, when symptoms of strangulation occur, we must use all the remedies commonly practised for herniæ in general; only that here, in attempting to reduce the parts by the hand, the pressure should be made directly upwards. An incision of sufficient length is to be made through the integuments, so as to allow that part of the tendon which forms the stricture to be laid fairly in view; and after dividing the integuments, we are cautiously to cut the fascia lata of the thigh, and separate any glands which may come in the way, till the stricture and part of the sac distinctly appear. The stricture is then to be divided, by cutting fibre after fibre successively. The spermatic vessels in the male, or round ligament in the uterus in the female, may be avoided by cutting in a direction towards the umbilicus, carefully dividing the tendon transversely. Some authors, from a sense of the danger attending this part of the operation, have recommended merely to dilate the passage, instead of dividing the tendon; but in such a situation, to attempt a further dilatation without the assistance of the knife, would probably be seldom attended with any advantage. After the parts are reduced, the wound is to be dressed as directed in the treatment of herniæ in general: a piece of thin leather spread with some adhesive plaster retains the dressings better, and with much more ease, than with any other bandage.

The particulars of a case of strangulated *crural hernia*, where the operation succeeded after the obstruction had continued six days, is published in the Medical and Physical Journal, by Mr. Borrett, surgeon of Great Yarmouth. The treatment in this case is justified in the words of the celebrated Mr. Pott, who says, there is no circumstance, attending ruptures with stricture, in which more variety is found than in the time which they will safely admit to be spent in their reduction. Some, he observes, have been successfully replaced at the end of eight or ten days, others have proved fatal in one. The attention of the medical world ought, therefore, to be directed to the *time* when the operation, in different cases of strangulated hernia, should be performed: from delay every thing is to be dreaded; and many valuable lives are daily lost, that would indisputably be saved. The surgeon who has a case of strangulated hernia, ought not to waste the only moments, which might secure his patient's life by a *well-timed operation*, in applying fomentations and placebos. In fact, there is not, in the practice of surgery, a point which requires more judgment, firmness, or delicacy, than to determine the precise time beyond which this operation should not be deferred, and for a surgeon to conduct himself so as to induce a patient to submit to it early enough for his preservation. The two principal circumstances which have most contributed to the infrequency of performing this operation are, a dread of great hazard from the operation itself, considered abstractedly, and a fear of bringing a disgrace upon it by having performed it too late. The first then is vastly greater than it ought to be, and is most frequently the cause of the latter: so that if the one can justly be lessened, the other will not be likely to happen. Few experienced men, Mr. Borret thinks, can doubt the propriety of *operating early in strangulated hernia;* after the most approved treatment has been regularly and consistently tried without effect, and a judicious application of the taxis has been unsuccesful.

In the operation for crural hernia, the epigastric artery and spermatic chord in the male, and round ligament in the female, are parts lying in the way of the knife, and particularly increase the difficulty and hazard of this operation. Mr. Benjamin Bell, in his account of the operation in femoral hernia, discourages us by saying, 'Whether the incision be carried directly upwards, or even obliquely outwards or inwards, these parts must generally be divided.' Mr. Pott is not more clear and determined, and recommends, after the hernial sac, intestine, and ligamentum Pouparti, &c. are exposed, to endeavour to effect a return of the intestine before the division of the ligament.

No clear account of the operation for the *crural hernia* having been given by authors, Mr. Borrett describes it in the following terms:—The patient being placed in a proper situation, the incision is to be begun above the tumor, laying bare the fascia and the sac. You then see Poupart's ligament binding down the sac, which is to be divided; but as you will have the epigastric artery, and spermatic vessels in man, crossing each other *immediately over* the tumor, and in women the epigastric artery and round ligament, much care must be taken.—The best mode is, to make a small incision between the fibres of the external oblique muscle, about *half an inch* above the ligament, and a director being passed *carefully and immediately under the ligament, and over the artery* (which adheres to the ligament by cellular substance), to cut into the groove of the director. If, when this is done, you should find the stricture at the mouth of the sac, it must be divided *inwards* to the pubes, inclining Pott's knife rather obliquely downwards. In this mode you will avoid the artery, chord, and round ligament."

HE'RNIA CY'STICA, the cystic hernia, or that of the bladder of urine. This species of rupture, though less frequent than that of the omentum or intestines, is not very uncommon. The situation in which it occurs is the groin, through the abdominal ring, in the forepart of the thigh, under Poupart's ligament, so as to form inguinal or crural hernia. Instances have likewise occurred of the bladder being pushed into the perinæum. Sometimes it occurs by itself, without any complication; at other times it is accompanied with intestine and omentum, both in inguinal and femoral herniæ: when complicated with bubonocele, the protruded part of the bladder is situated between the intestine and spermatic cord.

The usual symptoms are a tumor attended with fluctuation, either in the groin, in the forepart of the thigh, or perinæum, which generally subsides when the patient voids urine. When the swelling is large, before water can be made with freedom, it is commonly necessary to have recourse to pressure, at the same time that the tumor, when in the groin or thigh, is as much elevated as possible; but when the swelling is small, and especially when no stricture is as yet produced, the patient generally makes water with great ease, and without any assistance from external pressure. When the disease occurs without any complication, it is commonly owing to a suppression of urine. In the diagnosis, care ought to be taken not to mistake it for a hydrocele. In recent cases, the part protruding may in general be easily reduced, especially if we attend to the suppression of urine, which probably gave rise to the disease. A proper truss ought afterwards to be worn for a considerable time. When the disease has been of long standing, adhesion takes place between the bladder and cellular substance of the scrotum. In this case, therefore, as long as no symptoms occur to render the operation necessary, a suspensory bandage, so fitted as effectually to support the prolapsed parts, is the only probable means of relief.

HE'RNIA HUMORA'LIS; an inflammation of the testicle. See Orchitis.

HE'RNIA INCARCERA'TA, an imprisoned, *i.e.* a strangulated, hernia. A rupture is said to be *incarcerated*, when, on a sudden, the protruding viscus cannot be reduced into its proper cavity, and bad symptoms arise, such as vomiting, colic, and obstipation, fever and tumor of the part. These proceed either from obstruction of the intestine, or from an interrupted circulation of the blood. The danger in this case, depends on the narrownesss of the strangulating opening, and the extent of the parts which have fallen into it. See Hernia.

HE'RNIA INGUINA'LIS; also called *bubonocele*. See Bubonocele. This species of hernia is so called in general, because it appears in both sexes at the groin. It is one of the divisions of hernia, and includes all those species in which the parts displaced pass out of the abdomen through the ring. The parts displaced that form the hernia, the part into which they fall, the manner of the hernia being produced, and the time it has continued, occasion great differences in this complaint. There are three different substances that may produce a hernia in the groin, viz. one or more of the intestines, the omentum, and the bladder. That which is formed by one or more of the intestines, was called by the ancients *enterocele*. The intestine which most frequently produces the hernia is the *ileum*: because, being placed in the iliac region, it is nearer the groin than the rest; but notwithstanding the situation of the other intestines, which seems not to allow of their coming near the groin, we often find the jejunum, and frequently also a portion of the colon and cæcum, included in the tumor. It must be remembered, that the mesentery and mesocolon are membranous substances capable of extension, which, by little and little, are sometimes so far stretched by the weight of the intestines, as to escape with the ileum, in this species of hernia. The hernia made by the omentum or epiploon, is called *epiplocele;* as that caused by the epiploon and one of the intestines together is called *entero-epiplocele*. The hernia of the bladder is called *cystocele*, or *cystic* hernia. This disease is uncommon, and has seldom been known to happen but in conjunction with some of the abdominal viscera. When the parts, having passed through the abdominal rings, descend no lower than the groin, it is called an incomplete hernia; when they fall into the scrotum in men, or into the *labia pudendi* in women, it is then termed complete.

HE'RNIA UMBILICA'LIS, or *Exomphalos*. In this species of hernia the parts protruded pass out at the umbilicus; and are commonly the intestines, or omentum, or both: sometimes part of the stomach, the liver, and even the spleen, have been found in the sac. Here, as in other ruptures, the peritonæum forms the sac, and in recent cases it is generally very evident; but by the size of its contents, or a long continuance of the disorder, it sometimes becomes so connected with the surrounding parts, that by many its existence has been doubted, and sometimes the swelling has increased to such a degree as to burst even the skin itself. The disease occurs most frequently in infancy, soon after birth. In the adult state, corpulent people are more subject to it than those of a contrary habit; and pregnant women are particularly subject to it, on account of the size of the uterus. The diagnosis in this disease is readily made, as the disorder can scarcely be confounded with any other. If the disease be attended to in due time, a bandage, properly fitted, will generally effect a cure; and in such swellings as occur in pregnancy, delivery will commonly remove the disorder; but even in cases of pregnant women, a bandage early applied and properly used will give considerable relief, till a cure can be obtained by delivery. In this disease the omentum is more frequently pushed out than any other viscus; hence umbilical herniæ, in general, are not productive of such bad symptoms as usually occur in the other kinds of rupture. When, however, the intestines protrude, the usual symptoms of a strangulated hernia are apt to be induced; and when the means usually employed for returning the gut into the abdomen do not succeed, a cure, it is evident, must depend entirely on a thorough removal of the stricture. In performing this operation, an incision through the integuments is the first step to be taken, so as to expose the stricture of the tendon and the neck of the sac. The stricture is to be removed in the manner already described; and as the tendon completely surrounds the neck of the sac, the stricture may be cut wherever it can be most readily dilated. A radical cure, similar to that for the other species, has been proposed, but with as little probability of success.

HE'RNIA VAGINA'LIS. Sometimes the bladder, owing to a suppression of urine, at other times part of the intestines, have been found to protrude through the vagina. In the former case, a fluctuation of water is perceptible to the touch. The reduction is made by laying the patient on her back with her loins somewhat raised, and pressing with the fore-finger from the vagina. Future descents may in general be prevented, by evacuating the urine often, and by the use of a pessary introduced into the vagina. Where the intestine is found to protrude, it is to be accounted for in the following way:—There is naturally a deep sort of cavity between the rectum and the back part of the uterus, made by the peritoneum descending pretty low, and forming a kind of pouch, in which a portion of the small intestines, when the uterus is not pregnant, is commonly lodged; and sometimes the intestines themselves, by pressing hard against the peritoneum at this most depending part of the abdomen, gradually stretch this membrane so as to deepen this cavity much, and thereby dissect, as it were, the back part of the vagina from the fore-part of the rectum, and thus form the tumor in the vagina, which is called a hernia vaginalis. Its reduction is the same as in the preceding instance.

HE'RNIA VENTRA'LIS, the ventral rupture. This is a protrusion of some of the bowels through the insterstices of the abdominal muscles, and is most frequently observed in some of the parts most contiguous to the linea alba. The treatment of this species of disease is exactly the same with that of hernia umbilicalis. The case of a fatal hernia of some of the abdominal viscera strangulated in the cavity of the thorax, is given by Dr. Clarke, in the Transactions of the Society in London for Medical and Chirurgical Improvement.

The following were the appearances on dissection:—"Externally the abdomen was very much swollen and tight to the feeling. Upon cutting into the cavity of the abdomen, the stomach and all the intestines appeared greatly distended with the fluid, and showed marks of inflammation, especially at the limits of their mutual contact. The intestines were glued together with coagulating lymph. The head of the colon adhered very firmly, by recent inflammation, to the surface of the neighbouring peritoneum. This part of the gut was enormously distended and inflamed; and that portion which lay in contact with the parieties of the abdomen, was of a very dark colour, as if it had been beginning to mortify. From the head of the colon, the large intestines were found filled with fluid contents, and bearing marks of inflammation on their outer surface. On the left side of the transverse arch of the colon, the intestine appeared as if dragged up towards the diaphragm, above, and a little more forward than the spleen. Here its course was rendered obscure by the fulness of the intestines, which entirely intercepted our view. After removing the stomach, the whole of the small, and part of the great, intestines, and part of the colon was found to be forced through an aperture in the diaphragm into the cavity of the thorax. This aperture in the diaphragm was on the left side, about three inches from the ribs, and situated more forwards than the natural opening for the passage of the œsophagus. From the connection of the colon with the epiploon, a portion of the latter was carried up along with it, as was also a part of the outer edge of the left lobe of the liver. The whole of this lobe was altered from its natural appearance, being very thin and flabby. This viscus was altogether uncommonly small; but in other respects it appeared healthy. The great intestines, below the strangulation, were contracted in their whole course to the anus, contained no fæces, and had a perfectly natural appearance. All the other viscera of the abdomen were sound.

"On examining the viscera, which had been forced through the perforation in the diaphragm, Dr. Clarke found the portion of gut covered anteriorly with a surface of the epiploon. This, as well as the intestine itself, was in a high degree of inflammation. The intestine was completely full of fluid, so as to fill up the aperture of the diaphragm, and effectually to prevent all passage into or out of it. Another circumstance also presented itself. The diaphragm, near the intestine so protruded, was firmly connected by an old adhesion, about an inch in length, to the bony part of two ribs, exactly at that place where they had been formerly fractured. An irregular callus projected inwards, by a kind of spinous process; and to this the diaphragm was attached. Upon the cellular substance, so connecting the diaphragm to the ribs, were marks of recent inflammation, which extended over a small surface of the surrounding pleura.

"Similar perforations of the diaphragm," says Dr. Clarke, "with an intrusion of more or less of the abdominal viscera into the cavity of the thorax, have been sometimes found in children; but the patients have been soon destroyed after birth, by difficulty of respiration, from the lungs not being capable, under such circumstances, of being expanded. In these instances, the abdominal viscera have been sometimes found in the right, and sometimes in the left side of the chest.

Ambrose Paré has described a case, in which the patient survived a penetrating wound into the chest and through the diaphragm, for eight months, during which time he suffered great debility of the stomach, and pains, like colic, especially in the evening. After one of these attacks he died, and his body was opened, when a large part of the colon was found to have passed through the wounded diaphragm into the thorax. In that case, the disease was evidently occasioned by the wound; whilst in that related above, there is every reason to believe that the perforation in the diaphragm had existed through the whole of the patient's life.

HERNIA'RIA, (from *hernia*, a rupture, so called from its supposed efficacy in curing ruptures); the herb RUPTURE-WORT. This plant, though formerly deemed efficacious in the cure of hernias, appears to be destitute not only of such virtues but every other. It is the *herniaria glabra* of Linnæus. It has no smell nor taste, and is deservedly rejected in modern practice.

HERNIA'RIA GLA'BRA; the systematic name of the rupture-wort. See HERNIARIA.

HERNIOTO'MIA, (from *hernia*, and *τεμνω*, *to cut*), *herniotomy*; the operation for removing the strangulated part, in cases of incarcerated herniæ. See HERNIA.

HEROPHILUS, an ancient physician, the disciple of Praxagoras, and contemporary of Erasistratus. See ERASISTRATUS. He made so great use of medicines, both simple and compound, that neither he nor his disciples would undertake the cure of any disorder without them. He seems also to have been the first who treated accurately of the doctrine of pulses, of which Hippocrates had but a superficial knowledge. Galen, however, affirms, that on this subject he involved himself in difficulties, and advanced absurdities; which indeed we are not greatly to wonder at, considering the time in which he lived. He took notice of a disease, at that time pretty rare, and to which he ascribes certain sudden deaths. He calls it a *palsy of the heart;* and, perhaps, it may be the same disease with what is now termed the *angina pectoris.* According to Celsus, it was about his time that medicine was first divided into three branches, viz. the dietetic, the pharmaceutical, and the chirurgical branches. The first of these employed a proper regimen in the cure of diseases; the second, medicines; and the third, the operation of the hands: and the same author informs us, that these three branches became now the business of as many distinct classes of men; so that, from this time, we may date the origin of the three professions of physicians, apothecaries, and surgeons. Before this division, those called *physicians* discharged all the several offices belonging to the three professions; and there were only two kinds of them, viz. one called *αρχιτεκτονκοι*, who only gave their advice to the patients, and direction to those of an inferior class, who were called *δημιουργοι*, and worked with their hands, either in performing the operations, or in the composition and application of remedies. The first grand revolution which happened in the medicinal art, after the days of Herophilus and Erasistratus, was occasioned by the founding of the empiric sect, by Serapion, of Alexandria, about 287 years before Christ. See EMPIRICS.

HE'RPES, (*ερπης*, from *ερπω*, *to spread*). Dr. Cullen, in his *Nosology*, places this disorder as a genus in the class *Locales*, and order *Dialyses.* He defines it to be *phlyctenæ*, or numerous small ulcers, in clusters, but that spread upon the skin, and are difficult to heal. Mr. Bell, in his treatise on ulcers, arranges the *herpes* amongst the cutaneous ulcers, and says that all the varieties of importance may be comprehended in the four following species:

HE'RPES FARINO'SUS, or what may be termed the *dry tetter*, is the most simple of all the species: it appears indiscriminately in different parts of the body; but most commonly on the face, neck, arms, and wrists, in pretty broad spots and small pimples; these are generally very itchy, though not otherwise troublesome; and after continuing a certain time, they at last fall off in the form of a white powder, similar to fine bran, leaving the skin below perfectly sound; and again returning in the form of a red efflorescence, they fall off and are renewed as before.

HE'RPES PUSTULO'SUS. This species appears in the form of pustules, which originally are separate and distinct, but which afterwards run together in clusters. At first they seem to contain nothing but a thin watery serum, which afterwards turns yellow; and exuding over the whole surface of the part affected, it at last dries into a thick crust or scab: when this falls off, the skin below frequently appears entire, with only a slight degree of redness on its surface; but, on some occasions, when the matter has probably been more acrid, upon the scab falling off, the skin is found slightly excoriated. Eruptions of this kind appear most frequently on the face behind the ears, and on other parts of the head; and they occur most commonly in children.

HE'RPES MILIA'RIS. This breaks out indiscriminately over the whole body; but more frequently about the loins, breast, perineum, scrotum, and inguina, than in other parts. It generally appears in clusters, though sometimes in distinct rings or circles, of very minute pimples, which from their resemblance to the millet seed, has given rise to the denomination of the species. The pimples are at first, though small, perfectly separate; and contain nothing but a clear lymph, which, in the course of this disease, is excreted upon the surface, and there forms into small distinct scales: these, at last, fall off, and leave a considerable degree of inflammation below, that still continues to exude fresh matter, which likewise forms into cakes, and so falls off as before. The itching, in this species of complaint, is always very troublesome; and the matter discharged from the pimples is so tough and viscid, that every thing applied to the part, adheres so as to occasion much trouble and uneasiness on its being removed.

HE'RPES EXE'DENS, so called from its destroying or corroding the parts which it attacks, appears commonly, at first, in the form of several small painful ulcerations, all collected into larger spots of different sizes and of various figures, with always more or less of an erysipelatous-like inflammation. These ulcers discharge large quantities of a thin, sharp, serous matter; which sometimes forms into small crusts, that in a short time fall off: but most frequently the discharge is so thin and acrid, as to spread along the neighbouring parts, where it soon produces the same kind of sores. Though these ulcers do not, in general, proceed farther than the cutis vera; yet sometimes the discharge is so very penetrating and corrosive, as to destroy the skin, cellular substance, and, on some occasions, even the muscles themselves. It is this species that should be termed the depascent or phagedenic ulcer, from the great destruction of parts which it frequently occasions. See PHAGEDÆNA. Mr. Adams, in his treatise quotes, from Celsus, the case of a gentleman, about forty years of age, of a sanguine complection, and plethoric, who had an *herpes exedens*, affecting the eyelids. It had been of some years growth. It began on the upper eyelid, near the *cilia*, or edge, in a small pustule, and spread along the edge to the external canthus, where it eat deeper into the skin, and by erosion, caused an ulcer of a round figure, of the breadth of a silver penny, eating into that corner of the membrana conjunctiva, and thence the length of the lower eye-lid, consuming it downwards, leaving the *neighbouring parts scirrhous*. Its erosion in these parts was increased by the continual fluxion of the inflamed eye; for the upper lid, where the herpes first arose, was not so much concerned, the original herpes lying there, not unlike a *hordeolum*. Purging, bleeding from the external jugular vein, and issues in the back, were tried, and "*frontals to intercept the descent of humours*;" but the event of this case, with some occasional abatement and variation, was by no means of a satisfactory kind, for the patient, retiring into the country, with a supply of the remedies which had *apparently* rendered him service, experienced, nevertheless, so great an increase of the malady, as to lose the affected eye.

HE′RPES DEPA′SCENS; the same as HERPES EXEDENS.

HE′RPES ZOSTER; that species of erysipelas known by the name of *Erysipelas Phlyctænodes*, shingles, &c.

HE′RPES SERPI′GO, a name given to the cutaneous affection popularly called a *ring-worm*. See PSORIASIS. Till the recent observations of Dr. Willan, this disease has not been well discriminated by any author, though it is one with which few practitioners are unacquainted. The following account of a method employed in Bengal for the cure of the ring-worm, by means of *cassunda vinegar*, was published by Dr. Adam Freer, a physician on the Bengal establishment. He says this disorder is called by the natives *daud*. It is extremely tormenting during the rainy season, and particularly affects Europeans. It makes its appearance on the thighs, and sometimes spreads over the trunk of the body, neck, and face, obstinately resisting the common remedies in cuticular affections, as preparations of lead, sulphur, and even mercury. From the recommendation of Mr. James Champain, of Patna, Dr. F. employed in this disease a decoction, in vinegar, of a common shrub, the cassunda, or *Cassia sophera*, Linn. After that time, he says, he used, with the best success, an ounce of the fresh bark, roots, tops, or flowers of the plant, cut small and boiled with a pint of vinegar, in an earthen vessel, to eight ounces. This, when cooled and strained, may be kept for use in a glass bottle well stopped. A drachm or two of the vinegar thus prepared, and applied to the parts affected two or three times a day, washing with soap and water, and drying the parts with a towel previous to each application of the vinegar, is generally sufficient to remove the disorder. This preparation may be kept for a year without any sensible diminution of its virtues.

It has been observed, that the cassunda vinegar does not always prevent a return of the complaint in the succeeding year, and that sometimes cases do occur, so obstinate and inveterate, as to be little affected by it. Dr. Freer met with very few of these cases; but when they did occur, a purgative occasionally repeated for three or four times, a vegetable diet, the daily use of cow's whey, and a calomel pill every night at bed-time, soon removed the disorder.

HERRING, *clupea;* a kind of fish much employed as food, especially amongst the poor, on account of its cheapness. Dr. Cullen's remarks on this may be seen under the article FISH. Dr. Willich says, "considered as an article of food, *fresh herrings*, if moderately eaten, afford nutriment sufficiently wholesome; but, if taken in quantities disproportioned to the powers of digestion, they are attended with an alkaline putrid effect on the stomach. Farther, *pickled* herrings are very improper food; their flesh being thus rendered hard, and scarcely digestible: nevertheless, even in that decomposed state, they are not so injurious as herrings salted and dried."

HESPERIDE′Æ, (from the *Hesperides*); in botany, golden or precious fruit; the name of the 19th order in Linnæus's Fragments of a Natural Method.

HEXA′NDRIA, (from εξ, *sex*, six, and ανηρ, *maritus*, a husband), in the Linnæan system of botany, a class of plants, the sixth in order; comprehending all those plants which have hermaphrodite flowers, and six stamina, or male parts in each. It contains five orders, viz. *monogynia*, *digynia*, *trigynia*, *tetragynia*, *poligynia*.

HEXAGY′NIA, (from εξ, *sex*, six, and γυνη, *mulier*, a woman,) in botany, one of the orders in the ninth and thirteenth classes in the Linnæan system; containing those plants in whose fructification there are six styles which are considered as the female organs of generation.

HIBE′RNICUS LAPIS, *Irish-slate;* a kind of slate which is found in Ireland, of a bluish black colour. It is an argillaceous earth, impregnated with alum and iron, in very small quantities. It seems to be much of the nature of bole. To its aluminous contents it owes its astringency. It is a favourite remedy with the vulgar as a cure for internal bruises; probably on the supposition that, by its astringency, it restrains internal bleeding.

HIBI′SCUS, (ιβισκος, from ιβις, *the stork*, which is said to chew it and inject it as a clyster); the marsh-mallow.

HIBI′SCUS, commonly called *Abelmoschus;* a species of the *hibiscus* of Linnæus, or the *Syrian mallow*. It is produced in Egypt. The seeds have a scent like musk, and on that account the Arabians mix them with their coffee.

HICCOUGH, or HICCUP, *singultus;* a sudden convulsive motion of the stomach, occasioned by various causes, such as a fit of laughing, thirst, cold drinks, suppression of diarrhœa, antipathy, &c. It can by no means be considered as a disease, though a few instances have occurred, in which it has continued for three or four years; and one in which it became habitual, and could not be removed. Persons who eat large meals, and load the stomach by drinking profusely after them, or those liable to flatulency, are chiefly subject to this affection. A common hiccough seldom requires any medicine to remove it, as it generally disappears after drinking a few small draughts of water in quick succession; but, when it becomes very troublesome, Dr. Willich says, a table spoonful of vinegar may be swallowed. In several very obstinate cases, a little grated nutmeg, or some simple peppermint-water acidulated with a few drops of vitriolic acid, has procured immediate relief. Sneezing powders, the application of cupping-glasses, or volatiles, to the pit of the stomach; the stench of an extinguished tallow-candle, and many other remedies, have occasionally been resorted to with various success. In children, or nervous adults, sudden joy or fright, or the promise of an acceptable present, is often equally efficacious.

HIERA'CIUM PILOCE'LLA; the systematic name of the auricula muris. See PILOCELLA.

HI'ERA PI'CRA, (ειϱος πιϰϱος, Gr.) holy bitter; the old name for the *pulvis aloeticus comp.* It was anciently named *Hiera Logadii*, and was made in the form of an electuary, with honey. The preparation, at present, consists of a pound of socotorine aloes, and three ounces of canella alba, separately pulverised, and afterwards well mixed.

HIERABO'TANE. See VERBENA.

HIGH-OPERATION, in surgery, a method of extracting the stone; thus called, because the stone was taken out at the upper part of the bladder, above the pubis. This operation is now, very properly, superseded by one much safer and more successful.

HIGHMORIA'NUM ANTRUM. See ANTRUM OF HIGHMORE.

HI'LUM, in botany, the ear of a bean.

HIPPOCA'STANUM, (ιππυκαϛανον, from ιπποσ, *a horse*, and καϛανον, *a chesnut*, so called from its size), the common horse-chesnut. It is the *Æsculus hippocastanum; foliolis, septennis*, Linn. Class, *Heptandria*. Order, *Monogynia*. The fruit of this tree, when dried and powdered, is recommended as an errhine. By agricultural economists, it has been used as food for some animals, and as soap for washing. It was much employed in powder as a sternutatory by an itinerant oculist, and has been recommended by some others in certain states of ophthalmia, head-ach, &c. in which errhines are indicated. Its effects as a sternutatory may also be obtained by using it under the form of infusion or decoction, drawn up into the nostrils. It was entirely with a view to its errhine power that it had a place in the Pharmacopœia of the Edinburgh college. The bark has indeed been recommended by some as a cure for intermittent fevers; and it is probably with this intention, that this part of the hippocastanum is introduced as an officinal article in the Pharmacopœia Rossica. During the late scarcity of grain, some attempts were made to obtain starch from the horse-chesnut, and not without success.

HIPPO'CRATES, the greatest physician of antiquity, is supposed to have lived 400 years before the birth of Christ. He is the most ancient author whose writings, expressly on the subject of the medical art, are preserved; and he is therefore justly considered as the father of physic. All the accounts which we have prior to this time, if not evidently fabulous, are, at the utmost, highly conjectural. Even the medical knowledge of Pythagoras, so much celebrated as a philosopher, can hardly be considered as resting on any other foundation. But from the time of Hippocrates, medicine, separated from philosophy and religion, seems to have assumed the form of a science, and to have been practised as a profession. It may not, therefore, be improper to give a particular account of the state of medical knowledge, as transmitted to us in his writings. The writings of Hippocrates, however, it may be remarked, are even more than preserved. Nor is it wonderful that attempts should have been made to increase the value of manuscripts, by attributing them to a name of such eminence. But, although what are transmitted to us under the title of his works may have been written by different hands, yet the presumption is, that most, if not all of them, are of nearly as early a date, and contain the prevailing opinions of those times.

According to the most authentic accounts, Hippocrates was a native of the island of Cos, and born in the beginning of the 88th Olympiad. In the writings transmitted to us as his, we find a general principle adopted, to which he gives the name of *Nature*. To this principle he ascribes a mighty power. "Nature (says he) is of itself sufficient to every animal. She performs every thing that is necessary to them, without needing the least instruction from any one how to do it." Upon this footing, as if Nature had been a principle endowed with knowledge, he gives her the title of *just;* and ascribes virtues or powers to her, which are her servants, and by means of which she performs all her operations in the bodies of animals; and distributes the blood, spirits, and heat, through all parts of the body, which, by these means, receive life and sensation. And in other places he tells us, that it is this faculty which gives nourishment, preservation, and growth, to all things.

The manner in which Nature acts, or commands her subservient powers to act, is by attracting what is good and agreeable to each species, and by retaining, preparing, and changing it; and, on the other hand, in rejecting whatever is superfluous or hurtful, after she has separated it from the good. This is the foundation of the doctrine of depuration, concoction, and crisis in fevers, so much insisted upon by Hippocrates and succeeding physicians. He supposes also, that every thing has an inclination to be joined to what agrees with it, and to remove from every thing contrary to it; and likewise that there is an affinity between the several parts of the body, by which they mutually sympathize with each other. When he comes to explain what this principle called *Nature* is, he is obliged to resolve it into *heat*, which, he says, appears to have something immortal in it.

As far as he attempts to explain the causes of disease, he refers much to the humours of the body, particularly to the blood and the bile. He treats also of the effects of sleep, watchings, exercise, and rest; and all the benefit or mischief we may receive from them. Of all the causes of diseases, however, mentioned by Hippocrates, the most general are diet and air. On the subject of diet he has composed several books, and in the choice of this he was particularly careful; and the more so, as his practice turned almost wholly upon it. He also considered the air very much; he examined what winds blew ordinarily and extraordinarily; he considered the irregularity of the seasons, the rising and setting of stars, or the time of certain constellations; also the time of the solstices, and of the equinoxes: those days, in his opinion, producing great alterations in certain distempers.

He does not, however, pretend to explain how, from these causes, that variety of diseases arises which is daily to be observed. All that can be gathered from him with regard to this is, that the different causes abovementioned, when applied to the different parts of the body, produce a great variety of disorders. Some of these he accounted *mortal*, others *dangerous*, and the rest easily *curable*, according to the cause from whence they spring, and the parts on which they fall. In several places also he distinguishes diseases, from the time of their duration, into *acute* or *short*, and *chronical* or *long*. He likewise distinguishes diseases by the particular places where they prevail, whether ordinary or extraordinary. The first, that is, those that are frequent and familiar to certain places, he called *endemic* diseases; and the latter, which ravaged extraordinarily sometimes in one place, sometimes in another, which seized great numbers at certain times, he called *epidemic*, that is, *popular* diseases; and of this kind the most terrible is the plague. He likewise mentions a third kind, the opposite of the former; and these he calls *sporadic*, or straggling diseases: these last include all the different sorts of distempers which invade at any one season, which are sometimes of one sort, and sometimes of another. He distinguished between those diseases which are hereditary, or born with us, and those which are contracted afterwards; and likewise between those of a *kindly*, and such as are of a *malignant* nature, the former of which are easily and frequently cured, but the latter give the physicians a great deal of trouble, and are seldom overcome by all their care.

Hippocrates remarked four stages in diseases; viz. the beginning of the disease, its augmentation, its state or height, and its declination. In such diseases as terminate fatally, death comes in place of the declination. In the third stage, therefore, the change is most considerable, as it determines the fate of the sick person; and this is most commonly done by means of a *crisis*. By this word he understood any sudden change in sickness, whether for the better or for the worse, whether health or death succeed immediately. Such a change, he says, is made at that time by *Nature*, either absolving or condemning the patient. Hence we may conclude, that Hippocrates imagined disease to be only a disturbance of the animal economy, with which Nature was perpetually at variance, and using her utmost endeavours to expel the offending cause. Her manner of acting on these occasions is to reduce to their natural state those humours whose discord occasions the disturbance of the whole body, whether in relation to their quantity, quality, mixture, motion, or any other way in which they become offensive. The principal means employed by Nature, for this end, is what Hippocrates calls *concoction*. By this he understood the bringing the morbific matter lodged in the humours to such a state, as to be easily fitted for expulsion by whatever means nature might think most proper. When matters are brought to this pass, whatever is superfluous or hurtful immediately expels itself, or nature points out to physicians the way by which such an evacuation is to be accomplished. The crisis takes place either by bleeding, stool, vomit, sweat, urine, tumor or abscesses, scabs, pimples, spots, &c. But these evacuations are not to be looked upon as the effects of a true crisis, unless they are in considerable quantity; small discharges not being sufficient to make a crisis. On the contrary, small discharges are a sign that nature is depressed by the load of humours, and that she lets them go through weakness and continual irritation. What comes forth in this manner is crude, because the distemper is yet too strong; and, while matters retain this state, nothing but a bad or imperfect crisis is to be expected. This shows that the distemper triumphs, or at least is equal in strength to nature, which prognosticates death, or a prolongation of the disease. In this last case, however, nature often has an opportunity of attempting a new crisis more happy than the former, after having made fresh efforts to advance the concoction of the humours. It must here be observed, however, that, according to Hippocrates, concoction cannot be made but in a certain time, as every fruit has a limited time to ripen; for he compares the humours which nature has digested, to fruits come to maturity.

The time required for concoction depends on the differences among distempers mentioned above. In those which Hippocrates calls *very acute*, the digestion or crisis happens by the fourth day; in those which are only *acute*, it happens on the 7th, 11th, or 14th day; which last is the longest period generally allowed by Hippocrates in the distempers that are truly acute: though in some places he stretches it to the 20th or 21st, nay sometimes to the 40th or 60th days. All diseases that exceed this last term are called *chronical*. And while, in those diseases that exceed 14 days, he considers every fourth day as critical, or at least remarkable, by which we may judge, whether the crisis on the following fourth day will be favourable or not; so in those which run from 20 to 40 he reckons only the sevenths, and in those that exceed 40 he begins to reckon by 20. Beyond the 120th, he thinks that the number of days has no power over the crisis. They are then referred to the general changes of the seasons; some terminating about the equinoxes; others about the solstices; others about the rising or setting of the stars of certain constellations; or if numbers have yet any place he reckons by months, or even whole years. Thus, he says, certain diseases in children have their crisis in the 7th month after their birth, and others in their 7th or even their 14th year.

Though Hippocrates mentions the 21st as one of the critical days in acute diseases, as already noticed; yet, in other places of his works, he mentions also the 20th. The reason he gives for this in one of those parts of his works is, that the days of sickness were not quite entire. In general, however, he is much attached to the odd days: insomuch that, in one of his aphorisms, he tells us, "The sweats that come out upon the 3d, 5th, 7th, 9th, 11th, 14th, 17th, 21st, 27th, 31st, or 34th days, are beneficial; but those that come out upon other days, signify that the sick shall be brought low, that his disease shall be very tedious, and that he shall be subject to relapses." He further says, "That the fever which leaves the sick upon any but an odd day, is usually apt to relapse." Sometimes, however, he confesses that it is otherwise; and he gives an instance of a salutary crisis happening on the 6th day. But these are very rare instances, and therefore cannot, in his opinion, overthrow the general rule.

Besides the crisis, however, or the change which determines the fate of the patient, Hippocrates often speaks of another, which only changes the species of the distemper, without restoring the patient to health; as when a vertigo is changed to an epilepsy, a tertian fever to a quartan, or to a continued, &c.

But what has chiefly contributed to procure the vast respect generally paid to Hippocrates, is his industry in observing the most minute circumstances of diseases, and his exactness in nicely describing every thing that happened before, and every accident that appeared at the same time with them; and likewise what appeared to give ease, and what to increase the malady: which is what we call *writing the history of a disease.* Thus he not only distinguished one disease from another, by the signs which properly belonged to each; but by comparing the same sort of distemper which happened to several persons, and the accidents which usually appeared before and after, he could often foretel a disease before it came, and afterwards give a right judgment of the event of it. By this way of prognosticating, he came to be exceedingly admired: and this he carried to such a height, that it may justly be said to be his master-piece; and Celsus, who lived after him, remarks, that succeeding physicians, though they found out several new things relating to the management of diseases, yet were obliged to the writings of Hippocrates for all that they knew of signs.

The first thing Hippocrates considered, when called to a patient, was his looks. It was a good sign with him to have a visage resembling that of a person in health, and the same with what the sick man had before he was attacked by the disease. As it varied from this, so much the greater danger was apprehended, and the description which he has given of the looks of a dying man, often confirmed by succeeding physicians, led to its being denominated the *Hippocratic face.* See Facies Hippocratica. He took also his signs from the disposition of the eyes in particular. When a patient cannot bear the light; when he sheds tears involuntarily; when, in sleeping, some part of the white of the eye is seen, unless he usually sleeps after that manner, or has a looseness upon him: these signs, as well as the foregoing ones, prognosticate danger. The eyes deadened, as it were with a mist spread over them, or their brightness lost, likewise presages death, or great weakness. The eyes sparkling, fierce, and fixed, denote the patient to be delirious, or that he soon will be seized with a phrensy. When the patient sees any thing red, and like sparks of fire and lightning pass before his eyes, you may expect an hæmorrhagy; and this often happens before those crises which are to be attended with a loss of blood.

The condition of the patient is also shown by his posture in bed. If you find him lying on one side, his body, neck, legs, and arms, a little contracted, which is the posture of a man in health, it is a good sign: on the contrary, if he lies on his back, his arms stretched out, and his legs hanging down, it is a sign of great weakness; and particularly when the patient slides or lets himself fall down towards the feet, it denotes the approach of death. When a patient, in a burning fever, is continually feeling about with his hands and fingers, and moves them up before his face and eyes, as if he was going to take away something that passed before them: or on his bed-covering, as if he was picking or searching for little straws, or taking away some filth, or drawing out little flocks of wool; all this is a sign that he is delirious, and that he will die. Amongst the other signs of a present or approaching delirium, he also adds this: When a patient who naturally speaks little begins to talk more than he used to do, or when one that talks much becomes silent, this change is to be reckoned a sort of a delirium, or is a sign that the patient will soon fall into one. The frequent trembling or starting of the tendons of the wrist, presage likewise a delirium. As to the different sorts of delirium, Hippocrates is much more afraid of those that run upon mournful subjects, than such as are accompanied with mirth.

When a patient breathes fast, and is oppressed, it is a sign that he is in pain, and that the parts above the diaphragm are inflamed. Breathing long, or when the patient is a great while in taking his breath, shows him to be delirious; but easy and natural respiration is always a good sign in acute diseases. Hippocrates depended much on respiration in making his prognostics; and therefore has taken care, in several places, to describe the different manner of a patient's breathing. Continual watchings in acute diseases, are signs of present pain, or delirium near at hand.

Hippocrates also drew signs from all excrements, whatever they are, that are separated from the body of man. His most remarkable prognostics, however, were from the urine. The patient's urine, in his opinion, is best when the sediment is white, soft to the touch, and of an equal consistence. If it continue so during the course of the distemper, and till the time of the crisis, the patient is in no danger, and will soon be well. This is what Hippocrates called *concocted urine*, or what denotes the concoction of the humours; and he observed, that this concoction of the urine seldom appeared thoroughly, but on the days of the crisis which happily put an end to the distemper. "We ought (said Hippocrates) to compare the urine with the purulent matter which runs from ulcers. As the pus, which is white, and of the same quality with the sediment of the urine we are now speaking of, is a sign that the ulcer is on the point of closing; so that which is clear, and of another colour than white, and of an ill smell, is a sign that the ulcer is virulent, and in the same manner difficult to be cured: the urines that are thus described by Hippocrates, are only those which maybe named good; all the rest are ill, and differ from one another only in the degrees of more and less. The first, he says, never appear but when nature has overcome the disease; and are a sign of the concoction of humours, without which you cannot hope for a certain cure. On the contrary, the last are made as long as the crudity remains, and the humours continue unconcocted. Among the urines of this last sort, the best are reddish, with a sediment that is soft, and of an equal consistence; which denotes, that the disease will be somewhat tedious, but without danger. The worst are those which are very red, and at the same time clear and without sediment; or that are muddy and turbid in the making. In urine there is often a sort of cloud hanging in the vessel in which it is received; the higher this rises, or the farther distant it is from the bottom, or the more different from the colour of the laudable sediment abovementioned, the more there is of crudity. That which is yellow, or of a sandy-colour, denotes abundance of bile; that which is black is the worst, especially if it has a bad smell, and is either altogether muddy or altogether clear. That whose sediment is like large ground wheat, or little flakes or scales spread one upon another, or bran, presages ill, especially the last. The fat or oil that sometimes swims upon the top of the urine, and appears in form something like a spider's web, is a sign of a consumption of the flesh and solid parts. The making of a great quantity of urine is the sign of a crisis, and sometimes the quality of it shows how the bladder is affected. We must also observe, that Hippocrates compared the state of the tongue with the urine; that is to say, when the tongue was yellow, and charged with bile, the urine, he knew, must of course be of the same colour; and when the tongue was red and moist, the urine was of its natural colour.

His prognostics from the excretions by stool are as follow: Those that are soft, yellowish, of some consistence, and not of an extraordinary ill smell, that answer to the quantity of what is taken inwardly, and that are voided at the usual hours, are the best of all. They ought also to be of a thicker consistence when the distemper is near the crisis; and it ought to be taken for a good prognostic, when some worms, round and long, are evacuated at the same time with them. The prognosis, however, may still be favourable, though the matter excreted be thin and liquid, provided it make not too much noise in coming out, and the evacuation be not in a small quantity nor too often; nor in so great abundance, nor so often, as to make the patient faint. All matter that is watery, white, of a pale green, or red, or frothy and viscous, is bad. That which is blackish, or of a livid hue, is the most pernicious. That which is pure black, and nothing else but a discharge of black bile, always prognosticates very ill; this humour, from what part soever it comes, showing the ill diposition of the intestines. The matter that is of several different colours, denotes the length of the distemper; and, at the same time, that it may be of dangerous consequence. Hippocrates places in the same class the matter that is bilious or yellow, and mixed with blood, or green and black, or like the dregs and scrapings of the guts. The stools that consist of pure bile, or entirely of phlegm, he also looks upon to be very bad.

Matter thrown up by vomiting ought to be mixed with bile and phlegm; where one of these humours only is observed, it is worse. That which is black, livid, green, or of the colour of a leek, indicates alarming consequences. The same is to be said of that which smells very ill; and if at the same time it be livid, death is not far off. The vomiting of blood is very often mortal.

The spittings which give ease in diseases of the lungs and in pleurisies, are those that come up readily and without difficulty; and it is good if they be mixed at the beginning with much yellow: but if they appear of the same colour, or are red, a great while after the beginning of the distemper, are salt and acrimonious, and cause violent coughings, they are not good. Spittings purely yellow are bad; and those that are white, viscous, and frothy, give no ease. Whiteness is a good sign of concoction in regard to spittings; but they ought not at all to be viscous, nor too thick, nor too clear. We may make the same judgment of the excrements of the nose according to their concoction and crudity. Spittings that are black, green, and red, are of very bad consequence. In inflammations of the lungs, those that are mixed with bile and blood presage well if they appear at the beginning, but are bad if they arise not about the seventh day. But the worst sign in these disorders is, when there is no expectoration at all, and the too great quantity of matter that is ready to be discharged this way makes a rattling in the breast. After spitting of blood, the discharge of purulent matter often follows, which brings on a consumption, and at last death.

A kind good sweat is that which arises on the day of the crisis, and is discharged in abundance all over the body, and at the same time from all parts of the body, and thus carries off the fever. A cold sweat is alarming, especially in acute fevers, for in others it is only a sign of long continuance. When the patient sweats nowhere but on the head and neck, it is a sign that the disease will be long and dangerous. A gentle sweat in some particular part, of the head and breast for instance, gives no relief, but denotes the seat of the distemper, or the weakness of the part. This kind of sweat was called by Hippocrates *epidrosis*.

The hypochondria, or the abdomen in general, ought always to be soft and even, as well on the right side as on the left. When there is any hardness or unevenness in those parts, or heat and swellings, or when the patient cannot endure to have it touched, it is a sign the intestines are indisposed.

Hippocrates also inquired into the state of the pulse, or the beating of the arteries. The most ancient physicians, however, and even Hippocrates himself, for a long time, by this word, understood the violent pulsation that is felt in an inflamed part, without putting the fingers to it.

It is observed by Galen, and other physicians, that Hippocrates touches on the subject of the pulse more slightly than any other on which he treats. But that our celebrated physician understood something even on this subject, is easily gathered from several passages in his writings; as when he observes, that in acute fevers the pulse is very quick and very great; and when he makes mention, in the same place, of trembling pulses, and those that beat slowly; when he observes, that in some diseases incident to women, when the pulse strikes the finger faintly, and in a languishing manner, it is a sign of approaching death. He remarks also, in the *Coacæ Prænotiones*, that he whose vein, that is to say, whose artery of the elbow, beats, is just going to run mad; or else that the person is at that time very much under the influence of anger.

From this account of Hippocrates, it will appear, that he was not near so much taken up with reasoning on the phenomena of diseases, as with reporting them. He was content to observe these phenomena accurately, to distinguish diseases by them, and judged of the event by comparing them exactly together. For his skill in prognostics he was indeed very remarkable, as we have already mentioned, insomuch that he and his pupils were looked upon by the vulgar as prophets. What adds very much to his reputation is, that he lived in an age when physic was altogether buried in superstition, and yet he did not suffer himself to be carried away by it: on the contrary, on many occasions, he expresses his abhorrence of it.

Having thus seen in what Hippocrates makes the difference between health and sickness to consist, and likewise the most remarkable signs from whence he drew his prognostics, we must now consider the means he prescribed for the preservation of health, and the cure of diseases. One of his principal maxims was this, That, to preserve health, we ought not to overcharge ourselves with much eating, nor neglect the use of exercise and labour. In the next place, That we ought by no means to accustom ourselves to too nice and exact a method of living; because those who have once begun to act by this rule, if they vary in the least from it, find themselves very ill; which does not happen to those who take a little more liberty, and live somewhat more irregularly. Notwithstanding this, he does not neglect to inquire diligently into what those who were in health used for food in his time. Here we cannot help taking notice of the disparity between the delicacy of the people in our days and those of Hippocrates: for he takes great pains to tell the difference between the flesh of a dog, a fox, a horse, and an ass; which he would not have done if at that time these had not been used for food, at least by the common people. Besides these, however, Hippocrates speaks of all other kinds of provision that are now in use; for example, sallads, milk, whey, cheese, flesh, as well of birds as of four-footed beasts, fresh and salt fish, eggs, all kinds of pulse, and the different kinds of grain we feed on, as well as the different sorts of bread that are made of it. He also speaks very often of a sort of liquid food, or broth, made of barley-meal, or some other grain, which they steeped for some time, and then boiled in water. With regard to drink, he takes a great deal of pains to distinguish the good waters from the bad. The best, in his opinion, ought to be clear, light, without smell or taste, and taken out of the fountains that turn towards the east. The salt-waters, those that he calls hard, and those that rise out of fenny ground, are the worst of all; he condemns also those that come from melted snow. But though Hippocrates makes all these distinctions, he advises all those who are in health, to drink of the first water that comes in their way. He speaks also of alum waters, and those that are hot; but does not enlarge upon their qualities. He advises to mix wine with an equal quantity of water: and this (he says) is the just proportion; by using which, the wine will expel what is hurtful to the body, and the water will serve to temper the acrimony of the humours.

For those that are in health, and likewise for such as are sick, Hippocrates advises exercise. The books, however, which treat on this subject, M. Le Clerc conjectures to have been written by Herodicus, who first introduced gymnastic exercise into medicine, and who is said, by Hippocrates himself, to have killed several people by forcing them to walk while they were afflicted with fevers and other inflammatory disorders. The advice given in them consists mostly in directions for the times in which we ought to walk, and the condition we ought to be in before it; when we ought to walk slowly, and when to run, &c.; and all this with respect to different ages and temperaments, and with design to bring the body down, or dissipate the humours. Wrestling, although a violent exercise, is numbered with the rest. In the same place also, mention is made of a play of the hands and fingers, which was thought good for health, and called *chiromie;* and of another diversion which was performed round a sort of ball hung up, which they called *corycus*, and which they struck forward with both their hands.

With regard to those things which ought to be separated from, or retained in the human body, Hippocrates observes, that people ought to take great care not to load themselves with excrements, or keep them in too long; and besides the exercises abovementioned, which carry off one part of them, and which he prescribed chiefly on this account, he advised people to excite and rouse up nature, when she flagged and did not endeavour to expel the rest, or take care of the impediments by which she was resisted. For this reason he prescribed means proper for loosening the belly; and when these were not sufficient, he directed the use of clysters and suppositories. For thin and emaciated persons he directed the use of clysters composed only of milk and oily unctuous substances, which some mixed with a decoction of chick-pease; but for such as were plethoric, they only made use of salt, or sea water.

As a preservative against distempers, Hippocrates also advised the use of vomits, which he directed to be taken once or twice a month during the time of winter and spring. The most simple of these were made of a decoction of hyssop, with an addition of a little vinegar and salt. He made those that were of a strong and vigorous constitution take this liquor in a morning fasting; but such as were thin and weakly took it after supper. Venery, in his opinion, is wholesome, provided people consult their strength, and do not pursue it to excess; which he finds fault with on all occasions, and would have excess avoided also in relation to sleep and watching. In his writings are likewise to be found several remarks concerning good and bad air; and he makes it appear that the good or bad disposition of this element does not depend solely on the difference of the climate, but on the situation of every place in particular. He speaks also of the good and bad effects of the passions, and recommends moderation in regard to them.

From what we have already related concerning the opinions of Hippocrates, it may naturally be concluded, that, for the most part, he would be contented with observing what the strength of nature is able to accomplish without being assisted by the physician. That this was really the case, may be easily perceived from a perusal of his books entitled, "*Of epidemical distempers;*" which are, as it were, journals of the practice of Hippocrates: for there we find him often doing nothing more than describing the symptoms of a disease, and informing us what has happened to the patient day after day, even to his death or recovery; without speaking a word of any kind of remedy. Sometimes, however, he did indeed make use of remedies; but these were exceedingly simple and few, in comparison of what have been given by succeeding practitioners. These remedies we shall presently consider, after we have given an abridgement of the principal maxims on which his practice is founded.

Hippocrates asserted, in the first place, that contraries, or opposites, are the remedies for each other; and this maxim he explains by an aphorism; in which he says, that evacuations cure those distempers which come from repletion, and repletion those that are caused by evacuation. So heat is destroyed by cold, and cold by heat, &c. In the second place, he asserted, that physic is an addition of what is wanting, and a subtraction or retrenchment of what is superfluous: an axiom which is explained by this, viz. that there are some juices or humours, which, in particular cases, ought to be evacuated, or driven out of the body, or dried up; and some others which ought to be restored to the body, or caused to be produced there again. As to the method to be taken for this addition or retrenchment, he gives this general caution, that you ought to be careful how you fill up, or evacuate, all at once, or too quickly, or too much; and that it is equally dangerous to heat or cool again on a sudden; or rather, you ought not to do it: every thing that runs to an excess being an enemy to nature. In the fourth place, Hippocrates allowed that we ought sometimes to dilate, and sometimes to lock up: to dilate, or open the passages by which the humours are voided naturally, when they are not sufficiently opened, or when they are closed; and on the contrary, to lock up or straiten the passages that are relaxed, when the juices that pass there ought not to pass, or when they pass in too great quantity. He adds, that we ought sometimes to smooth, and sometimes to make rough; sometimes to harden, and sometimes to soften again; sometimes to make more fine or supple, sometimes to thicken; sometimes to rouse up, and at other times to stupify or take away the sense: all in relation to the solid parts of the body, or to the humours. He gives also this farther lesson, That we ought to have regard to the course the humours take; from whence they come, and whither they go; and in consequence of that, when they go where they ought not, that we make them take a turn about, or carry them another way, almost like the turning the course of a river: or, upon other occasions, that we endeavour, if possible, to recal, or make the same humours return back again; drawing upward such as have a tendency downward, and drawing downward such as tend upward. We ought also to carry off, by convenient ways, that which is necessary to be carried off; and not let the humours once evacuated enter into the vessels again. Hippocrates gives also the following instruction, That when we do any thing according to reason, though the success be not answerable, we ought not too easily, or too hastily, to alter the manner of acting, as long as the reasons for it are yet good. But as this maxim might sometimes prove deceitful, he gives the following as a corrector to it: "We ought," says he, "to mind with a great deal of attention, what gives ease, and what creates pain; what is easily supported, and what cannot be endured." We ought not to do any thing rashly; but ought often to pause, or wait, without doing any thing: by this way, if you do the patient no good, you will at least do him no hurt.

These are the principal and most general maxims of the practice of Hippocrates, and which proceed upon the supposition laid down at the beginning, viz. that nature cures diseases. We next proceed to consider particularly the remedies employed by him, which will serve to give us further instructions concerning his practice.

The importance which this great physician attached to a strict diet, both as a prophylactic and curative means, is shown under the article Diet, together with his injunctions to the sick, under various circumstances.

There are many diseases for which he judged the bath was a proper remedy: and he takes notice of all the circumstances that are necessary in order to make the patient receive benefit from it, among which the following are the principal. The patient that bathes himself must remain still and quiet in his place, without speaking, while the assailants throw water over his head or are wiping him dry; for which last purpose he desired them to keep sponges, instead of that instrument called by the ancients a *strigil*, which served to rub off from the skin the dirt and nastiness left upon it by the unguents and oils with which they anointed themselves. He must also take care not to catch cold; and must not bathe immediately after eating and drinking, nor eat or drink immediately after coming out of the bath. Regard must also be had whether the patient has been accustomed to bathe while in health, and whether he has been benefited or hurt by it. Lastly, he must abstain from the bath when the body is too open, or too costive, or when he is too weak; or if he has an inclination to vomit, a great loss of appetite, or bleed at the nose. The advantage of the bath, according to Hippocrates, consists in moistening and refreshing, taking away weariness, making the skin soft and the joints pliant; in provoking urine, making the nostrils expand, and opening the other excretories. He allows two baths in a day to those who have been accustomed to it in health.

In chronic diseases Hippocrates approved very much of exercise, though he did not allow it in acute ones: but even in these he did not think that a patient ought always to lie a-bed; but tells us, that "we must sometimes push the timorous out of bed, and rouse up the lazy."

When he found that diet and exercise were not sufficient to ease nature of a burden of corrupted humours, he was obliged to make use of other means, of which *purgation* was one. By this word he understood all the contrivances that are made use of to discharge the stomach and bowels; though it commonly signifies only the evacuation of the belly by stool. This evacuation he imagined to be occasioned by the purgative medicines attracting the humours themselves. When first taken into the body, he thought they attracted that humour which was most similar to them, and then the others, one after another.—Most of the purgatives used in his time were emetics also, or at least were very violent in their operation downwards. These were the white and black hellebore; the first of which is now reckoned among the poisons. He used also the Cnidian berries, which are nothing else but the seeds of thymelæa or chamelæa; encorum peplium, which is a sort of milk-thistle; thapsia; the juice of hippophæs, a sort of rhamnus; elaterium, or juice of the wild cucumber; flowers of brass, coloquintida, scammony, the magnesian stone, &c.

As these purgatives were all very strong, Hippocrates was extremely cautious in their exhibition. He did not prescribe them in the dog-days; nor did he ever purge women with child, and very seldom children or old people. He principally used purgatives in chronical disorders; but was much more wary in acute ones. In his books entitled "of Epidemical Distempers," there are very few patients mentioned to whom he gave purgative medicines. He also takes notice expressly, that these medicines having been given in cases of the distempers of which he was treating, had produced very bad effects. We are not, however, from this to conclude, that Hippocrates absolutely condemned purges in acute diseases; for in some places he expressly mentions his having given them with success. He was of opinion, for instance, that purging was good in a pleurisy when the pain was seated below the diaphragm; and in this case he gave black hellebore, or some peplium mixed with the juice of *laserpitium*, which is supposed to have been our asafœtida.

The principal rule Hippocrates gives with relation to purging is, that we ought only to purge off the humours that are concocted, and not those that are yet crude, taking particular care not to do it at the beginning of the distemper, lest the humours should be disturbed or stirred up, which happens pretty often. He was not, however, the first who remarked that it would be of ill consequence to stir the humours in the beginning of an acute distemper. The Egyptian physicians had before observed the same thing. By the *beginning* of a distemper, Hippocrates understood all the time from the first day to the fourth complete.

Hippocrates imagined that each purgative medicine was adapted to the carrying off some particular humour; and hence the distinction of purgatives into hydragogue, cholagogue, &c. which is now justly exploded. In consequence of this notion, which prevailed long after his time, he pretended that we knew if a purgative had drawn from the body what was fit to be evacuated, according as we found ourselves well or ill upon it. If we found ourselves well, it was a sign that the medicine had effectually expelled the offending humour. On the contrary, if we were ill, he imagined, whatever quantity of humour came away, that the humour which caused the illness still remained; not judging of the goodness or badness of a purge by the quantity of matters that were voided by it, but by their quality and the effect that followed after it.

Vomits were also pretty much used as medicines by Hippocrates. We have already seen what those were which he prescribed to people in health by way of preventives. With regard to the sick, he sometimes advised them to the same, when his intentions were only to cleanse the stomach. But when he had a mind to recal the humours, as he termed it, from the inmost recesses of the body, he made use of brisker remedies. Among these was white hellebore; and this indeed he most frequently used to excite vomiting. He gave this root particularly to melancholy and mad people; and from the great use made of it in these cases by Hippocrates and other ancient physicians, the phrase *to have need of hellebore*, became a proverbial expression for being out of one's senses. He gave it also in defluxions, which come, according to him, from the brain, and throw themselves on the nostrils or ears, or fill the mouth with saliva, or that cause stubborn pains in the head, and a weariness or an extraordinary heaviness, or a weakness of the knees, or a swelling all over the body. He gave it to consumptive persons in broth of lentils, to such as were afflicted with the dropsy called *leucophlegmatia*, and in other chronical disorders. But we do not find that he made use of it in acute distempers, except in the cholera morbus, where he says he prescribed it with benefit. Some took this medicine fasting; but most took it after supper, as was commonly practised with regard to vomits taken by way of prevention. The reason why he gave this medicine most commonly after eating was, that by mixing with the aliments, its acrimony might be somewhat abated, and it might operate with less violence on the membranes of the stomach. With the same intention also he sometimes gave a plant called *sesamoides*, and sometimes mixed it with hellebore. Lastly, in certain cases, he gave what he called *soft* or *sweet* hellebore. This term had some relation to the quality of the hellebore, or perhaps to the quantity he gave of it.

When Hippocrates intended only to keep the body open, or evacuate the contents of the intestines, he made use of simples; as for example, the herb mercury, or cabbage; the juice or decoction of which he ordered to be drank. For the same purpose he used whey, and also cows and asses milk; adding a little salt to it, and sometimes letting it boil a little. If he gave asses milk alone, he caused a great quantity of it to be taken, so that it must of necessity loosen the body. In one place he prescribes no less than nine pounds of it to be taken as a laxative, but does not specify the time in which it was to be taken. With the same intention he made use of suppositories and clysters. The former were compounded of honey, the juice of the herb mercury, of nitre, powder of colocynth, and other sharp ingredients, to irritate the anus. These they formed into a ball, or into a long cylindrical mass like a finger. The clysters he made use of for sick people were sometimes the same with those already mentioned as preventives for people in health. At other times he mixed the decoction of herbs with nitre, honey, oil, or other ingredients, according as he imagined he could by that means attract, wash, irritate, or soften. The quantity of liquor he ordered was about thirty-six ounces; from which it is probable he did not intend that it should all be used at one time.

On some occasions Hippocrates proposed to purge the head alone. This practice he employed, after purging the rest of the body, in an apoplexy, inveterate pains of the head, a certain sort of jaundice, a consumption, and the greatest part of chronical diseases. For that purpose he made use of the juices of several plants, as celery; to which he sometimes added aromatic drugs, making the patients snuff up this mixture into their nostrils. He used also powders compounded of myrrh, the flowers of brass, and white hellebore, which he caused them to put up into the nose, to make them sneeze, and to draw the phlegm from the brain. For the same purpose also he used what he calls *tetraganon*, that is, "something having four angles;" but what this was, is now altogether unknown, and was so even in the days of Galen. The latter physician, however, conjectures it to be antimony, or certain flakes found in that mineral.

In the *empyema*, or a collection of matter in the breast, or, more probably, in the case of a *vomica*, he made use of a very rough medicine. He commanded the patient to draw in his tongue as much as he was able; and when that was done, he endeavoured to put into the hollow of the lungs a liquor that irritated the part, which, raising a violent cough, forced the lungs to discharge the purulent matter contained in them. The materials that he used for this purpose were of different sorts; sometimes he took the root of arum, which he ordered to be boiled with a little salt, in a sufficient quantity of water and oil; dissolving a little honey in it. At other times, when he intended to purge more strongly, he took the flowers of copper and hellebore; after that he shook the patient violently by the shoulders, the better to loosen the pus. This remedy, according to Galen, he received from the Cnidian physicians; and it has never been used by the succeeding ones, probably because the patients could not suffer it.

Blood-letting was another method of evacuation pretty much used by Hippocrates. Another aim he had in this, besides the mere evacuation, was to divert or recal the course of the blood when he imagined it was going where it ought not. A third end of bleeding was to procure a free motion of the blood and spirits, as we may gather from the following passage:— "When any one becomes speechless of a sudden," says he, "it is caused by the shutting of the veins, especially when it happens to persons otherwise in good health, without any outward violence. In this case the inward vein of the right arm must be opened, and more or less blood taken away, according to the age or constitution of the patient. Those that lose their speech thus have great flushings in their face, their eyes are stiff, their arms are distended, their teeth gnash, they have palpitations of the arteries, cannot open their jaws, the extremities are cold, and the spirits are intercepted in the veins. If pain ensues, it is by the accession of the black bile and sharp humours. For the internal parts being vellicated or irritated by these humours, suffer very much; and the veins, being also irritated and dried, distend themselves extraordinarily, and are inflamed, and draw all that can flow to them; so that the blood corrupting, and the spirits not being able to pass through the blood by their ordinary passages, the parts grow cold by reason of this stagnation of the spirits. Hence come giddiness, loss of speech, and convulsions, if this disorder reaches to the heart, the liver, or to the great veins. From hence arise also epilepsies and palsies, if the defluxions fall upon the parts last mentioned; and that they dry up, because the spirits are denied a passage through them. In this case, after fomentation, a vein must be opened, while the spirits and humours are yet suspended and unsettled."

Hippocrates had also a fourth intention for bleeding, and this was refreshment. So in the iliac passion, he orders bleeding in the arm and in the head; to the end, says he, that the superior venter, or the breast, may cease to be overheated. With regard to this evacuation, his conduct was much the same as to purging, in respect of time and persons. "We ought," says he, "to let blood in acute diseases, when they are violent, if the party be lusty and in the flower of his age. We ought also to have regard to the time, both in respect to the disease and to the season in which we let blood". He also informs us, that blood ought to be let in great pains, and particularly in inflammations. Among these he reckons such as fall upon the principal viscera, as the liver, lungs, and spleen, as also the quinsey and pleurisy, if the pain of the latter be above the diaphragm. In these cases he would have the patients blooded till they faint, especially if the pain be very acute; or rather, he advises, that the orifice should not be closed till the colour of the blood alters, so that from livid it turn red, or from red livid. In a quinsey, he blooded in both arms at once. Difficulty of breathing he also reckons among the diseases that require bleeding; and he mentions another sort of inflammation of the lungs, which he calls a swelling or tumor of the lungs arising from heat; in which case he advises to bleed in all parts of the body, and directs particularly to the arms, tongue, and nostrils. To make bleeding the more useful in all pains, he directed to open the vein nearest the part affected; in a pleurisy he directs to take blood from the arm of the side affected; and for the like reason, in pains of the head, he directs the veins of the nose and forehead to be opened. When the pain was not urgent, and the bleeding was advised by way of prevention, he directed the blood to be taken from the parts farthest off, with a design to divert the blood insensibly from the seat of pain. The highest burning fevers, which show neither signs of inflammation nor pain, he does not rank among those disorders that require bleeding. On the contrary, he maintains that a fever itself is, in some cases, a reason against bleeding. If any one, says he, has an ulcer in the head, he must bleed, *unless he has a fever.* He says further, those that lose their speech of a sudden must be blooded, unless they have a fever. Perhaps he was afraid of bleeding in fevers, because he supposed that they were produced by the bile and pituita, which grew hot, and afterwards heated the whole body, which is, says he, what we call *fever*, and which, in his opinion, cannot well be evacuated by bleeding. In other places, also, he looks upon the presence or abundance of bile to be an objection to bleeding; and he orders to forbear venesection even in a pleurisy, if there be bile.

To this we must add, that Hippocrates distinguished very particularly between a fever which followed no other distemper, but was itself the original malady, and a fever which came upon inflammation. In the early ages of physic, the first were only properly called *fevers:* others took their names from the parts affected; as *pleurisy*, *peripneumony*, *hepatitis*, *nephritis*, &c. which names signify that the pleura, the lungs, the liver, or the kidneys, are diseased, but do not intimate the fever which accompanies the disease. In this latter sort of fever Hippocrates constantly ordered bleeding, but not in the former. Hence, in his books "*Of Epidemic Distempers*," we find but few directions for bleeding in the acute ones, and particularly in the great number of continual and burning fevers there treated of. In the first and third book we find but one single instance of bleeding, and that in a pleurisy; in which, too, he staid till the eighth day of the disorder. Galen, however, and most other commentators on Hippocrates, are of opinion, that he generally blooded his patients plentifully in the beginning of acute disorders, though he takes no notice of it in his writings. But had this been the case, he would not perhaps have had the opportunity of seeing so many fevers terminated by crises, or natural evacuations, which happen of themselves on certain days. Hippocrates, in fact, laid so much weight upon the assistance of nature and the method of diet, which was his favourite medicine, that he thought if they took care to diet the patients before mentioned, according to rule, they might leave the rest to nature. These are his principles, from which he never deviates; so that his pieces "Of Epidemical Diseases," seem to have been composed only with an intention to leave posterity an exact model of management in pursuance of these principles.

With regard to the rules laid down by Hippocrates for bleeding, we must farther take notice, that in all diseases which had their seat above the liver, he blooded in the arm, or in some of the upper parts of the body; but for those that were situated below it, he opened the veins of the foot, ankle, or ham. If the belly was too laxative, and bleeding was at the same time thought necessary, he ordered the looseness to be stopped before bleeding.

Almost all these instances, however, regard scarcely any other but acute distempers; but we find several concerning chronical diseases. "A young man complained of great pain in his belly, with a rumbling while he was fasting, which ceased after eating: this pain and rumbling continuing, his meat did him no good; but, on the contrary, he daily wasted and grew lean. Several medicines, as well purges as vomits, were given him in vain. At length it was resolved to bleed him by intervals, first in one arm, and then in the other, till he had scarcely any blood left, and by this method he was perfectly cured."

Hippocrates let blood also in a dropsy, even in a tympany; and in both cases he prescribes bleeding in the arm. In a disease occasioned by an overgrown spleen, he proposes bleeding, several times repeated, at a vein of the arm which he calls *splenetic;* and in a kind of jaundice, he proposes bleeding under the tongue. On some occasions he took away great quantities of blood, as appears from what we have already observed. Sometimes he continued the bleeding till the patient fainted: at other times he would bleed in both arms at once; at others, he did it at several places of the body, as it were promiscuously, and at several different times. The veins he opened were those of the arm, the hands, the ankles on both sides, the hams, the forehead, behind the head, the tongue, the nose, behind the ears, under the breasts, and those of the arms; besides which, he cauterised others, and opened several arteries. He likewise used cupping-vessels, with intent to recal or withdraw the humours which fell upon any part. Sometimes he contented himself with the bare attraction made by the cupping-vessels, but sometimes also he made scarifications.

When bleeding and purging, which were the principal and most general means used by Hippocrates for taking off a plethora, proved insufficient for that purpose, he had recourse to diuretics and sudorifics. The former were of different sorts, according to the constitution of the persons: sometimes baths, and sometimes sweet wine, were employed to provoke urine. Sometimes the nourishment which we take contributes to it: and amongst those herbs which are commonly eaten, Hippocrates recommends garlic, leeks, onions, cucumbers, melons, gourds, fennel, and all other things which have a biting taste and a strong smell. With these he numbers honey, mixed with water or vinegar, and all salt meats. But, on some occasions, he took four cantharides, and pulling off their wings and feet, gave them in wine and honey. These remedies were given in a great number of chronical disorders after purging, when he thought the blood was overcharged with a sort of moisture which he calls *ichor;* or in suppression of urine, and when it was made in less quantity than it ought. There were also some cases in which he would force sweat as well as urine; but he neither mentions the diseases in which sudorifics are proper, nor lets us know what medicines are to be used for this purpose, except in one single passage, where he mentions sweating, by pouring upon the head a great quantity of water till the feet sweat; that is, till the sweat diffuses itself over the whole body, running from head to foot. After this he would have them eat boiled meat, and drink pure wine, and, being well covered with clothes, lay themselves down to rest. The disease for which he proposes the abovementioned remedy is a fever; which is not, according to him, produced by bile or pituita, but mere lassitude, or some other similar cause; from whence we may conclude, that he did not approve of sweating in any other kind of fever.

Other remedies which Hippocrates tells us he made use of, were those that purge neither bile nor phlegm, but act by cooling, drying, heating, moistening, or by closing and thickening, resolving and dissipating. These medicines, however, he does not particularly mention; and it is probable they were only some particular kinds of food. To these he joined *hypnotics*, or such things as procure sleep; but these last were used very seldom, and it is most probable, were only different preparations of poppies.

Lastly, besides the medicines already mentioned, which acted in a sensible manner, Hippocrates made use of others called *specifics;* whose action he did not understand, and for the use of which he could give no reason besides his own experience, or that of other physicians. These he had learned from his predecessors, the descendants of Æsculapius, who, being *empirics*, did not trouble themselves about inquiring into the operation of their remedies, provided their patients were cured.

Of the external remedies prescribed by Hippocrates, *fomentations* were the chief. These were of two kinds. The one was a sort of bath, in which the patient sat in a vessel full of a decoction of simples appropriated to his malady; so that the part affected was soaked in the decoction. This was chiefly used in affections of the womb, of the arms, the bladder, the reins, and generally all the parts below the diaphragm. The second way of fomenting was, to take warm water and put it in a skin or bladder, or even into a copper or earthen vessel, and to apply it to the part affected; as, for example, in a pleurisy. They used likewise a large sponge, which they dipped in the water, or other hot liquor, and squeezed out part of the liquor before they applied it. The same use they made of barley, vetches, or bran, which were boiled in some proper liquor, and applied in a linen bag. These are called *moist* fomentations. The dry ones were made of salt or millet, heated considerably, and applied to the part. Another kind of fomentation was the vapour of some hot liquor; an instance of which we find in his first book "*Of Womens' Distempers.*" He cast, at several times, bits of red-hot iron into urine, and, covering up the patient close, caused her to receive the steam below. His design, in these kinds of fomentations, was to warm the part, to resolve or dissipate, and draw out the peccant matter, to mollify and assuage pain, to open the passages, or even to shut them, according as the fomentations were emollient or astringent.

Fumigations were likewise very often used by Hippocrates. In the quinsey, he burned hyssop with sulphur and pitch, and caused the smoke to be drawn into the throat by a funnel; and by this means he brought away abundance of phlegm through the mouth and through the nose. For this purpose he took nitre, marjoram, and cress-seeds, which he boiled in water, vinegar, and oil, and, while it was on the fire, caused the patient to draw in the steam by a pipe. In his works we find a great number of fumigants for the diseases of women, to promote the menstrual flux, to check it, to help conception, and to ease pains in the matrix, or the suffocation of it. On these occasions he used such aromatics as were then known, viz. cinnamon, cassia, myrrh, and several odoriferous plants; likewise some minerals, such as nitre, sulphur, and pitch, and caused them to receive the vapours through a funnel into the uterus.

Gargles, a kind of fomentations for the mouth, were also known to Hippocrates. In the quinsey he used a gargle made of marjoram, savory, celery, mint, and nitre, boiled with water and a little vinegar. When this was strained, they added honey to it, and washed their mouths frequently with it.

Oils and *ointments* were likewise much used by Hippocrates, with a view to mollify and abate pain, to ripen boils, resolve tumors, refresh after weariness, make the body supple, &c. For this purpose, sometimes pure oil of olives was used; sometimes certain simples were infused in it, as the leaves of myrtle and roses; and the latter kind of oil was in much request among the ancients. There were some other sorts of oils sometimes in use, however, which were much more compounded. Hippocrates speaks of one called *susinum*, which was made of the flowers of the iris, of some aromatics, and of an ointment of narcissus, made with the flowers of narcissus, and aromatics, infused in oil. But the most compounded of all his ointments was that called *netopum*, which he made particularly for women; and consisted, according to Hesychius, of a great number of ingredients. Another ointment, to which he gave the name of *ceratum*, was composed of oil and wax. An ointment, which he recommends for the softening of a tumor, and the cleansing of a wound, was made by the following receipt: "Take the quantity of a nut of the marrow or fat of a sheep, of mastic, or turpentine, the quantity of a bean, and as much wax; melt these over a fire, with oil of roses, for a ceratum." Sometimes he added pitch and wax, and, with a sufficient quantity of oil, made a composition somewhat more consistent than the former, which he called *cerapissus*.

Cataplasms were a sort of remedies less consistent than the two former. They were made of powders or herbs steeped or boiled in water or some other liquor, to which sometimes they added oil. These were used with a view to soften or resolve tumors, ripen abscesses, &c. though they had also cooling cataplasms made of the leaves of beech or oak, fig or olive trees, boiled in water.

Lastly, to complete the catalogue of the external remedies used by Hippocrates, we shall mention a sort of medicine called *collyrium*. It was compounded of powders, to which was added a small quantity of some ointment, or juice of a plant, to make a solid or dry mass; the form of which was long and round, which was kept for use. Another composition of much the same nature was a sort of lozenge, of the bigness of a small piece of money, which was burnt upon coals for a perfume, and powdered for particular uses. In his works we find likewise descriptions of powders for several uses, to take off fungous flesh, and to blow into the eyes in opthalmics, &c.

These were almost all the medicines used by Hippocrates for external purposes. The compound medicines given inwardly were either liquid, solid, or lambative. The liquid ones were prepared either by decoction or infusion in a proper liquor, which, when strained, was kept for use; or by macerating certain powders in such liquors, and so taking them together, or by mixing different kinds of liquors together. The solid medicines consisted of juices inspissated; of gums, resins, or powders, made up with them or with honey, or something proper to give the necessary consistence to the medicine. These were made up in form and quantity fit to be swallowed with ease. The lambative was of a consistence between solid and fluid; and the patients were obliged to keep it for some time to dissolve in the mouth, that they might swallow it leisurely. This remedy was used to take off the acrimony of those humours which sometimes fall upon this part, and provoke coughing and other inconvenience. The basis of this last composition was honey. It is worth our observation, that the compound medicines of Hippocrates were but very few, and composed only of four or five ingredients at most; and that he not only understood pharmacy, or the art of compounding medicines, but prepared such as he used himself, or caused his servants to prepare them in his house, by his directions.

We have thus given some account of the state of medicine as practised and taught by Hippocrates, who, as we have already observed, has for many ages been justly considered as the father of physic. For when we attend to the state in which he found medicine, and the condition in which he left it, we can hardly bestow sufficient admiration on the judgment and accuracy of his observations. After a life spent in unwearied industry, he is said to have died at Larissa, a city in Thessaly, in the 101st year of his age, 361 years before the birth of Christ.

The best edition of his works is that of Frenus, in Greek and Latin. Hippocrates wrote in the Ionian dialect. His aphorisms, prognostics, and all that he has written on the symptoms of diseases, justly pass for masterpieces, even in our days.

After the days of Hippocrates, medicine, in ancient Greece, gradually derived improvement from the labours of other physicians of eminence: particularly from Praxagoras, Erasistratus, and Herophilus.

HIPPOLA'PATHUM, (ιππολαπαθον, from ιππος, *a horse*, and λαπαθον, *the lapathum)*, a species of lapathum, so named from its size. See RHABARBARUM MONACHORUM.

HIPPOMA'RATHRUM. See SAXIFRAGA VULGARIS.

HIPPOSELI'NUM, (ιπποςηλινον, from ιππος, *a horse*, and σελινον, *purslane*, so named because it resembles a large kind of purslane); common Alexanders. *Smyrnium olusatrum*, Linn. This plant was formerly cultivated in gardens, for culinary use, but is now superseded by celery. The seeds are bitter and aromatic, and the roots are more powerfully bitter. They stand recommended as resolvents, diuretics, and emmanagogues, though seldom used in medical prescription.

HIPPS; the ripe fruit of the dog-rose. See CYNOSBATUS.

HIPPU'RIS VULGA'RIS, (ιππȣρις, from ιππος, *a horse*, and ȣρα, *a tail*, so named from its resemblance to a horse's tail). See EQUISETUM.

HI'PPUS, (from ιππος, *a horse*, because those who labour under this affection are continually twinkling and trembling, as is usual with those who ride on horseback); that repeated dilatation and alternate constriction of the pupil, which arises from a spasm or convulsion of the iris.

HIRU'DO, (quasi *haurudo*, from *haurio*, to draw out), the leech; a genus of insects belonging to the order of vermes intestina. The body moves either forward or backward. There are several species, principally distinguished by their colour, but that most known to medical men is the *hirudo medicinalis*, or medicinal leech, which grows to the length of two or three inches. The body is of a blackish-brown colour, marked on the back with six yellow spots, and edged with a yellow line on each side; but both the spots and the lines grow faint, and almost disappear, at some seasons. The head is smaller than the tail, which fixes itself very firmly to any thing the creature pleases. It is viviparous, and produces but one young one at a time, which is in the month of July. It is an inhabitant of clear running waters, and is well known for its use in bleeding. The species most nearly approaching this, and which it is necessary to distinguish, is the *hirudo sanguisuga*, or horse-leech. This is larger than the former; its skin is smooth and glossy; the body is depressed, the back is dusky; and the belly is of a yellowish green, having a yellow lateral margin. It inhabits stagnant waters.

The leech's head is armed with a sharp instrument that makes three wounds at once. They are three sharp tubercles, strong enough to cut through the skin of a man, or even of an ox or horse. The mouth is as it were the body of the pump, and the tongue or fleshy nipple the sucker; by the working of this piece of mechanism, the blood is made to rise up to the conduit which conveys it to the animal's stomach, which is a membranaceous skin, divided into 24 small cells. The blood which is sucked out is there preserved for several months, almost without coagulating, and proves a store of provision to the animal. The nutritious parts, absorbed after digestion by animals, need not, in this, to be disengaged from the heterogeneous substances: nor indeed is there an anus discoverable in the leech; mere transpiration seems to be all that it performs, the matter fixing on the surface of the body, and afterwards coming off in small threads. Of this an experiment may be tried, by putting a leech into oil, where it keeps alive for several days: upon being taken out and put into water, there appears to loosen from its body, a kind of slough, shaped like the creature's body. The organ of respiration, though unascertained, seems to be situated in the mouth; for if, like an insect, it drew its breath through vent holes, it would not subsist in oil, as by it these would be stopped up.

The first species only is used in medicine; being applied to the skin in order to draw off blood. With this view they are employed to phlebotomize young children. If the leech does not fasten, a drop of sugared milk is put on the spot it is wished to fix on, or a little blood is drawn by means of a slight puncture, after which it immediately settles. The leech, when fixed, should be watched, lest it should find its way into the anus, when used for the hemorrhoides, or penetrate into the œsophagus, if employed to draw the gums; otherwise it might fix upon the stomach or intestines. In such a case, the best and quickest remedy is to swallow some salt; which is the method practised to make it loose its hold, when it sucks longer than is intended. Vegetable or volatile alkali, pepper, or acids, also make it leave the part on which it was applied. Cows and horses have been known to receive leeches, when drinking, into the throat; and the usual remedy is to force down some salt, which makes them fall off. If, on the contrary, it is intended that the leech should draw a larger quantity of blood, the end of the tail is cut off; and it then sucks continually to make up the loss it sustains. The discharge occasioned by the puncture of a leech, is usually of more service than the process itself. When too abundant, it is easily stopped with brandy, vinegar, or other styptics, or with a compress of dry linen rag bound strongly on the bleeding orifice.

At Ceylon, travellers, who walk bare-legged, are molested by great numbers concealed under the grass. All leeches vary in their colours at some seasons, but they are generally of a dusky greenish brown or yellow, and often variegated. They are said to be very restless before a change of weather, if confined in glasses, and to fix themselves above the water on the approach of a fine day.

HISPI'DULÆ, (from *hispidus*, rough, so named from the rough woolly surface of its stalks); cudweed. See GNAPHALIUM.

HIRUNDINA'RIA, (from *hirundo*, the swallow, so named from the resemblance of its pods to a swallow); the herb swallow-wort. See NUMMULARIA and VINCETOXICUM.

HOACHE, a kind of earth approaching to the nature of chalk, but harder, and feeling like soap; whence some think that it is either the same with the soap-rock of Cornwall, or very like it. The Chinese dissolve it in water, till the liquor is of the consistence of cream, and then varnish their China-ware with it.

HOARSENESS, a diminution or temporary loss of voice, sometimes attended with a preternatural asperity or roughness of utterance. The parts affected are the trachea and larynx. It is occasioned by a slight inflammation of the mucous membrane covering those parts; and is relieved by mucilaginous linctuses; warm diluting drinks, such as bran tea, linseed tea, &c.; assisted by opiate and sudorific medicines, taken at bed-time. See CATARRH.

HOFFMAN (Frederic), an eminent physician, was born at Halle, near Magdeburg, in 1660; took a doctor of physic's degree in 1681; was made professor of physic at Halle, in 1693; and filled the chair till his death, which happened in 1742. His works were collected at Geneva, in six large folios, 1748 and 1754. The most remarkable incidents of his life are,—his journey into Holland and England, where he became intimately acquainted with Paul Herman and Dr. Robert Boyle;—his never taking any fees, as he was supported by an annual stipend;—his curing those great personages of inveterate diseases, the empress, the emperor Charles VI. and Frederic I. king of Prussia;—his teaching that acid and mineral waters might be drunk, with milk, with safety and advantage, which physicians before had generally reckoned pernicious;—his discovering the virtues of Seltzer and Lauchstad waters, in preventing and curing stubborn diseases;—his preparing and recommending an acid cathartic salt, from the waters of Sedlic, which was commonly used in Germany;—and his invention of some chemical remedies, even now bearing his name. He survived his eightieth year, but the exact time of his death is not known.

HOG'S-FENNEL. See PEUCEDANUM.

HOG'S-LARD. See AXUNGIA.

HOLCUS, *Indian-millet* or *corn;* of which there are thirteen species, two of them natives of Britain. The most remarkable of the foreign species is the *Hol-*

cus sorghum, Linn. or Guinea-corn. Class, *Polygamia.* Order, *Monœcia.* The stalks are large, compact, and full eight feet high. In Senegal, the fields are entirely covered with it. The negroes, who call it *guiarnot*, cover the ears when ripe with its own leaves, to shelter it from the sparrows, which are very mischievous in that country. The grain made into bread, or otherwise used, is esteemed very wholesome. With this the slaves in the West Indies are generally fed, each being allowed from a pint to a quart every day. The juice of the stalks is so agreeably luscious, that, if prepared as the sugar-canes, they would afford an excellent sugar. The negroes, on the coast of Guinea, make of two kinds of millet, a thick-grained pap, called *couscous*, which is their common food.

HOLERA'CEÆ, (from *holus*, pot-herbs); the name of the 12th order in Linnæus's fragments of a natural method, consisting of plants which are used for the table, and enter into the economy of domestic affairs.

HOLLY, KNEE. See Ruscus.

HOLLY, SEA. See Eryngium.

HOLO'STEUM. See Osteocolla.

HOLY THISTLE. See Carduus benedictus.

HOLYWELL-WATER; a mineral water, arranged under the class of simple cold waters. It possesses similar virtues to that of Malvern. See Malvern water.

HOMBERG (William), a celebrated physician, chemist, and philosopher, was the son of a Saxon gentleman, and born at Batavia, in the East Indies, in 1652. His father afterwards settled at Amsterdam, William there prosecuted his studies; and from thence removed to Jena, and afterwards to Leipsic, where he studied the law. In 1642, he was made advocate at Magdeburg, and there applied himself to the study of experimental philosophy. Some time after he travelled into Italy; and applied himself to the study of medicine, anatomy, and botany, at Padua. He afterwards studied at Bologna; and at Rome learned optics, painting, sculpture, and music. He at length travelled into France, England, and Holland; obtained the degree of doctor of physic at Wittemberg; travelled into Germany and the North; visited the mines of Saxony, Bohemia, Hungary, and Sweden; and returned to France, where he acquired the esteem of the learned. He was on the point of returning into Germany, when M. Colbert being informed of his merit, made him such advantageous offers, as induced him to fix his residence at Paris. M. Homberg, who was already well known for his phosphorus, for a pneumatic machine of his own invention, more perfect than that of Guericke, for his microscopes, for his discoveries in chemistry, and for the great number and variety of his curious observations, was received into the academy of sciences in 1691, and had the laboratory of that academy, of which he was one of its principal ornaments. The duke of Orleans, afterwards regent of the kingdom, at length made him his chemist, settled upon him a pension, gave him the most superb laboratory that was ever in the possession of a chemist, and in 1704 made him his first physician. He had abjured the Protestant religion in 1682, and died in 1715. There are a great number of learned and curious pieces of his writing, in the Memoirs of the Academy of Sciences, and in several journals. He had begun to give the elements of chemistry in the Memoirs of the Academy, and the rest were found among his papers, fit for printing.

HOMBERG'S SEDATIVE SALT. See Boracic acid.

HO'MO, man, is ranked by Linnæus under the order of primates; and characterised by having four parallel foreteeth, both in the upper and lower jaw, and two mammæ on the breast. The species, according to this author, are two, viz. the homo sapiens, and the homo troglodytes. He subdivides the homo sapiens into five varieties, viz. the American, the European, the Asiatic, the African, and what he calls the *monstrous*. See Man.

HOMOGENEOUS, (*homogeneus*, from ομος, *like*, and γενος, *a kind)*; uniform, or of a like kind or species; a term used in contra distinction to *heterogeneous*, when the parts of a body are of different qualities.

HOMOPLA'TÆ OS, (of the Gr. ωμοπλατα, from ωμος, *the shoulder*, and πλατα, *the blade).* See Scapula.

HONEY; a substance collected by bees from the nectary of flowers. It has a white or yellowish colour, a soft and grained consistence, after keeping, and a saccharine and fragrant smell. Honey is an excellent food, and a softening and slightly aperient remedy. Mixed with vinegar, it forms *oxymel*, and is exhibited in various forms in domestic medicine, and in pharmacy. Of this substance Dr. Cullen says—"It is so exactly and entirely a sugar, that I am at a loss to find in it any qualities or virtues different from those of the latter. It may commonly have somewhat more of viscidity; but what effect this has upon its qualities cannot be perceived; and whatever they are, they may be taken away by clarifying it with the white of egg. Recent honey has a matter in it, which, in certain persons, readily excites an acescent fermentation and spasm of the stomach, which are called colics. What is this peculiar matter we cannot discern; but it seems to be volatile, as it is readily dissipated by boiling. The effects of the recent honey we speak of, do not take place in every person, and in those only of a peculiar idiosyncracy; and to such persons honey should not be given without having been boiled." Dr. Cullen sees no advantage in making honey the basis of syrups, as is done by the London College. In his opinion, the Edinburgh College have properly laid it aside. But though he perceives not any difference of medicinal quality in sugar and in honey; yet the Dr. confesses he has had some reports of benefit obtained by certain asthmatics who employed honey largely. If it be possible, he says, that honey is in any measure disposed to go by the exhalants of the lungs, there may be a foundation for this: but it is not yet ascertained that sugar, taken in the same quantity, would not have the same effect. In some of the instances alluded to, the honey was taken to the quantity of several ounces daily. Founded on the popular opinion of honey, as a pectoral remedy, Dr. Hill's *Balsam of Honey*, a quack medicine, was once in demand; but this, besides honey, contained balsam of tolu, or gum benjamin in solution.

HONEY-SUCKLE. See Lonicera pericleminum.

HOPS. See Lupulus.

HOP-TOPS; the young sprouts of the hop-plant. If plucked when only a foot above the ground, and boiled, they are eaten like greens, with butter, and are very wholesome and palatable.

HO'RDEOLUM, (dim. of *hordeum*); an inflammatory tubercle, similar to a small boil, situated on the margin of the eye-lid, and somewhat resembling a barleycorn. It is also called a *stye*, or *styan*.

HO'RDEUM, (*ab horrore aristæ*, from the unpleasantness of its beard to the touch); barley. This grain is obtained from several species of *hordeum*, but principally from the *hordeum vulgare* and *distichon* of Linnæus. It is extremely nutritious and mucilaginous, and the decoction of it is in common use as a drink, in all inflammatory diseases and affections of the chest, especially when there is cough or irritation about the fauces. Amongst the ancients, decoctions of barley, κριθη, was the principal medicine, as well as aliment, in acute diseases. Barley is freed from its shells in mills, and in this state it is called Scotch or French barley. In Holland they rub barley into small round grains, somewhat like pearls, which is therefore called pearl-barley. See Ptisan.

HO'RDEUM CAU'STICUM. See Cevadilla.

HO'RDEUM DI'STICHON. This plant affords the barley in common use. See Hordeum.

HO'RDEUM PERLA'TUM. See Hordeum.

HO'RDEUM VULGA'RE; the systematic name of one of the plants which afford the barley. See Hordeum.

HOREHOUND. See Marrubium.

HORESTRONG. See Peucedanum.

HO'RMINUM, (ορμινον, from ορμαω, *to incite*, named from its supposed qualities of provoking to venery); the herb garden-clary. It is the *Salvia sclara* of Linnæus.

HORN, a hard substance, growing on the heads of some quadrupeds, particularly the cloven-footed kind; and serving them both as weapons of offence and defence. The horn of animals is of the same nature as their gelatinous matter. It is perfectly animalised, and furnishes in distillation the same principles as other animal matters. See Animal oil, &c. An extraordinary instance of *human horns*, is given in Dr. Charles Leigh's Natural History of Lancashire, Cheshire, and the Peak in Derbyshire; accompanied with the print of a woman having two horns on her head. When she was 28 years of age, an excrescence grew upon her head like a wen, which continued 30 years, and then formed into two horns. After four years she cast them, and in their place grew two others. After four years she cast these also; and the horns which were on her head, in 1668 (the time when the account was written) were then loose. Her picture, and one of her horns, are in Ashmole's museum. In the university library at Edinburgh is preserved a horn, which was cut from the head of Elizabeth Love, in the 50th year of her age. It grew three inches above the ear, and was growing seven years.

HORRIPILA'TIO, a sense of creeping or formication in different parts of the body. It is a symptom of the approach of fever.

HORSE-CHESNUT. See Hippocastanum.

HORSE-RADISH. See Raphanus rusticanus.

HORSE-TAIL. See Equisetum.

HORSTIUS (James), professor of medicine in the university of Helmstadt, in the 16th century. He joined devotion with the knowledge and practice of physic. He carefully prayed to God to bless his prescriptions, and published a form of prayer upon this subject. He also wrote, 1. A Treatise on the Qualities of a good Physician. 2. Another on the Qualities of a good Apothecary. 3. A Treatise of the Plague, in Germany. 4. A Commentary *in Libros Hippocrates de Corde*, and other works. He had a nephew, Gregory Horstius, called *the Æsculapius of Germany*, who published several books, which were esteemed in his own time.

HO'RTUS SICCUS, in botanical pursuits, a *dry garden*; an appellation given to a collection of specimens of plants carefully dried and preserved. The value of such a collection is very evident, since a thousand minutiæ may be preserved in the well-dried specimens of plants, which the most accurate engraver would overlook. It is enough to mention two methods of obtaining a *hortus siccus*: the first is given by Sir Robert Southwell, in the Philosophical Transactions, N° 237; and the other by Dr. Hill, in his Review of the Works of the Royal Society.

According to the former, the plants are to be laid flat between papers, and then put between two smooth plates of iron, screwed together at the corners; and in this condition committed to a baker's oven for two hours. When taken out, they are to be rubbed over with a mixture of equal parts of nitrous acid and brandy; and after this to be fastened down on paper, with a solution of the quantity of a walnut of gum tragacanth, dissolved in a pint of water. To this Dr. Hill objects, that the heat of an oven is much too uncertain to be employed in so nice an operation; and that the space of time ordered for continuing the plants affords no information, unless the degree of heat, and even the different nature of the plant, as to its succulency and the firmness or tenderness of its fibres, be attended to; there being scarcely any two plants alike in these particulars: consequently the degree and duration of heat sufficient for one plant, would destroy another. Besides which, the acid used destroys the colour of many plants, and never recovers that of others lost in the drying; and frequently, after the plant is fixed down, rots both the paper it is fixed to, and that which lies over it.

Dr. Hill's method is as follows:—"Take a specimen of a plant in flower, and with it one of its bottom leaves, if it have any; bruise the stalk, if too rigid, or slit it, if too thick: spread out the leaves and flowers on paper, cover it with more paper, and lay a weight over all. At the end of eighteen hours, take out the plants, now perfectly flattened, and lay them on a bed of dry common sand; sift more dry sand over them, to the depth of two inches, and thus let them lie about three weeks: the less succulent dry much sooner, but they take no harm afterward. If the floor of a garret be covered in spring with sand, two inches deep, leaving space for walking to the several parts, it will receive the collection of a whole summer; the covering of sand being sifted over every parcel as laid in, they need no farther care from the time of laying them, till they are taken up to be stuck on paper. The cement used by the Doctor is thus prepared:—Early in the spring, put two ounces of camphor into three quarts of water, in a large bottle, shake it from time to time; and when the first collected plants are ready for fastening down, put into a pint of the water, poured off into an earthen vessel that will bear the fire, two ounces of common glue, such as is used by the carpenters, and the same quantity of ichthyocolla beat to shreds; let them stand 36 hours, then gently boil the whole a few moments, and strain it off through a coarse cloth. This is to be warmed over a gentle heat, when it is to be used, and the back of the plants smeared over with a painter's brush: after this, lay them on paper, and gently press them for a few minutes; then expose them to the air a little, and finally, lay them under a small weight, between quires of paper, to be perfectly dried." He says, it is scarcely to be conceived how strongly the water becomes impregnated with the camphor, by this simple process: a part of it indeed flies off in the making of the cement and the using of it; but enough remains with the plant to prevent the breeding of insects in it. He farther observes, that plants may be dried very well without sand, by only putting them frequently into fresh quires of paper, or a few, by only pressing them between the leaves of a book: but the sand method preserves the colour best, and is done with the least trouble.

Another method, much better than that of the oven, is the flattening and drying the plant, by passing a common smoothing-iron for linen over the papers between which it is laid: but, for nice things, the most perfect method of all is, that by a common sand heat, such as is used for chemical purposes. The cold sand is to be spread smooth upon this occasion, the plant laid on it carefully flatted, and a thick bed of sand sifted over: the fire is then to be made, and the whole process carefully watched until, by a very gentle heat, the plant is very carefully dried. The colour of the tenderest herb may by this treatment be preserved; and flowers that can no way else be preserved, may be managed perfectly well thus.

HOSPITAL, (from *hospes*, a stranger), a public house of reception for sick, lame, or wounded persons, who are there supported without expence to themselves, and have every possible assistance towards their cure. It is a melancholy consideration, Dr. Percival observes, that these charitable institutions, which are intended for the health and preservation of mankind, may too often be ranked amongst the causes of sickness and mortality. One third of all who die at Paris, he says, die in hospitals. In the *Hôtel-Dieu*, a great hospital, situated in the middle of that city, we behold a horrid scene of misery; for, the beds being too few for the numbers admitted, it is common to see four, six, or even eight patients in a bed together, lying four at one end, and four at the other. The number annually admitted into this hospital amounts to nearly twenty-two thousand; and it appears, that *two* in *nine*, of all received from 1724 to 1763, died. In the two great hospitals of London, St. Thomas's and St. Bartholomew's, about six hundred die annually, or *one* in *thirteen* of all admitted as in-patients. In the Northampton infirmary, *one* in *nineteen* of the in-patients *(communibus annis)* dies every year; and in that of Manchester, which is built in an airy situation, and tolerably well ventilated, *one* in *twenty-two.* This proportion of deaths, Dr. Percival apprehends, exceeds the mortality which occurs in private practice: and it will appear to be more considerable, when we recollect, that, besides the patients who are dismissed as incurable, improper objects, or on account of irregularity, the event of whose cases remains unknown, the small-pox, measles, *lues venerea*, fevers, and other dangerous and fatal distempers, are excluded from admission into these hospitals.

Dr. Aikin, in his "Thoughts on Hospitals," has well illustrated the causes of these imperfections, and pointed out the pernicious effects of tainted air; the false economy of crowding a number of sick persons into as little space as possible; and the mistaken humanity of admitting patients, who labour under diseases which are contagious in their nature, incapable of relief, or liable to be aggravated by confinement in an impure atmosphere.

But as so many infirmaries are erected in different parts of the kingdom, on plans which cannot now be altered; and as they are governed by established laws, which, however erroneous, will still, from the force of custom, continue to be observed, it were to be wished, that some means could be devised of obviating the inconveniences which arise from their present construction, as well as mode of regulation. Dr. Percival suggests the following hints on this subject; and indeed they have not been suggested in vain, since all the modern buildings for this humane purpose have been, in all respects, greatly improved, in consequence of them.

Air, diet, and medicine, are the three great agents to be employed, in preventing and correcting putrefaction and contagion in hospitals. A gallon of air is consumed every minute by a man in health; a sick person requires a larger supply, because he more quickly contaminates it; and it is observed, that animals expire sooner in foul air, than *in vacuo.* Besides ventilators, therefore, and sashes sliding downwards so as to open at top, apertures should be made in the wall, opposite to the windows, corresponding to them in number, and of sufficient dimensions. This improvement was adopted in the infirmary at Leicester, and has been found to succeed. The larger wards should have a fire-place at each end of them; and, in summer time, the discharge of foul air, by the pipes of the chimney, may be continued by means of a flue, communicating with a fire below. Dr. Percival very properly adds, that the salubrity of the air is very much influenced by its *temperature*, which ought to be regulated by a thermometer, placed in the centre of every room.

But supplies of the purest air not being sufficient to destroy contagion, it is necessary to correct the noxious effluvia which arise from so many distempered bodies, afflicted perhaps with mortifications, carious bones, malignant ulcers, putrid fevers, &c. This is usually attempted by sprinkling, or rather washing, daily, the apartments of the sick, with vinegar and an infusion of deal saw-dust, or with vitriolic acid and water; by frequently fumigating them with the steams of boiling vinegar and tar; or, if diseases of extraordinary malignancy occur, with boiling vinegar, myrrh, and camphor; by using wood fuel, particularly fir, and occasionally dipping the faggots in tar; by ventilating the bed-clothes of such patients as are able to sit up or walk about, and afterwards impregnating them with the antiseptic vapours abovementioned; and by obliging the sick to conform strictly to the rules of nicety and cleanliness. If any of them have been accustomed to smoaking, Dr. Percival says, they should be allowed pipes and tobacco, when such an indulgence will not be injurious. The patients should have their linen very frequently renewed; and their sheets and shirts should be fumigated with frankincense, before they are used. The dressings of foul ulcers, &c. as soon as they are removed, should be thrown into vessels of vinegar, or of vitriolic acid and water, and carried out of the wards with all convenient expedition. Here, however, we must advert to a most important means of destroying contagion, and sweetening the surrounding medium, detailed under the article FUMIGATION, NITROUS.

Dr. Percival says, it is to be wished, that salves were banished from hospital practice; and indeed, their use in the hospitals of the metropolis, is now very much restricted. Oil, he says, by heat, acquires a rancidity which renders it both stimulant and septic; and, by these qualities, it increases the acrimony and fœtor of all purulent discharges. Poultices, either of carrots or white bread, or tow lightly spread over with the mucilage of starch, mixed with such a proportion of neat's-foot oil as to prevent its growing stiff, might perhaps be usefully substituted, as soft defensatives, in the room of plasters and cerates. Twelve parts of the mucilage, and one of oil, mixed uniformly together without heat, are of a due consistence, and continue moist a sufficient length of time. In some cases, Dr. Percival thinks it may be of advantage, to prepare the mucilage of starch with the saturnine water of Goulard; which, with the neat's-foot oil, will furnish an emollient, antiseptic, and moderately astringent topic, much superior, he apprehends, to the *unguentum tripharmacum* commonly used.

Next to the salubrity of the air, a well-regulated *diet* may be considered as the most powerful preservative against the in-bred diseases of hospitals. In summer and autumn, when putrid distempers are most prevalent, the patients should be liberally supplied with fruit. Nor will the procuring of it be attended either with difficulty or expence, if it be intimated to the patrons of these charities, and to other well-disposed persons, that such donations will be highly acceptable.

Rice forms a considerable article in the table of diet, of almost every infirmary. But, as a wholesome aliment, it is much inferior to salep, which, however, is seldom, if ever, used. Dr. Percival digested several mixtures, prepared of mutton and water, beaten up with bread, sea-biscuit, salep, rice-flour, sago-powder, potatoe, old cheese, &c. in a heat equal to that of the human body. In forty-eight hours, they had all acquired a vinous smell, and were in brisk fermentation, except the mixture with rice, which did not emit many air bubbles, and was but little changed. The third day, some of the mixtures were sweet, and continued to ferment; others had lost their intestine motion, and were sour: but the one which contained the rice was become putrid. From this experiment it appears, that rice, as an aliment, is slow of fermentation, and a very weak corrector of putrefaction: It is therefore an improper diet for hospital patients. Nor can it be considered as a very nutritive kind of food, on account of its difficult solubility in the stomach. Experience confirms the truth of this conclusion; for it is observed, by the planters in the West Indies, that the negroes grow thin, and are less able to work, whilst they subsist upon rice.

Salep is said to contain the greatest quantity of vegetable nourishment under the smallest bulk; and from its restorative, mucilaginous, and demulcent qualities, it deserves to be considered as a *medicinal diet*. It obtunds the acrimony of the fluids, and, at the same time, is easily assimilated into a mild and wholesome chyle. In diarrhœas, and in the dysentery, it is highly serviceable, by sheathing the internal coat of the intestines, by abating irritation, and gently correcting putrefaction. In the symptomatic fever, which arises from the absorption of pus, from ulcers in the lungs, from wounds, or from amputation, salep used plentifully, is an admirable demulcent.

Cheese, Dr. Percival reckons an unwholesome diet for convalescents, because, when new, it is almost indigestible; and although, when mellowed by age, it ferments readily with flesh and water, yet it separates a rancid oil, which seems incapable of any further change, and, as a septic, must be pernicious. Hospital patients, indeed, are so liable to relapses, that the slightest error of diet may occasion them. The infusion of malt, which is strongly recommended in scurvy at sea, may perhaps, as an antiseptic, be no less useful in hospitals. It may be allowed the patients for common drink, in lieu of table beer, which having undergone the vinous fermentation, has lost, in some measure, the power of correcting or sweetening putrefaction. Should this liquor prove too aperient, a few red rose leaves, or balaustines, infused with the malt, will obviate this effect, without communicating any disagreeable flavour. The flour of malt might also be employed for making gruel, milk pottage, or puddings.

With respect to animal food, all salted and smoke-dried meats, are generally disallowed in hospitals. Pork, Dr. Percival thinks, should likewise be forbidden, as it is the most putrescent kind of flesh, and tends to diminish perspiration. Care, he says, should be also taken, that the meat, which is killed for the use of infirmaries, be more than usually blooded, that it may not, by becoming soon tainted, concur, with other unavoidable causes, in the production of putrid diseases.

Of *medicines* little more can be suggested, than that, in prescribing them, regard should be had not only to the present symptoms, but also to the putrid tendency and contagious nature of hospital diseases. And, as the course of infection is usually slow, the physician should carefully watch its first accession; and, by suitable remedies, instantly check its progress. In malignant fevers, besides administering the cinchona in substance or decoction, a light infusion of it, well acidulated, may be directed for the common drink of the patient. But, in less urgent cases, vinegar or cream of tartar whey, will be a more grateful diluent, and sufficiently antiseptic. It would be a farther means of correcting putrefaction, and would answer other useful purposes, if the sick were to wash their faces, and bathe their feet and hands, every morning and evening, in a decoction of cinchona, or of chamomile flowers, mixed with vinegar.

Dr. Percival mentions an ingenious contrivance, used in the infirmary at Leicester, which contributes greatly to the ease and convenience of the patients. The bedsteads, which are of iron painted, are so made, that the backs, by means of a screw, may be raised or lowered, with the greatest facility. This improvement, first suggested by Dr. Vaughan, and executed, under the direction of Dr. Ash, at Birmingham, has been introduced into many of the other hospitals in Britain. A farther improvement, indeed, has been recently attempted; as we have stated under the article Bed.

HOUND'S-TONGUE. See Cynoglossum.

HOUSE-LEEK. See Sedum magnus.

HUMAN BODY. See Man.

HUMECTATION, (formed of *humour*, moisture, or moistening), in pharmacy, the preparing of a medicine, by steeping it a while in water, in order to soften and moisten it when too dry; or to cleanse it, or to prevent its finer parts from being dissipated in grinding, &c. Formerly the term *humectation* was also used for the application of moistening remedies to the body; as in the use of embrocations, fomentations, &c.

HUMERA'LIS ARTE'RIA; the humeral or brachial artery. The axillary artery having passed the tendon of the great pectoral muscle, changes its name to the brachial or humeral artery, which name it retains in its course down the arm to the bend, where it divides into the radial and ulnar artery. In this course it gives off several muscular branches, three of which only deserve the attention of the anatomical student, viz. 1. *The arteria profunda superior*, which goes round the back of the arm to the exterior muscles, and is often named the superior muscular artery. 2. Another, much like it, called *arteria profunda inferior*, or the lower muscular artery. 3. The *ramus anastomaticus major*, which anastomoses round the elbow with the branches of the ulnar artery.

HU'MERUS, (from *ωμος*, *the shoulder)*, also called *os humeri*, and *os brachii;* that long cylindrical bone, which is situated between the scapula and fore-arm. Its upper extremity is formed somewhat laterally and internally, into a large, round, and smooth head, which rotates in the glenoid cavity of the scapula. Around the basis of this head is observed a circular fossa, deepest anteriorly and externally, which forms what is called the neck of the bone, and from the edge of which arises the capsular ligament. This last is farther strengthened by a strong membranous expansion, extending to the upper edge of the glenoid cavity, and to the coracoid process of the scapula; and likewise by the tendinous expansions of the muscles, inserted into the head of the humerus. The capsular ligament is sometimes torn in luxations of the shoulder joint, and becomes an obstacle to the reduction of the bone. The articulating surface of the head is covered by a cartilage, which is thick in its middle part, and thin towards its edges, by which means it is more convex in the recent subject than in the skeleton. This upper extremity, besides the round smooth head, affords two other smaller protuberances. One of these, which is the largest of the two, is of an irregular oblong shape, and is placed at the back of the head of the bone, from which it is separated by a kind of groove that makes a part of the neck. This tuberosity is divided, at its upper part, into three surfaces; the first of these, which is the smallest and uppermost, serves for the insertion of the supra-spinatus muscle; the second, or middlemost, for the infra-spinatus; and the third, which is the lowest and hindmost, for the insertion of the teres minor. The other smaller tuberosity is situated anteriorily between the larger one and the head of the humerus, and serves for the insertion of the subscapularis muscle. Between these two tuberosities we perceive a deep groove, for lodging the tendinous head of the biceps brachii; the capsular ligament of the joint, affording here a prolongation, thinner than the rest of the capsula, which covers and accompanies this muscle to its fleshy portion, where it gradually disappears in the adjacent cellular membrane. Immediately below its neck, the humerus begins to assume a cylindrical shape, so that here the body of the bone may be said to commence. At its upper part is seen a continuation of the groove for the biceps, which extends downwards, about a fourth part of the length of the bone, in an oblique direction. The edge of this groove are continuations of the greater and lesser tuberosities, and serve for the attachment of the pectoralis, latissimus-dorsi, and teres major muscles. The groove itself is lined with a glistening substance like cartilage, but which seems to be nothing more than the remains of tendinous fibres.—Somewhat lower down, towards the external and anterior side of the middle of the bone, it is seen rising into a rough ridge, for the insertion of the deltoid muscle. On each side of this ridge the bone is smooth and flat, for the lodgment of the brachialis internus muscle; and behind the middle part of the outermost side of the ridge, is a channel for the transmission of vessels into the substance of the bone. A little lower down, and near the inner side of the ridge, we sometimes observe a similar channel, intended for the same purpose. The os humeri, at its lower extremity, becomes gradually broader and flatter, so as to have this end nearly of a triangular shape. The bone thus expanded, affords two surfaces, of which the anterior one is the broadest, and somewhat convex; and the posterior one narrower and smoother.

The humerus terminates in four large processes, the two outermost of which are called *condyles*, though not designed for the articulation of the bone. These condyles, which are placed at some distance from each other, on each side of the bone, are rough and irregular protuberances, formed for the insertion of muscles and ligaments, and differ from each other in size and shape. The external condyle, when the arm is in the most natural position, is found to be placed somewhat forwarder than the other. The internal condyle is longer, and more protuberant than the external. From each of these processes a ridge is continued upwards at the sides of the bone. In the interval between the two condyles are placed the two articulating processes, contiguous to each other, and covered with cartilage. One of these, which is the smallest, is formed into a small, obtuse, smooth head, on which the radius moves. This little head is placed near the external condyle, as a part of which it has even been, by some anatomists, described. The other, and larger process, is composed of two lateral protuberances and a middle cavity, all of which are smooth and covered with cartilage. From the manner in which the ulna moves in this process, it has gotten the name of *trochlea*, or pulley. The sides of this pulley are unequal, that which is towards the little head is the highest of the two; the other, which is contiguous to the external condyle, is more slanting, being situated obliquely from within outwards, so that when the fore-arm is fully extended, it does not form a straight line with the os humeri, and, for the same reason, when we bend the elbow, the hand comes not to the shoulder as it might be expected to do, but to the fore part of the breast. There is a cavity at the root of these processes, on each of the two surfaces of the bone. The cavity on the anterior surface is divided by a ridge into two, the external of which receives the end of the radius, and the internal one lodges the coronoid process of the ulna in the flexions of the fore-arm. The cavity on the posterior surface, as the basis of the pulley, is much larger, and lodges the olecranon when the arm is extended. The internal structure of the os humeri is similar to that of the other cylindrical bones. In the fœtus, both the ends of the bone are cartilaginous, and the large head, with the two tubercles above, and condyles, with the two articulating processes below, become epiphyses before they are entirely united to the body of the bone.

HUMIDITY, that quality in bodies whereby they are capable of wetting other bodies. This differs very much from fluidity; and seems to be merely a relative state, depending on the congruity of the component particles of the liquor to the pores of such particular bodies as it is capable of adhering to, penetrating a little into, or wetting. Thus, for instance, quicksilver is not a moist thing with regard to the hand or clothes: but may be called so in reference to gold, tin, or lead, to whose surfaces it will perfectly adhere, and render them soft and moist.

HU'MILIS, (from *humi*, on the ground); a muscle so named because it turns the eye downwards, and is expressive of deep humility. See RECTUS INFERIOR OCULI.

HUMOUR, (from the Latin, *humor*), in its original signification, stands for moisture in general; from whence it has been restrained to signify the moisture of animal bodies, or those fluids which circulate through them. It is distinguished from moisture in general in this, that humours properly express the natural fluid secretions of the body. Of these when supposed to be in a vitiated state, it is common, however improper, to say, that the fluids of such a person's body are *full of humour*. Certain gelatinous fluids of the body, in their natural and healthful state, are called *humours*, as those in the eye; and we talk of the aqueous humour, the crystaline humour, without meaning any that is morbid or diseased; yet, when we hear it said, in general, that such a person has got a humour in his eye, we understand it in the usual, though, perhaps erroneous, sense of a vitiated fluid. Humour also denotes a certain capricious or excentric temper of the mind. A person's humour, however, is different from his *disposition*, in this, that humour seems to be the disease of a disposition. Thus persons of a serious temper or disposition of mind, are subject to melancholy humours; those of a delicate and tender disposition, to peevish humours, &c.

HUMOUR, AQUEOUS. See AQUEOUS HUMOUR *of the eye*.

HUMOUR, VITREOUS. See VITREOUS HUMOUR.

HUMOURS OF THE EYE. See EYE, AQUEOUS and VITREOUS HUMOUR.

HU'MULUS LU'PULUS, (*humulus*, from *humus*, the ground, so named because without support it will creep along the ground); the systematic name of the hop-plant. See LUPULUS.

HUNGER, an uneasy sensation occasioned by long abstinence from food when the body is in an healthy state. See FASTING. Dr. Percival observes, that, in famine, life may be protracted with less pain and misery, by a moderate allowance of water: for the acrimony and putrefaction of the humours are obviated by such dilution, the small vessels are kept permeable, and the lungs are furnished with that moisture which is essential to the performance of their functions. Fontanus, a writer of respectable authority in the estimation of Morgagni, relates the history of a woman who obstinately refused to take any sustenance, except twice, during the space of fifty days, at the end of which period she died. But he adds, that she used water by way of drink, though in small quantity. Redi, who made many experiments (cruel and unjustifiable, in our opinion,) to ascertain the effects of fasting on fowls, observed, that none were able to support life beyond the ninth day to whom drink was denied; whereas one indulged with water lived more than 20 days.

Hippocrates has observed, that children are more affected by abstinence than young persons; these, more than the middle-aged; and the middle-aged, more than old men. The power to endure famine, however, must depend no less upon the state of health and strength, than on the age of the sufferer. There are also particular constitutions which do not suffer much pain from the calls of hunger. Dr. Percival was informed, by a young physician from Genoa, that when he was a student at Montpelier, he fasted three nights and four days, with no other refreshment than a pint of water daily. His hunger was keen, but never painful, during the first and second days of his abstinence; and the two following days, he perceived only a faintness when he attempted either bodily or mental exertion: a sense of coldness was diffused over his whole frame, but more particularly affected the extremities. His mind was in a very unusual state of pusillanimity; and he experienced a great tendency to tears, whenever he recollected the circumstance which had been the occasion of his fasting. During the whole period, the alvine excretions were suppressed, but not those by the kidneys: and, at the close of it, his skin became tinged with a shade of yellow. The first food he took was veal broth; which had something of an intoxicating effect, producing a glow of warmth, and raising his spirits, so as to render him ashamed of his despondency. Perhaps in the case of Sextius Baculus, as recorded in the Commentaries of Cæsar, (lib. 6.) the extraordinary courage and prowess which he suddenly exerted, might be aided by the exhilarating effect of sustenance, which, under such circumstances, it is probable he would no longer decline. The fact, however, evinces, that neither his sickness, nor the sensations of hunger, had been so violent as much to impair his strength of body or vigour of mind. Pomponius Atticus, the celebrated friend of Cicero, who put a voluntary end to his life, in the 77th year of his age, by refusing all food, appears to have experienced ease from his disorder, rather than any acute sufferings by famine. "Sic cum biduò cibo se abstinuisset, subito febris decessit, leviorque morbus esse cæpit: tamen propositum nihilo secius peregit. Itaque die quinto, postquam id consilium iniberat, decessit." *Corn. Nepos in Vit. Pomp. Attic.* From the former circumstance it has been conjectured, that he did not wholly deny himself the use of water, or of some other diluent. But, though a few examples of this kind may be adduced, we have the evidence of numerous melancholy facts to show, that the pressure of hunger is agonizing to the human frame. "I have talked," says Dr. Goldsmith, "with the captain of a ship, who was one of six that endured it in its extremity, and who was the only person that had not lost his senses when they received accidental relief. He assured me, his pains at first were so great that he was often tempted to eat a part of one of the men who died, and which the rest of his crew actually for some time lived upon. He said, that during the continuance of this paroxysm he found his pains insupportable, and was desirous at one time of anticipating that death which he thought inevitable. But his pains, he said, gradually decreased after the sixth day, (for they had water in the ship, which kept them alive so long), and then he was in a state, rather of languor than desire; nor did he much wish for food, except when he saw others eating; and that for a while revived his appetite, though with diminished importunity. The latter part of the time, when his health was almost destroyed, a thousand strange images arose in his mind; and every one of his senses began to bring him wrong information. The most fragrant perfumes appeared to him to have a fetid smell; and every thing he looked at took a greenish hue, and sometimes a yellow. When he was presented with food by the ship's company that took him and his men up, four of whom died shortly after, he could not help looking at it with loathing, instead of desire; and it was not till after four days, that his stomach was brought to its natural tone; when the violence of his appetite returned with a sort of canine eagerness."

To those who by their occupations are exposed to such dreadful calamities, it is of serious importance to be instructed in the means of alleviating them. The American Indians are said to use a composition of the juice of tobacco, and the shells of snails, cockles, and oysters calcinated, whenever they undertake a long journey, and are likely to be destitute of provisions. It is probable the shells are not burnt into quicklime, but only so as to destroy their tenacity, and to render them fit for levigation. The mass is dried, and formed into pills, of a proper size to be held between the gum and lip, which, being gradually dissolved and swallowed, obtund the sensations both of hunger and of thirst. Tobacco, by its narcotic quality, seems well adapted to counteract the uneasy impressions which the gastric juice makes on the nerves of the stomach, when it is empty: and the combination of testaceous powders with it, may tend to correct the secretion that is supposed to be the chief agent in digestion, and which, if not acid, is always united with acidity. Certain at least it is, that their operation is both grateful and salutary; for we find the luxurious inhabitants of the East Indies mix them with the betel nut, to the chewing of which they are universally and immoderately addicted. Perhaps such absorbents may be usefully applied, both to divide the doses, and to moderate the virulence of the tobacco. For, in the internal exhibition of this plant, much caution is required, as it produces sickness, vertigo, cold clammy sweats, and a train of other formidable symptoms, when taken in too large a quantity. During the time of war, the impressed sailors frequently bring on these maladies, that they may be admitted into the hospitals, and released from servitude. It would be an easy and safe experiment to ascertain the efficacy, and to adjust the ingredients, of the Indian composition mentioned. And there is reason to believe, that the trial would be in some degree successful; for it is known that smoaking tobacco gives relief in those habitual pains of the stomach which appear to arise from the irritation of the gastric secretion. The like effect is sometimes produced by increasing the flow of saliva, and swallowing what is thus discharged. Dr. Percival has related the case of a gentleman, who used to masticate, many hours daily, a piece of lead; which being neither hard, friable, nor offensive to the palate, suited his purpose, as he thought, better than any other substance. He continued the custom many years, deriving great ease from it, and suffering no sensible injury from the poisonous quality of the metal. On mentioning this fact to a navy surgeon, the Doctor was told, that the sailors, when in hot climates, are wont to mitigate thirst, by rolling a bullet in their mouths. A much more innocent means, he observes, might be devised; but the efficacy of this evinces, that the salivary glands are for a while capable of furnishing a substitute for drink. When a scarcity of water occurs at sea, Dr. Franklin has suggested that the mariners should bathe themselves in tubs of salt-water: for, in pursuing the amusement of swimming, he observed, that, however thirsty he was before immersion, he never continued so afterwards; and that, though he soaked himself several hours in the day, and several days successively in salt-water, he perceived not, in consequence of it, the least taste of saltness in his mouth. He also further suggests, that the same good effect might, perhaps, be derived from dipping the sailors' apparel in the sea; and expresses a confidence that no danger of catching cold would ensue.

To prevent the calamity of famine at sea, it has been proposed, by Dr. Lind, that the powder of salep should constitute part of the provisions of every ship's company. This powder and portable soup, dissolved in boiling water, form a rich thick jelly; and an ounce of each of these articles furnishes one day's subsistence to a healthy full-grown man. Indeed, from Dr. Percival's experiments it appears, that salep contains more nutritious matter, in proportion to its bulk, than any other vegetable production now used as food. It has the property also of concealing the nauseous taste of salt-water; and consequently may be of great advantage at sea, when the stock of fresh water is so far consumed that the mariners are put upon short allowance. By the same mucilaginous quality, it covers the offensiveness, and even in some measure corrects the acrimony, of salted and putrescent meats. But, as a preservative against hunger, salep would be most efficacious combined with an equal weight of beef suet. By swallowing little balls of this lubricating compound at proper intervals, the coats of the stomach would be defended from irritation; and as oils and mucilages are highly nutritive, of slow digestion, and indisposed to pass off by perspiration, they are peculiarly well adapted to support life, in small quantities. This composition is superior in simplicity, and perhaps equal in efficacy, to the following one, so very much extolled by Avicenna the celebrated Arabian physician; to whom we are indebted for the introduction of rhubarb, cassia, tamarinds, and senna, into the materia medica. "Take sweet almonds and beef suet, of each one pound; of the oil of violets two ounces; and of the roots of marsh mallows one ounce: bray these ingredients together in a mortar, and form the mass into boluses, about the size of a common nut." Animal fat is singularly powerful in assuaging the most acute sensations of thirst, as appears from the narrative of the sufferings experienced by those who were confined in the black hole at Calcutta. A hundred and forty six persons, exhausted by fatigue and military duty, were there thrust together into a chamber of 18 cubic feet, having only two windows, strongly barred with iron, from which, in a close sultry night, and in such a climate as that of Bengal, little or no circulation of fresh air could be enjoyed. In a few minutes, these unhappy wretches fell into so profuse a perspiration, that an idea can hardly be formed of it; and this was succeeded by a raging thirst, which increased in proportion as the body was drained of its moisture. Water! Water! became the universal cry; and an old soldier on the outside, through pity, furnished them with a few skinfuls of it. But these scanty supplies, like sprinklings on the fire, served only to feed and increase the flame. From this experience of its effect, Mr. Holwell, their chief, determined to drink no more; and kept his mouth moist by sucking the perspiration out of his shirt sleeves, and catching the drops as they fell from his head and face. "You cannot imagine (says he) how unhappy I was if any of them escaped me." He came into the prison without his coat, the season being too hot to bear it; and one of his miserable companions, observing the expedient he had hit upon of allaying his thirst, robbed him from time to time of a considerable part of his store. This plunderer, whom he found to be a young gentleman in the service of the East India Company, afterwards acknowledged, that he owed his life to the many comfortable draughts which he derived from him. Before Mr. Holwell adopted this mode of relief, he had attempted, in an ungovernable fit of thirst, to drink his own urine: but it was so intensely bitter, that a second taste could not be endured; whereas, he assures us, no Bristol water could be more soft and pleasant than his perspiration. And this, we may presume, consisted chiefly of animal fat, melted by excessive heat, and exuding from the cellular membrane through the pores of the skin.

Persons who have been accustomed to animal food, are soon reduced when supplied only with the farinacea. Several years ago, to determine the comparative nutritive powers of different substances, an ingenious young physician, as Dr. Percival informs us, made a variety of experiments on himself, to which he unfortunately fell a sacrifice. He lived a month upon bread and water; and under this regimen of diet he every day diminished much in his weight. But, in 1784, a student of physic at Edinburgh confined himself for a long space of time to a pint of milk and half a pound of white bread daily: and he assured our author, that he passed through the usual labours of study and exercise without feeling any decay of health or strength, and without any sensible loss of bulk. The cutaneous, urinary, and alvine excretions, were very scanty during the whole period; and the discharge of fæces occurred only once in a week. In this case the oily and coagulable parts of the milk probably furnished a larger proportion of aliment, and at the same time contributed to check the waste by perspiration and other discharges; for oleaginous substances are retained long in the body by their viscidity. Dr. Russel, in his Natural History of Aleppo, relates, that in those seasons when oil abounds, the inhabitants, by indulgence in it, are disposed to fever, and affected with infarctions of the lungs; maladies which indicate both retention and obstruction. Milk has been suspected by some of producing similar effects, though in a slighter degree; and the free use of it has been on this account forbidden to asthmatic patients.

Gum arabic might be a good substitute for salep in the composition already recommended; and as it will give such firmness to the mass as to require manducation, the saliva, by this means separated and carried into the stomach, would further contribute to assuage the sensations both of hunger and of thirst. See Gum Arabic. This gum, combined with sugar and the whites of eggs, has been much extolled in France, under the name of *patigumo*, as a remedy for catarrhal defluxions. Dr. Percival has seen cakes made of these ingredients, and thinks they might very well be applied to the purpose of obviating hunger. They are not perishable in the hotest climates, may be carried about the person with convenience, and, though very tough, are pleasant to the taste. In the formula by which they are made, the proportion of sugar is too large, and that of gum arabic too small, if the mass be intended to assuage the cravings of appetite. According to our author's information, the receipt is as follows: "Take of fine sugar four ounces, and of gum arabic one ounce: levigate them well together: and add half an ounce of rose water, and of the white of eggs a sufficient quantity."

In our attempts to recover those who have suffered under the calamities of famine, great circumspection is required. Warmth, cordials, and food, are the means to be employed; and it is evident that these may prove too powerful in their operation, if not administered with caution and judgment. For the body, by long fasting, is reduced to a state of more than infantile debility; the minuter vessels of the brain, and of the other organs, collapse for want of fluids to distend them; the stomach and intestines shrink in their capacity; and the heart languidly vibrates, having scarcely sufficient energy to propel the scanty current of blood. Under such circumstances, a proper application of heat seems an essential measure, and may be effected, by placing on each side, a healthy man, in contact with the patient. Pediluvia or fomentations may also be used with advantage. The temperature of these should be less than that of the human body, and increased according to the effects of their stimulus. New milk, weak broth, or water gruel, ought to be employed both for the one and the other; as nutriment may be conveyed into the system this way, by passages probably the most pervious in a state of fasting, if not too long protracted. "A lad at Newmarket, some years ago, having been almost starved in order that he might be reduced to a proper weight for riding a match, was weighed at nine o'clock in the morning, and again at ten; and he was found to have gained near thirty ounces in weight in the course of an hour, though he had only drank half a glass of wine in the interval. The wine probably stimulated the action of the nervous system, and incited nature, exhausted by abstinence, to open the absorbent pores of the whole body, in order to suck in some nourishment from the air." But no such absorption as this can be expected in a state of extreme weakness and emaciation gradually induced; because the lymphatics must partake of the general want of tone and energy. And notwithstanding the salutary effect of wine in the case of the jockey, who, it is likely, had been reduced by sweating as well as by abstinence, such a stimulant might prove dangerous, and even fatal, in other cases. It appears safer therefore to advise the exhibition of cordials in very small doses, and at first considerably diluted. Slender wine-whey will perhaps best answer this purpose; and afford, at the same time, an easy and pleasant nourishment. When the stomach has been a little strengthened, an egg may be mixed with the whey, or administered under some other agreeable form. The yolk of one was, to Cornaro, sufficient for a meal; and the narrative of this noble Venetian, in whom a fever was excited by the addition of only two ounces of food to his daily allowance, shows, that the return to a full diet should be conducted with great caution, and very slow gradations.

HURTSICKLE, a quaint name for the blue-bottle, or *cyanus*. It is so called because it is troublesome to cut down, and sometimes notches the sickle.

HUSK, in botany, the same with calyx. See Calyx.

HYACINTH, also called *Jacinth*, a genus of pellucid gems, whose colour is red, with a mixture of yellow. It is thus named from its resemblance, with respect to colour, to the flowers of a plant of the same name. It is a specimen of quartzose crystal, but harder. Hyacinths are met with amongst some of the genera in the order of quartz. See Gemma.

HYALOIDE'A MEMBRANA, (from υαλος, *glass*, and ειδος, *likeness)*, the hyaloid membrane; also called *membrana arachnoidea*. The capsule of the vitreous humour, or that transparent film which encloses the vitreous humour of the eye, is thus named.

HY'BRID, in botany, an epithet applied to a monstrous production of two different species of plants. It is analogous to the *mule* amongst animals.

HYBERNA'CULUM, in botany, winter-quarters, or winter-lodge; that part of a plant which incloses and protects the embryo or future shoot from external injuries. It is of two kinds, viz. *bulbus*, a bulb, and *gemma*, a bud. A bulb is an hybernacle, placed on a descending; caudex and a bud, is an hybernacle placed on an ascending one.

HYDA'RTHRUS, (υδαρθρος, from υδωρ, *water*, and αρθρον, *a joint)*, *Hydarthron*, or *Hydarthros;* the white-swelling, or watery-joint. This genus of disease is arranged by Cullen in the class *locales* and order *tumores*. It is known by a uniform swelling around the joint, of the colour of the skin, and extremely painful. It mostly affects the knee and elbow joints.

There are two species of this disease: 1. *Hydarthrus rheumaticus*, originating from rheumatism, which is mostly curable. 2. *Hydarthrus scrofulosus*, which is mostly incurable. See White-swelling.

HYDA'TIS, (*υδαλις*, *a bladder*, from *υδωϱ*, *water*), an *hydatid;* a very singular animal, formed like a bladder, and distended with an aqueous fluid. Hydatids are sometimes formed in the natural cavities of the body, as in the abdomen and ventricles of the brain, but more frequently in the liver, kidneys, and lungs, where they produce diseased actions of those viscera. Dr. Cullen arranges these affections in the class *locales* and order *tumores*. If the vis medicatrix naturæ is not sufficient to effect a cure, the patient mostly falls a sacrifice to their ravages.

Dr. Baillie gives the following interesting account of the hydatids, as they exist sometimes in the human liver:—There is no gland in the human body, he says, in which hydatids are so frequently found as the liver, except the kidneys, where they are still more common. Hydatids of the liver are usually found in a cyst, which is frequently of considerable size, and is formed of very firm materials, so as to give to the touch almost the feeling of cartilage. This cyst, when cut into, is obviously laminated, and is much thicker in one liver than another. In some livers it is not thicker than a shilling, and in others it is near a quarter of an inch in thickness. The laminæ which compose it are formed of a white matter, and on the inside there is a lining of a pulpy substance, like the coagulable lymph. The cavity of the cyst, Dr. Baillie saw, in one instance, subdivided by a partition of this pulpy substance. In a cyst may be found one hydatid, or a greater number of them. They lie loose in the cavity, swimming in a fluid; or some of them are attached to the side of the cyst. Each consists of a round bag, which is composed of a white, semi-opaque, pulpy matter, and contains a fluid capable of coagulation. Although the common colour of hydatids be white, some are occasionally seen of a light amber colour.

The bag of the hydatid consists of two laminæ, and possesses a good deal of contractile power. In one hydatid this coat or bag is much thicker and more opaque than in another, and even in the same hydatid different parts of it will often differ in its thickness. On the inside of the hydatid, smaller ones are sometimes found, which are commonly not larger than the heads of pins, but sometimes they are even larger in their size than a gooseberry. These are attached to the larger hydatid, either at scattered irregular distances, or so as to form small clusters; and they are also found floating loose in the liquor of the larger hydatids. Hydatids of the liver are often found unconnected with each other: but sometimes they have been said to inclose each other in a series, like pill-boxes. The most common situation of hydatids of the liver is in its substance, and inclosed in a cyst; but they are occasionally attached to the outer surface of the liver, hanging from it, and occupying more or less of the general cavity of the abdomen.

The origin and real nature of these hydatids are not fully ascertained. Dr. Baillie thinks it extremely probable, however, that they are a sort of imperfect animalcules. There is no doubt at all, he says, but the hydatids in the livers of sheep are animalcules: they have been often seen to move when taken out of the liver and put into warm water; and they retain this power of motion for a good many hours after a sheep has been killed. The analogy is strong between hydatids in the liver of a sheep and those of the human subject. In both they are contained in strong cysts, and in both they consist of the same white pulpy matter. There is undoubtedly some difference between them in simplicity of organization: the hydatid in the human liver being a simple uniform bag, and the hydatid in that of a sheep having a neck and mouth appended to the bag. Dr. Hooper thinks this difference need be no considerable objection to the opinion above stated. Life, he says, may be conceived to be attached to the most simple form of organization. In proof of this, hydatids have been found in the brains of sheep, resembling almost exactly those in the human liver, and which have been seen to move, and therefore are certainly known to be animalcules. The hydatids of the human liver indeed, have not, as far as we know, been found to move when taken out of the body and put into warm water; were this to have happened, no uncertainty could remain. It is not difficult to see a good reason why there will hardly occur any proper opportunity of making this experiment. Hydatids are not very often found in the liver at all, because it is not a very frequent disease; and the body is allowed to remain for so long a time after death before it is examined, that the hydatids must have lost their living principle, even if they were animalcules: however, the fact is clear, and it appears even more difficult to account for their production, according to the common theory of generation, than for that of intestinal worms. We do not get rid of the difficulty by asserting, that hydatids in the human liver are not living animals, because in sheep they are certainly such, and there the difficulty of accounting for their production is precisely as great.

HYDRAGO'GA, (*υδϱαγωγα*, from *υδωρ*, *water*, and *αγω*, *to drive out)*, hydragogues. Medicines are so termed which possess the property of increasing the secretions or excretions of the body, so as to cause the removal of water from any of its cavities. Such are the diuretics, cathartics, &c. employed in dropsy.

HYDRA'RGYRUS, (*υδραργυρος*; from *υδωρ*, *water*, and *αργυϱος*, *silver;* so named from its having the resemblance of fluid silver), or hydrargyrum; also called *Mercurius vivus*, and *Argentum vivum*, mercury, or quicksilver. It is an opake silver-coloured and fluid metal, resembling melted lead or tin. It differs from all other metals, however, by its property of retaining the fluid state at the ordinary temperature of the atmosphere. It has been determined that the weight of a cubic foot of this metal is 949 pounds, and that its specific gravity is 13,5681. It is met with in the earth in different states. It possesses the metallic opacity and brilliancy, and even acquires malleability, when deprived of fluidity by a proper degree of cold. No other method has hitherto been discovered of fixing mercury but that of extreme cold. This metallic substance, which is naturally fluid, is capable of rising even by a very moderate degree of heat, as is proved by an experiment of Mr. Achard's, who having left a dish, containing twenty pounds of mercury over a furnace which was daily heated, experienced a salivation at the end of several days: as did likewise two other persons who had not quitted the chamber. The heat was estimated at about 73° of Fahrenheit. It is improper to oppose the evaporation or dilatation of this metal by heat, as considerable explosions may be produced.

When it is heated, this metallic fluid boils in the same manner as other liquids, and for this purpose it does not even require a very considerable heat. The ebullition consists merely in its transition to the vaporous state; for it may be distilled like other fluids, and by that means is cleared of its impurities. Boerhaave had the patience to distil the same mercury five hundred times successively, from which he found that the metal suffered no other change than that of affording a grey powder, which might be converted again into running mercury by mere trituration.

This substance is not easily changed in the air: but if the action of the air be assisted by heat, it gradually loses its fluidity; and at the end of several months forms a red oxid, which has been distinguished by the name of *precipitatus per se*, or *hydrargyrus calcinatus*. The apparatus made use of for this operation is a very large and very flat bottle, closed with a stopper, in which there is a capillary perforation. The mercury within the bottle by this means possesses the contact of air; and by disposing the apparatus upon a sand-bath, and keeping up the state of ebullition in the fluid, the oxid may be obtained in the course of several weeks. This oxid of mercury gives out its oxigen by simple heat, without any intermedium; and the mercury resumes its metallic form: one ounce affords about a pint. A quintal of mercury takes up about eight pounds of oxigen. The red oxid of mercury, exposed to heat, sublimes in close vessels, and may be converted into a very beautiful glass. This has been constantly observed by Mr. Chaptal when he has made the red oxid by means of the nitric acid, according to the process mentioned below.

Water that has been boiled upon mercury contracts a vermifuge property from it; and that which remains over it for a length of time, acquires a very evident metallic taste. The sulphuric acid does not act upon mercury unless assisted by heat. In this case sulphureous gas is disengaged, and a white powder falls down, the quantity of which becomes greater in proportion as the acid is decomposed. This oxid weighs one-third more than the mercury made use of; and it is very caustic. If hot water be poured on it, it becomes yellow; and when urged by a violent heat, it affords oxigenous gas, and the mercury resumes its natural form. This yellow oxid, obtained by means of the sulphuric acid, is known by the name of *Hydrargyrus vitriolatus*, or *Turbith mineral;* and is properly considered as a sulphate of mercury. M. Baumé has shown, that it does not contain a particle of acid; and it appears that the water which develops its yellow colour, seizes the small quantity of undecomposed acid which was mixed with the oxid. If the water which has been poured on it be evaporated, a salt is obtained in small, soft, and deliquescent needles, which may be deprived of their acid by the simple affusion of water. This fluid precipitates the mercury from them in the form of turbith.

The nitric acid which is employed in commerce, at the strength of thirty-five degrees, dissolves mercury with violence, and even without the assistance of heat. This solution is accompanied with the disengagement of a considerable quantity of nitrous gas; because it is necessary that the acid should reduce the metal to the state of oxid, before it can act upon it. One part of the acid is consequently employed in disposing the metal for solution, and the other dissolves it in proportion as it is oxidated. This is what happens when the sulphuric acid is digested upon a metal; one portion is decomposed, which reduces the metal into an oxid, while the other dissolves it. The manner of effecting the solution of mercury in the nitric acid, has an influence on the properties of the mercurial nitrate. Bergman has remarked that the solution which is made slowly and quietly, without disengagement of nitrous gas, affords no precipitate on the addition of water; whereas that which is made by the assistance of heat, and with loss of nitrous gas, affords a precipitate. It therefore appears that the nitric acid, assisted by heat, is capable of becoming loaded with an excess of mercurial oxid, which it lets fall when diluted with water. The method of performing the solution, and the process made use of to crystallize it, has also an equal influence upon the form of the crystals. 1. The solution made in the cold, and left to spontaneous evaporation, affords crystals which seemed to Mr. De Lisle to be octahedral pyramids, truncated near their base, and having the four angles resulting from the junction of the bases of their pyramids likewise truncated. 2. If the same solution be evaporated by art, long and acute blades are obtained, lying one upon the other, and striated obliquely across. 3. The solution of mercury effected by heat affords flat and acute needles striated in a longitudinal manner.

The nitrate of mercury is corrosive. It detonates upon coals when it is very dry, and emits a whitish flame of a considerable brilliancy. When heated in a crucible, it is fused, and emits a considerable quantity of nitrous gas, together with its water of crystallization. The remaining oxid becomes yellow; and at length assumes a lively red colour, and forms the *hydrargyrus nitratus ruber*, or the substance popularly called *red precipitate.* In order to make a very fine red precipitate, the mercurial solution must be put into a retort, and distilled until no more vapours come over. An additional quantity of nitric acid must then be poured on the remainder, and likewise distilled off. After three or four repeated distillations, a very beautiful precipitate is obtained in small crystals, of a very superb red colour. The solution of mercurial nitrate forms mercurial water; which is of use to ascertain the presence of sulphuric and muriatic salts in mineral waters. The acids, the alkalis, the earths, and some of the metals, likewise precipitate mercury from its solution in the nitric acid; and these precipitates always consist of the oxids of mercury in a greater or less degree of perfection, upon which circumstances the variation in their colour depends.

It has been discovered by Mr. Bayen, that some of these precipitates possess the property of fulminating, when mixed with a small quantity of sublimed sulphur. Those which he has particularized are the following: 1. The precipitate of mercury from its solution in the nitric acid by the assistance of the carbonate of ammonia. 2. The precipitate of the same fluid by lime-water. 3. The precipitate of the solution of muriated mercury by lime-water. Half a drachm is to be triturated with six grains of sublimed sulphur. After the detonation, a violet-coloured powder remains, which affords a fine cinnabar by sublimation.

The muriatic acid does not sensibly act upon mercury: but if it be digested for a long time upon the metal, it oxidates it, and at length dissolves the oxid, as may be concluded from the experiments of Homberg. This acid completely dissolves the mercuria oxids; and when these oxids are nearly in the metallic state, or charged with but a small quantity of oxigen, the muriate of mercury is formed. But if, on the contrary, the oxid of mercury be saturated with oxigen, the oxigenated muriate of mercury, or *corrosive sublimate of mercury*, or *hydrargyrus muriatus*, is produced. The oxigenated muriate of mercury may be formed according to two methods; the dry or the humid. To prepare this salt in the dry way, the operator may proceed in various manners. 1. Equal parts of dried nitrate of mercury, decrepitated muriate of soda, and sulphate of iron calcined to whiteness, are mixed together. This mixture being exposed to sublimation, the product which arises is muriated mercury. 2. In Holland running mercury is used instead of the nitrate of mercury; and the same results may be obtained by using any oxid of mercury whatever. 3. Equal parts of the sulphure of mercury, and the decrepitated muriate of soda, afford the same salt by sublimation. 4. Mr. Monet asserts that he has obtained this preparation by treating the dry muriate of soda, and a mercurial oxid, in the way of distillation in a retort. If mercury be dissolved in the oxigenated muriatic acid, the solution, when concentrated, affords very fine corrosive sublimate. This substance may likewise be obtained by precipitating the mercury from mercurial water by the same acid, and evaporating the solution. Mr. Chaptal has obtained the same very fine by presenting a mercurial oxid, sufficiently loaded with oxigen, to the ordinary muriatic acid. One pound of muriatic acid, at the strength of twenty-five degrees, poured upon one pound of red oxid by the nitric acid, discolours it, in a short time dissolves it with a violent heat; and this solution, diluted with water, and properly evaporated, affords from twelve to fourteen ounces of crystals of corrosive sublimate. The muriate of mercury has a styptic taste, followed by an exceedingly disagreeable metallic one. When thrown on hot coals, it is dissipated in fume; when slowly heated in subliming vessels, it rises in prismatic crystals, so much flattened, that their facets are scarcely distinguishable. This salt is soluble in nineteen parts of water; and when the solution is concentrated, it affords crystals similar to those obtained by sublimation.

This salt is decomposed by barytes, magnesia, and lime. Half a drachm of hydr. muriat. in powder, thrown into a pint of lime-water, forms a yellow precipitate. This fluid is known by the name of *phagedenic water*.

By means of fixed alkali mercury is precipitated in an orange-coloured oxid; and by volatile alkali in the form of a white powder, which becomes brown in a short time. If the same muriatic acid be combined with a less perfect oxid of mercury, it forms the mild muriate of mercury, or calomel (see CALOMEL); and this combination may also be made by two methods; by the dry or the humid. 1. In the dry way, four parts of muriate of mercury are triturated in a mortar, with three of running mercury. When the mercury has disappeared, the mixture is put into phials, and sublimed three successive times, in order that the combination may be more accurate. This sublimate differs from hydr. muriat. by its insolubility in water, its insipidity, and the form of its crystals, which are tetrahedral pyramids, terminated by four-sided pyramids. To obtain this regular form, it is necessary that the sublimation should be made at a moderate heat; for, if the heat be sufficient to liquefy the salt, the result is merely a crust, with no appearance of crystals. As the trituration of corrosive sublimate is dangerous, on account of the powder which rises, Mr. Baumé has recommended a small quantity of water to be poured upon the mixture, which accelerates the trituration, and prevents the rising of the destructive powder. Mr. Bailleau has likewise proposed the incorporating of corrosive sublimate with water, and triturating it with running mercury. The combination is completed by digesting the mixture on a sand-bath, by a gentle heat. The matter becomes white, and requires only a single sublimation. Whenever it is suspected that calomel still retains a portion of muriatic acid, nothing more is necessary to be done than to triturate it, and pour boiling water upon it; for by this means the whole of the soluble salt which may have remained, is carried off. It has been shown by Baumé, that there is no intermediate state between calomel and hydr. muriat. If less mercury be added to the latter, a proportional quantity of calomel only sublimes, and the rest rises in the form of muriate: if a greater quantity of mercury be added than is necessary to convert the whole into calomel, the excess remains in the form of running mercury. The same chemist has also proved, that a portion of the mercury is always lost at each sublimation; and that a small quantity of muriate of mercury is formed, which arises from the alteration of the mercury. Hence it follows, that what has been called the *Mercurial Panacea*, which is made by subliming calomel eight or nine times, is a more suspicious remedy than the common preparation. Calomel may likewise be made by decomposing mercurial water by a solution of the muriate of soda. The white precipitate which is obtained, may be sublimed, when it will form an excellent *mercurius dulcis.* This process seems to have been communicated by Mr. Chaptal to the Society of Sciences at Montpelier, some time before Mr. Scheele made it known to the world. The corrosive muriate of mercury differs, therefore, from the mild muriate, in the state of its acid. Mercurial oxids are also equally soluble in the other acids. A solution of borax, mixed with mercurial water, forms a very abundant yellow precipitate, which is nothing else but the combination of the acid of borax and mercury. A small quantity of this salt remains in solution, which may be obtained in brilliant crystals, by means of evaporation.

The acetous acid likewise dissolves the oxid of mercury, and affords white foliated crystals. When mercury is precipitated from a solution of the acetate of mercury, it combines with the acidulous tartrite of potass, and forms the vegeto-mercurial water of Pressavin. The *acetite of mercury* is also the basis of Keyser's famous pills for the venereal disease.

When mercury is artificially mixed with sulphur, it forms the red or black sulphures, known, on account of their colours, by the names of *æthiops* or *cinnabar.* See Æthiops and Cinnabaris. In order to produce the former, three methods may be followed: the first is, by triturating four ounces of mercury with twelve ounces of sublimed sulphur in a glass mortar. In this case the result is a black powder, which is called *Æthiops Mineral.* In the second method, four ounces of sulphur are fused in a crucible, and one ounce of mercury afterwards extinguished in it. The mixture readily takes fire, but the inflammation must be prevented; and the blackish residue, being pounded, will afford a greenish powder, which is a true æthiops. The third method of preparing æthiops is, by pouring the sulphure of potass upon mercurial water.

By sublimation these æthiops would afford different kinds of cinnabar, or red sulphurated mercury: but, in order to make it with a greater degree of accuracy, four ounces of sublimed sulphur are fused in an unglazed earthen pot, and one pound of mercury mixed with it, by stirring or agitation. When these substances have combined to a certain degree, the mixture spontaneously takes fire, and is suffered to burn about a minute. The flame is then smothered, and the residue pulverized, which forms a violet powder, usually weighing about seventeen ounces five drachms. This powder, being sublimed, affords a sublimate of a livid red colour: which, when levigated, exhibits a fine red pigment, known by the name of *Vermillion.* Three parts of cinnabar, mixed with two ounces of iron filings, afford very pure mercury, by distillation, which is called *Mercurius redivivus.* Lime, the alkalis, and most of the metals, may be substituted instead of the iron. This metallic substance amalgamates with most other metals; and on this property depends its use in the arts. The uses of this metal, in the practice of physic and surgery, are very considerable. See farther the various preparations of Hydrargyrus.

HYDRA'RGYRUS ACETATUS, *acetated mercury.* By this preparation the celebrated Keyser acquired great reputation, and an immense fortune, in curing the venereal disease. It is an acetite of quicksilver, and therefore termed *acetis hydrargyri,* in the new chemical nomenclature. The dose is from two to five grains; yet, notwithstanding the encomiums passed on it by some, it does not appear to be so efficacious as some other preparations of mercury.

HYDRA'RGYRUS CALCINATUS, or *Mercurius calcinatus;* calcined mercury, or quicksilver; a preparation given with great advantage in the cure of syphilis. Its action, however, on the bowels is such as to require the addition of opium, which greatly prevents this. It is also given, with opium and camphor, as a diaphoretic, in chronic pains, and other diseases of long continuance.

HYDRA'RGYRUS CUM CRETA, formerly called *Mercurius alkalisatus.* This preparation of mercury possesses alterative properties in cutaneous and venereal complaints; and particularly in obstructions of the viscera, or enlargement of the prostate gland. It is given in the dose of ℈ ss to ʒ ss, every night.

HYDRA'RGYRUS CUM SULPHURE, æthiops mineral; a black sulphuret of mercury. It is therefore called *sulphuretum hydrargyri nigrum,* in the new chemical nomenclature. The mercury and sulphur being triturated together, the blended mass consists of sulphur and an imperfect oxid of mercury. The latter, by this admixture with sulphur, is deprived of its salivating power, and may be administered largely, to persons of all ages and constitutions, as an anthelmintic and alterative.

HYDRA'RGYRUS MURIATUS, formerly called *Mercurius sublimatus corrosivus.* This acrid and poisonous preparation, is an oxymuriate of quicksilver, and therefore called in the new chemical nomenclature, *murias hydrargyri oxygenatus.* If given internally in small doses, properly diluted, it has been found to possess oxygenating, antisyphilitic, and alterative virtues. Externally, if applied in the form of a lotion, it facilitates the healing of venereal sores, and cures the itch.

HYDRA'RGYRUS MURIATUS MITIS, also called *Mercurius præcipitatus dulcis;* a mild muriate of quicksilver, possessing virtues similar to calomel, for which it is often substituted. See the article Hydrargyrus.

HYDRA'RGYRUS NITRATUS RUBER, also named *Mercurius corrosivus ruber,* and *Mercurius præcipitatus ruber;* red precipitate, or red oxid of mercury. It is prepared with the nitrous acid. See Hydrargyrus. It is of extensive use in the practice of surgery, as a stimulant and escarotic. If finely levigated, and mixed with the common digestives, it proves an excellent application to indolent ulcers, especially those which remain after burns and scalds, and where the granulations are languid.

HYDRA'RGYRUS PRECIPITATUS CINEREUS, grey precipitate of mercury. This preparation, ordered in the Edinburgh Pharmacopœia, is used as an alterative, in cases of pains arising from an admixture of rheumatism with syphilis. It has been substituted for the hydrargyrus sulphuratus ruber, in fumigating ozena, and venereal ulcerated sore throat, on account of its not yielding any sulphurous vapour offensive to the patient. See Fumigation.

HYDRA'RGYRUS PURIFICATUS, purified quicksilver. This remedy is sometimes administered in its metallic state, in doses of one to four ounces, or more, in constipations of the bowels. Quicksilver is usually purified by distillation through a gun-barrel.

HYDRA'RGYRUS SULPHURATUS RUBER, also called *Cinnabar factitia.* See Cinnabar. This is the *Sulphuretum hydrargyri rubrum* of the new chemical nomenclature, it being a red sulphuret of mercury. It is employed as a mild mercurial alterative, and is given to children in cases of scrofula, prurigo, tinea, &c.

HYDRA'RGYRUS VITRIOLATUS, also called *Turpethum minerale*, *Mercurius emeticus flavus*, and *Sulphas hydrargyri.* Formerly this preparation was in very general use in syphilis. It proves a very powerful and active alterative, when given in small doses. Two grains act on the stomach so as to produce violent vomiting. It is recommended as an errhine in cases of amaurosis. See Gutta Serena. In combination with antimony, it acts powerfully on the skin, and is therefore prescribed in diseases of the skin.

HYDROCA'RDIA, (*υδϱοκάρδια*, from *υδωρ*, *water*, and *καρδια*, *the heart)*; *Hydrocordis*, or *Hydrops pericardii*, dropsy of the pericardium. In this disease there is a collection of fluid in the pericardium, which may be either coagulable lymph, serum, or a puriform fluid. It produces symptoms similar to those of hydrothorax, with violent palpitations of the heart, and mostly an intermitting pulse. It is incurable of course.

HYDROCE'LE, (*ȣδροκηλη*; from *υδωρ*, *water*, and *κηλη*, *a tumor)*; otherwise named *Oscheocele*, *Oscheophyma*, and *Hydrops scroti;* a dropsy of the scrotum. It is a genus of disease in the class *cachexiæ*, and order *intumescentiæ* of Cullen; known by a soft, pyramidal, fluctuating, generally pellucid swelling of the scrotum, increasing slowly, and without pain. There are three species of this disease. 1. *Hydrocele tunicæ vaginalis.* This is properly the hydrocele: the swelling is mostly of a pyramidal form, and is known by an evident fluctuation. It should carefully be distinguished from hernia and orchitis. 2. *Hydrocele scroti*, vel *integumentorum*, or a mere anasarcous swelling of the scrotum. 3. *Hydrocele funiculi spermatici.* An anasarcous swelling of the spermatic cord, which is sometimes diffused throughout the cord, and sometimes confined to one or more enlarged cells, when it is said to be encysted. We first speak of the genuine hydrocele.

In the healthy state of the body, a small quantity of aqueous fluid is exhaled for lubricating the surface of the testicle, the superfluous part of which is absorbed by vessels appointed for that purpose. When the secretion of this fluid is either morbidly increased, or its absorption diminished, a preternatural collection of water is formed in the cavity of the vaginal coat, and a hydrocele of the vaginal coat is produced.

The symptoms are, a fullness at first observed about the inferior parts of the testicle, and most remarkable when the patient is erect, becoming gradually more tense as the disease advances: the tumor, by degrees, changing from the globular to the pyramidical form; no degree of pressure making the swelling disappear at any period of the disease. In the early part of the disease therefore, if it be not combined with hernia, or with a hydrocele of the cord, the spermatic process may be distinctly felt, because the swelling does not extend beyond the scrotum. In its more advanced state, it cannot be distinguished; the weight of the tumor now drags the skin of the neighbouring parts so much as to cause the penis almost to disappear; and in this state of the disease the testicle cannot be felt without much difficulty. On a minute examination, a hardness is always to be felt along that part of the scrotum where the testicle is situated; and at this point pressure excites some uneasiness. Fluctuation of a fluid may, in general, be distinguished through the whole course of the disease. In late stages, however, the appearance of a fluid is not very evident.

The transparency of the tumor has been generally supposed to be the principal criterion of this species of the disorder; but this must depend upon the nature of the contents, or thickness of the sac; so that, though the transparency of the tumor is a certain sign of the existence of water, its opacity cannot upon any account be considered as an indication of its absence. Through the whole course of the disease the tumor is not attended with pain, but some uneasiness is commonly felt in the back, by the weight of the swelling of the spermatic cord. This is more particularly the case when a suspensory bandage has not been used.

Various methods have been proposed for the cure of hydrocele, all of which may be reduced to two general heads: such as have in view only a temporary relief, and which is therefore termed the palliative cure; and such as are meant to effect a radical cure. When the tumor has become so large as to be inconvenient from its size, an evacuation of the water, by surgical means, becomes necessary. In this case, if the patient either refuses to submit to the operation for a radical cure, or if his state of health render that operation improper, the palliative treatment, or a mere evacuation of the water by puncture, is the only means which can be employed.

A lancet-pointed trocar was many years ago recommended, for drawing off the water in this manner, by the present Dr. Monro. Since that time, a trocar of an improved form has been recommended, by Mr. André; and another, somewhat different, has also been proposed by Mr. B. Bell. See Instruments. With any of these an opening may be made into the tunica vaginalis with great safety.

In doing this, the operator, with one hand, should grasp the tumor behind, to press the contained fluid towards the anterior and under part of it. If a round trocar is to be used, a puncture, with a lancet, should be made in the part where the trocar is to enter; but where a flat trocar is to be employed, the assistance of the lancet is unnecessary.

As soon as the instrument has pierced the vaginal coat, the stilette should be withdrawn, and the canula left in the cyst. The water will now run off, and if the tumor be not uncommonly large, it may be all drawn off at once; but as the sudden discharge of it, by taking off the support, might be in danger of rupturing some of the vessels, it should be discharged by slow degrees. When the whole is evacuated, a piece of adhesive plaster should be immediately applied to the orifice; and a compress of soft linen being laid over the scrotum, the whole should be firmly supported with a suspensory bag or a T bandage. The patient, in this state, being laid in bed, all kind of uneasiness is in a few minutes commonly gone, and he is able to follow his ordinary business without interruption.

In the radical cure of hydrocele, in whatever way it is attempted, some degree of fever and inflammation will take place. Under the circumstances mentioned in the outset, the operation, if properly performed, is generally attended with the most complete success. But if the patient be very old, infirm, and diseased, an operation may be attended with such a degree of inflammation, and consequent suppuration, as to be in danger of destroying a constitution, already greatly impaired, and therefore ought not to be performed.

The intention of every means now in use for the radical cure of this species of the disease, is to induce such a degree of inflammation on the parts in which it is seated, as may obliterate entirely the cavity of the tunica vaginalis, by making it adhere to the surface of the testicle. The means at present generally employed for effecting a cure are, excision of the tunica vaginalis; the application of caustic; the use of a seton; a simple incision of the sac; and the injection of acrid liquors into the tunica vaginalis, after drawing off the fluid which it contained. It is somewhat singular, but nevertheless true, that the advocates for different methods of curing the hydrocele, Mr. Pott, Mr. Else, and Mr. Hunter in particular, contested their opinions with a degree of warmth bordering upon acrimony. We shall first briefly describe them in succession, and then examine their comparative advantages.

1. The cure by *caustic* is attempted in the following manner. The scrotum being shaved, a piece of common paste caustic, properly secured with adhesive plaster, is applied, of about a finger's breadth, the whole length of the tumor; and if, on removing the caustic, it has not penetrated into the vaginal coat, an opening is made in it with a scalpel, so as to evacuate the contents, lay bare the testicle, and admit of proper dressings. But Mr. Else, one of the ablest writers in favour of the method of cure by caustic, says that there is no necessity for such an extensive application of caustic as many have recommended; that an eschar of the size of a shilling is sufficient; that this may be always fully obtained by the application of caustic paste of the size of a sixpence, which is to be laid on the anterior and under part of the scrotum, and to be properly secured by plaster, in order to prevent it from spreading. The caustic commonly produces all its effects in five or six hours, and may then be removed. At this time digestives, or an emollient poultice, must be applied over the scrotum, and the whole suspended with a bandage. Inflammation, Mr. Else observes, is soon induced over the whole tunica vaginalis; and the febrile symptoms which succeed, he advises to be kept moderate, by blood-letting, injections, emollient poultices, and a low regimen. In a few days the eschar of the scrotum separates, and comes away; and, in a gradual manner, in the course of four, five, or six weeks, the whole tunica vaginalis adheres, when the wound for the most part soon heals, and a complete cure is obtained.

2. Where it is intended to treat hydrocele by means of a *seton*, it may be done in the following manner: an opening is made with a scalpel, or the sharp-pointed bistoury, in the superior part of the tumor, large enough to admit with ease a thick cord of common white sewing silk. A director, with an eye at one end, in which the cord is inserted, is introduced at this opening; and its further extremity being carried down to the most depending part of the tumor, an opening is there made, of about half an inch in length, by cutting upon the director with a bistoury; the director being now drawn, till a sufficient quantity of silk is left hanging out below, the operation is in this manner finished. Another very simple method of introducing a seton, is by means of a silver canula and perforator, as proposed by Mr. Pott. See INSTRUMENTS.

3. In the operation for a radical cure by *incision*, the patient being laid upon a table of convenient height, and properly secured by assistants, with the scrotum lying nearly on the edge of the table, the operator, with one hand, should grasp the tumor behind, so as to keep it firm, and make it somewhat tense anteriorly: with a common round-edged scalpel in the other hand, he should now divide the external integuments, by one continued incision from the upper to the under end of the tumor. An opening is next to be made in the vaginal coat, with a large lancet or sharp-pointed bistoury, at the upper end of the first incision. This opening should be made of such a size as freely to receive the finger of the operator, which is to conduct a blunt-pointed bistoury, so as to divide the sac down to its bottom, which is considered as being of advantage, by preventing partial adhesions, and the risk of a return of the disease.

The incision being completed, the testicle is now brought fully into view; and if the tunica vaginalis be sound, the dressing may be finished immediately. But if the sac be diseased, it is to be removed, which may be readily accomplished by a scalpel or bistoury.

When the hydrocele, as sometimes happens, affects both sides at the same time, if, when the operation is done on one side, an opening be made into the vaginal coat of the opposite side, at the upper part, through the septum scroti, and the incision carried down to the bottom of the tumor, the cyst can be equally well laid open, the water is completely evacuated, and a return of the disease as much prevented, as when the operation is done in the usual manner, and at different times.

In whichever way the incision is made, if the testicle be sound, the wound ought to be quickly dressed; for it is found, that on this much of the success of the operation depends. For if the vaginal coat be merely applied to the testicle, or united by sutures, as some have advised, partial adhesions are apt to take place, before a degree of inflammation is produced over the whole, sufficient for making a complete cure. In this manner cavities are left, which either fill with pus during the cure, and require to be laid open, or they afterwards give rise to collections of water, and thereby occasion a return of the disease. The practice of stuffing the cavity of the sore with dressings, is also a frequent cause of mischief, by exciting too great a degree of inflammation in the part. But when the dressings are properly managed, symptoms of violence almost never occur. The latest authors advise, that in dressing the parts after the operation, two pieces of lint, or old soft linen, are to be dipped in oil; or in a liniment of wax and oil; and then, by the help of a probe, are to be inserted into the bottom of the sac, on each side of the testicle, leaving a sufficient quantity of the pledgets hanging out of the wound, so as to admit of being easily withdrawn at the first or second dressing. The edges of the wound are next to be dressed with pledgets of cerate, and the ends of the oiled pledgets turned over on each side. Several pieces of soft lint are then to be laid over the wound, and these should be more or less numerous in proportion to the heat of the season. A compress of linen is now to be laid over the whole, and the dressings supported by a T bandage or suspensory bag properly fitted. The patient is then to be carried to bed; an anodyne should be given, especially if there should be much pain; and he ought to be advised to lie as much as possible upon his back for a few days after the operation.

In the third or fourth day after the operation, all the dressings, except those between the testicle and tunica vaginalis, are to be removed; and if this cannot be done readily, as the parts are otherwise apt to become uneasy, a sponge, dipped in warm water, should be applied. On some occasions, at the first dressing, and always at the second or third, the pledgets inserted between the tunica vaginalis come away; and whenever this happens, they should be renewed. It is also proper to renew them daily for the first fourteen or fifteen days after the operation; not, however, of the same depth as the first, for, during the latter part of the cure, they need only to be inserted as far as to prevent the divided edges of the tunica vaginalis from adhering to the testicle, before the adhesive process has taken place in the parts more deeply seated. Particular attention, however, is necessary to this part of the treatment; for when the disease returns, it has been found to be chiefly owing to the edges of the vaginal coat being allowed to adhere to the testicle, before adhesion had taken place between the deeper-seated parts.

A complete adhesion of the two coats of the testicle, the tunica vaginalis, and tunica albuginea, takes place most frequently about the third week after the operation. Previous to this time, inflammation continuing gradually to increase, the tumor becomes larger, till it acquires somewhat of the size of a swelled testicle from gonorrhœa; but after this period it gradually subsides, and the sore produced by the incision, and now reduced to a line, heals in some time between the fourth and eighth week, according to the habit of body, age of the patient, and other circumstances.

4. Besides the methods already mentioned, another has been of late years revived, viz. the injecting of irritating liquors into the vaginal coat of the testicle. This method is particularly described by a Monsieur Lambert, of the last century, and may be of much older date for any thing which is known to the contrary. From some cause or other, it seems to have been entirely laid aside till about the middle of the present century, when it was practised by Dr. Monro (afterwards a physician-general in the West Indies), under the sanction of the late Mr. Mónro, and favourably received and followed by some of the first surgeons of Edinburgh. But though the cure appeared complete, the disease has sometimes returned.

Sir James Earle gives a preference to port wine, and that somewhat diluted with warm water; but where no pain is excited by the injection, the liquor should be discharged, and a stronger one used. For where no pain takes place, a cure is not to be expected.

The following is the most approved method of performing the operation: the operator should be provided with a flat trocar and canula, and with a bag of resina elastica, fitted with a stop-cock and pipe, which ought exactly to suit the canula. The patient being laid in an horizontal posture, either upon a bed or a table, the water should be drawn entirely off from the tumor by a flat trocar passed into the under and fore part of it. The operator, securing the canula with his left hand, is with the other to pass the tube of the injection bag fairly through it, and with gentle pressure to force in as much of the liquid as may reach the whole surface of the vaginal coat, as well as the whole surface of the testicle. The bag should now be removed, leaving the tube within the canula of the trocar, so that by turning the stop-cock the injection may be retained in the cavity of the tumor. The canula of the trocar ought still to be kept fixed, otherwise it might recede, by which the liquid would insinuate into the cellular substance of the scrotum. The liquor should likewise be brought into contact with every part of the cavity; and after remaining about four, or at the most five, minutes in the sac, it should be entirely discharged through the canula of the trocar, after withdrawing the tube of the elastic bag.

Sometimes intense pain is felt immediately after the liquor is thrown in. When this is the case, it should be discharged as soon as it has passed over the different parts of the tunica vaginalis. Some recommend a repetition of the same kind of injection immediately after the first has been discharged, and to be retained for the same period, though this is not commonly practised.

The whole of the injection should be completely discharged, after which the scrotum should be covered with a pledget of cerate, a compress being applied over it, and retained with a suspensory bag. The patient ought to keep his bed for some days, and support the scrotum in the bandage by means of a small pillow.

Having thus given an account of the methods usually employed in the cure of hydrocele, we shall now make a few observations on the *comparative advantages* of the three first. From the testimony of many authors of credit, it is evident, that any of these methods, in most instances, may be effectual; but every practitioner being apt to be prejudiced in favour of a particular method, he generally continues to follow that mode and no other; and finding it commonly succeed, he by degrees persuades himself, that other methods of cure, with which he has not had such opportunities of becoming acquainted, are liable to objections, which those who have practised them do not find to be the case. The result of Mr. B. Bell's observations upon this subject is, that although all the three modes of operating, by caustic, the seton, and simple incision, are perhaps equally capable of producing a radical cure; yet, that of the three, the latter, viz. the mode by a simple incision, is liable to fewest objections, and effects a cure, both with least trouble to the operator and least risk to the patient: and of the other two, the treatment by caustic appears to be the best. He has seen all the three produce troublesome symptoms, such as pain, and tension of the abdomen, inflammation, and fever; but hesitates not to say, that the seton is more frequently productive of these effects than any of the other methods.

Though it is difficult to ascertain the proportion of those who are cured by the method of injection, and though it is to be regretted that hitherto the disease is found to return in a small proportion of those upon whom this operation has been performed; yet, on account of the facility with which it can be done, the comparatively small pain with which it is attended, the quickness of the cure, and chiefly because it does not, in case of a return of the disease, preclude the future operation of incision, it appears a method which, in all probability, will be more and more adopted into practice. We repeat, however, our opinion of the decided advantages of the cure by incision, in support of which we may cite the example of the celebrated Mr. John Hunter, who uniformly adopted and recommended that operation in preference to all the other modes of cure.

HYDROCE'LE SCRO'TI, a spurious kind of hydrocele occasioned by water collected in considerable quantity in the scrotum. This forms a soft, inelastic, colourless tumor, extending over the whole bag. Impressions are easily received and retained for some time; the skin at first preserves its natural appearance, and the rugæ of the scrotum are not much altered; but as the swelling advances, they gradually disappear, and are at last totally obliterated. The swelling, from being at first soft, and of a consistence similar to dough, by degrees grows more firm, and the skin at last acquires an unnatural white shining appearance. The tumor at length becomes large; and though originally confined to the scrotum, it at last spreads up the groin. The penis likewise becomes affected, and often so swelled and distorted as to excite much inconvenience and distress; and although the scrotum is composed of parts which readily admit of dilatation, the tumor sometimes becomes so enormous that it bursts from one end to the other.

To give relief in this complaint, punctures made with the point of a lancet are most advisable; as large scarifications, in anasarcous habits, are sometimes apt to produce inflammation and mortification; while simple punctures readily heal, and can be renewed with very little pain as frequently as may be necessary: and besides, punctures are equally useful with the incisions; for as the cells of the scrotum communicate freely, if the punctures be made fairly through the skin, the water drains off very readily, though not so soon as by scarification. Previous to the operation, besmearing the part with some tough ointment of an innocent nature, and afterwards keeping it as dry as possible by a frequent renewal of dry soft linen cloths, in order to imbibe the moisture, is here a necessary piece of attention. The want of this seems to be the cause of much of the mischief which frequently ensues from operations of this kind. When such scarifications or punctures go wrong by beginning to inflame and turn painful, &c. a cold solution of vitriolated zinc, applied upon soft linen, proves most effectual in putting a stop to the further progress of the inflammation, and affords most immediate relief to the patient. Alcohol diluted with lime-water, employed in the same manner, proves also a very useful application. When, however, the disorder appears to gain ground by a real mortification coming on, we should immediately have recourse to bark and other medicines usually employed in such affections.

Although the anasarcous hydrocele, for the most part depends upon a general dropsical tendency, some instances occur of a local cause, producing a mere local dropsy of the scrotum. Thus, it has been known to happen from swellings in the groin and in the abdomen, obstructing the passage of the lymphatics. When this is the case, if tumors producing such obstructions can be extirpated, no other means will afford such effectual relief; but when they are so deeply seated as to render any attempt for removing them improper, the practice we have already pointed out of making punctures in the most depending part of the tumor must be employed with a view to palliate such symptoms as occur. It sometimes happens in suppression of urine, whether arising from strictures in the urethra or from stones impacted in it, that the urethra bursts, and the urine in this manner getting access to the cellular texture of the scrotum, an anasarcous swelling rises immediately over the whole of it; nor does it commonly diminish till the cause by which it is produced is removed. In order to prevent the formation of sinuses, which in such circumstances will otherwise be apt to occur, an incision should be made into the tumor, and carried to such a depth as is sufficient for reaching the wound in the urethra. In this manner a free vent will not only be given to the urine already diffused, but the further collection of it may probably be prevented. If a stone impacted in the urethra be found to be the cause of effusion, it should be cut out; and if the obstruction be produced by strictures in the urethra, they must be removed by a proper use of the bougie. The cause being thus removed, if the habit of body of the patient is good, and untainted with any venereal or other general affection, by dressing the sore properly with soft easy applications, the opening into the urethra will probably heal, and a complete cure will in this manner be obtained. But when these ailments are complicated with any general affection, particularly with old venereal complaints, it frequently happens that neither mercury nor any other medicine has much influence in removing them.

HYDROCE'LE FUNI'CULI, a name given to the hydrocele of the spermatic cord, which sometimes accompanies ascites, and at other times is found to be confined to the cellular substance in or about the spermatic cord. The causes of this disease may be, obstructions in the lymphatics leading from the part, in consequence of scirrhous affections of the abdominal viscera, or the pressure of a truss applied for the cure of hernia.

When the affection is connected with anasarca in other parts, it is then so evident as to require no description. When it is local, it is attended with a colourless tumor in the course of the spermatic cord, soft and inelastic to the touch, and unaccompanied with fluctuation. In an erect position of the body it is oblong in figure; but when the body is recumbent, it is flatter and somewhat round. Generally it is no longer than that part of the chord which lies in the groin, though sometimes it extends as far as the testicle, and even stretches the scrotum to an uncommon size; an instance of which is related by Mr. Pott, who from a swelling of this kind discharged eleven English pints at once. By pressure, a great part of the swelling can always be made to recede into the abdomen. It instantly, however, returns to its former situation on the pressure being withdrawn.

When the tumor is connected with general anasarca of the system, it can only be cured along with the rest of the disease; but when the swelling is local, the remedy is also to be locally applied. An incision is to be made of such a size as may be sufficient for discharging the whole of the water; in the performance of which, attention is necessary to guard against hurting the spermatic vessels. The contents of the tumor being discharged, the sore is to be treated like any other simple wound.

HYDROCE'LE, ENCYSTED. This species of the disease sometimes begins in the upper, but generally at the lower, part of the spermatic cord. On its first appearance it is so small as to give little or no trouble; hence it is seldom particularly attended to till it has acquired a considerable size. By degrees it extends as far as the abdominal muscles, and sometimes reaches to the bottom of the scrotum; and to a person unacquainted with the appearance of the disorder, may be mistaken for a hydrocele of the tunica vaginalis. But here the tumor is always above the testicle, which is distinctly felt below; and even in the advanced state of the disease, the testicle is found in the back part of it, perfectly unconnected with the swelling; whereas, in the advanced stages of hydrocele in the vaginal coat, although some hardness is discovered where the tunica vaginalis adheres to the testicle, yet when the swelling is great, the testicle cannot be distinctly felt. In the encysted hydrocele of the cord, the figure and size of the penis is little altered; whereas, in cases of common hydrocele, the penis frequently disappears almost entirely. In other respects the two diseases are nearly similar. It sometimes happens that the water is contained in two distinct cells. In that case the tumor is somewhat puckered up, or diminished in its diameter. A similar appearance also occurs, when this variety of the disease is connected with hydrocele of the tunica vaginalis, which sometimes takes place.

The only other tumors with which this one may be confounded are, the anasarcous hydrocele of the spermatic cord, and a real hernia. But in neither of these is the fluctuation of a fluid perceptible, and to the touch they are both soft and inelastic; whereas, in this variety of hydrocele, the tumor has a springy feel, and a fluctuation is sensible to the touch; and in both the one and the other the swelling recedes somewhat upon pressure, which it never does here. From hernia it is chiefly distinguished by the tumor beginning some way down the cord. In hernia the tumor diminishes when the patient is in an horizontal posture, and is considerably affected by coughing and sneezing; but this kind of hydrocele is not altered in size by any such circumstances, nor has it the common symptoms which attend a hernia.

Infants are frequently subject to this disease, as well as to an anasarcous swelling of the cord, and an œdematous tumor of the scrotum. But here the complaint is seldom permanent; for in most instances it readily yields to gentle friction, with any stimulating or astringent application, as a strong solution of sal ammoniac in vinegar, &c. But in adults, the cyst, in every variety of encysted hydrocele, becomes so firm as not to be affected by external applications; so that when the tumor becomes large, it is necessary to use means for producing either a palliative or radical cure, in the same manner as is done for a hydrocele of the vaginal coat.

HYDROCE'PHALUS, (*υδροϰεφαλος*; from *υδωρ*, *water*, and *ϰεφαλη*, *the head)*, dropsy of the brain, or dropsy of the head; a genus of disease arranged by Cullen in the class *cachexiæ*, and order *intumescentiæ*, and described by him as a species of apoplexy. It is, however, distinguished by other writers into external and internal hydrocephalus: 1. *Hydrocephalus internus*, when a fluid collects in the ventricles of the brain, producing dilatation of the pupils, apoplexy, &c. the water sometimes increasing to an enormous quantity, effecting a diastasis of the bones of the head, and an absorption of the substance of the brain. 2. *Hydrocephalus externus*, in which the water is lodged between the membranes and the skull. We shall here speak of the hydrocephalus internus, as being much the most common species. This disease has been accurately treated of by several eminent physicians, particularly by Dr. Whytt, Dr. Fothergill, and Dr. Watson; who concurred in opinion, with respect to the seat of the complaint, the symptoms of it, and its general fatality. Out of twenty patients that had fallen under Dr. Whytt's observation, he candidly owns that he had been so unfortunate as to cure only one who laboured under the characteristic symptoms of the hydrocephalus; and he suspects that those who imagine they have been more successful, had mistaken another disease for this. It is by all supposed to consist in a dropsy of the ventricles of the brain; and this opinion is indeed fully established by dissections.

Dr. Whytt supposes that the commencement of this disease is obscure; that it is generally some months in forming; and that, after some obvious urgent symptoms rendering assistance necessary, it continues some weeks before its fatal termination. This, in general, differs greatly from what has been observed by Dr. Fothergill; the latter informing us that he had seen children who, from all appearance, were healthy and active, seized with this complaint, and carried off in about fourteen days. He was seldom able to trace the commencement of it above three weeks. Though the hydrocephalus be most incident to healthy, active, lively children, it has been sometimes observed in adults; as appears from cases related by Dr. Huck, and others.

When the disease appears under its most common form, the symptoms at different periods are so various, as to induce Dr. Whytt to divide them into three stages, which are chiefly marked by changes occurring in the condition of the pulse. At the beginning it is quicker than natural; afterwards it becomes uncommonly slow; and towards the conclusion it becomes again quicker than natural, but at the same time very irregular.

Those who are seized with this disease usually complain first of a pain in some part below the head; most commonly about the nape of the neck and shoulders; often in the legs; and sometimes, but more rarely, in the arms. The pain is not uniformly acute, nor always fixed to one place; and sometimes does not affect the limbs. In the latter case, the head and stomach have been found the most disordered; so that when the pain occupied the limbs, the sickness or head-ach was less considerable; and when the head became the seat of the complaint, the pain in the limbs was seldom or never mentioned. Some had very violent sickness and violent head-achs alternately. From being perfectly well and sportive, some were in a few hours seized with those pains in the limbs, or with sickness, or head-ach, in a slight degree, commonly after dinner; but some were observed to droop a few days before they complained of any local indisposition. In this manner they continued four or five days, more or less, as the children were healthy and vigorous. They then commonly complained of an acute deep-seated pain in the head, extending across the forehead from temple to temple; of which, and a sickness, they alternately complain in short and affecting exclamations; dosing a little in the intervals, breathing irregularly, and sighing much while awake. Sometimes their sighs, for the space of a few minutes, are incessant.

As the disease advances, the pulse becomes slow and irregular, the strokes being made both with unequal force and in unequal times, till within a day or two of the fatal termination of the disorder, when it becomes exceeding quick; the breathing being at the same time deep, irregular, and laborious. After the first access, which is often attended with feverish heats, especially towards evening, the heat of the body is for the most part temperate, till at last it keeps pace with the increasing quickness of the pulse. The head and præcordia are always hot from the first attack. The sleeps are short and disturbed, sometimes interrupted by watchfulness; besides which there are startings.

In the first stage of hydrocephalus there seems to be a peculiar sensibility of the eyes, as appears from the intolerance of light. But in the progress of the disease a very opposite state occurs: the pupil is remarkably dilated, and cannot be made to contract by the action even of strong light; such, for example, as by bringing a candle very near to it. In many cases there is reason to believe that total blindness occurs: often also the pupil of one eye is more dilated than that of another, and the power of moving the eyes is also morbidly affected. Those children, who were never observed to squint before, often become affected with a very great degree of strabismus. The patients are unwilling to be disturbed for any purpose, and can bear no posture but that of lying horizontally.—One or both hands are most commonly about their heads. The urine and stools come away insensibly. At length the eyelids become paralytic, great heat, accompanied with sweat, overspreads the whole body, respiration is rendered totally suspirious, the pulse increases in its trembling undulations beyond the possibility of counting, till the vital motions entirely cease; and sometimes convulsions conclude the scene.

Many of the symptoms above enumerated are so common to worm-cases, teething, and other irritating causes, that it is difficult to fix upon any which particularly characterise this disease. The most peculiar seem to be the pains in the limbs, with sickness and incessant head-ach; which, though frequent in other diseases of children, are neither so uniformly nor so constantly attendant as in this. Another circumstance observed to be familiar, if not peculiar to this disorder, is, that the patients are not only costive, but it is likewise with the greatest difficulty that stools can be procured. These are generally of a very dark greenish colour, with an oiliness or a glassy bile, rather than the slime which accompanies worms; and they are for the most part, extremely offensive. No positive conclusion can be drawn from the appearance of the urine; it being various, in different subjects, both in its colour and contents, according to the quantity of liquor they drink, and the time between the discharges of the urine. From their unwillingness to be moved, they often retain their water twelve or fifteen hours, and sometimes longer. In complaints arising from worms, and in dentition, convulsions are more frequent than in this disorder. Children subject to fits are sometimes seized with them a few days before they die. Sometimes these continue twenty-four hours incessantly, and till they expire.

The causes of internal hydrocephalus are very much unknown. Some suppose it to proceed from a rupture of some lymphatic vessels of the brain. But this supposition is so far from being confirmed by any anatomical observation, that even the existence of such vessels in the brain has not yet been demonstrated. That lymphatics, however, do exist there cannot be doubted: and one of the most probable causes giving rise to an accumulation of water in the brain is a diminished action of them. Here, however, as well as in other places, accumulation may also be the consequence of augmented effusion, and in this way, an inflammatory disposition, as some have supposed, may give rise to the affection. But from whatever cause an accumulation of water in the ventricles of the brain may be produced, there can be no doubt, that from this the principal symptoms of the disease arise, and that a cure is to be accomplished only by the removal of it. It is, however, probable, that the symptoms are somewhat varied by the position of the water, and that the affection of vision in particular is often the consequence of some morbid state about the *thalami nervorum opticorum;* at least in many cases, large collections of water in the ventricles have occurred, without either strabismus, intolerance of light, or dilatation of the pupil. And in cases where these symptoms have taken place to a remarkable degree, while upon dissection after death but a very small collection of water was found in the ventricles, it has been observed, that a peculiar tumid appearance existed about the optic nerves, and this, upon examination, was found to arise from water in the cellular texture. This may have given compression producing a state of insensibility; but it may have been preceded, or it may have originated from, some inflammatory affection of these parts, producing the intolerance of light.

During many years, this disorder was reckoned totally incurable; but there are some who contend that *mercury*, if applied in time, will remove it This remedy was first thought of by Dr. Dobson of Liverpool, and afterwards was employed with some success by Dr. Percival and others. The method of exhibiting it in order to effect a cure, as well as the inutility of other medicines, will fully appear from consulting the various cases related by these writers.

Dr. Withering, on a supposition that the effusion which constitutes the disease, is rather a consequence than a cause, advises the use of digitalis; and in this he is countenanced by the experience of the late Dr. Garnett, who speaks of two cases, in which the symptoms were much alleviated by what is generally called the antiphlogistic plan, conjoined with mercurials and digitalis, and of others cured by it.

"The proximate cause of this disease," says the Dr. "has hitherto been involved in considerable obscurity, and consequently the practice must have been guided by vague and uncertain principles. A due consideration of the various circumstances which present themselves in hydrocephalus, together with the appearances on dissection, would induce us to suspect, on very probable grounds, that the disease depends upon, and is generally (if not always) accompanied by, a plethoric state of the vessels of the brain, occasioning a considerable degree of inflammation, and generally (though not always) producing an extravasation of watery fluid before death. As proofs of the existence of this inflamed state of the brain, I beg leave to offer the following circumstances. In all cases where blood has been drawn, it exhibits the same appearance as in cases which are undoubtedly inflammatory. In some of the cases which fell under my observation, the blood had this appearance in as great a degree as is ever observed in pleurisy. The acuteness of the pain and fulness of the pulse likewise countenance the supposition; but what amounts almost to a demonstration, is the aggravation of the symptoms from the exhibition of stimulants, and the relief which in the first stage of the disease always attends the antiphlogistic or debilitating plan; both of which were seen in the case just related. The appearances on dissection likewise confirm this. Dr. Quin mentions the appearances which presented themselves in the brain of a young woman who died at Edinburgh in the year 1777, and that of a boy attended by his father some years ago in Dublin. In both of these cases the blood-vessels of the brain were so unusually distended, that the whole cerebrum and cerebellum resembled an anatomical preparation, in which the utmost force of injection had been employed. What is very remarkable in these cases is, that though the symptoms preceding death were so unequivocal, yet in both cases, to the astonishment of those who were present, and who expected to find a considerable quantity of water in the cranium, none could be discovered.

"In four other cases mentioned by Dr. Quin, where the quantity of effused blood in the fluid found in the ventricles was considerable, there were signs so visible of an increased flow of blood in the brain, that in all of them the vessels were remarkably turgid, and in many of them a great degree of inflammation had actually taken place.

"The accurate Morgagni also relates several instances in which the symptoms of this disease had been present, and where, upon dissection, evident marks of morbid accumulation, and of an inflammatory state of the vessels of the brain had appeared.

"All these circumstances strongly tend to confirm the supposition that the symptoms, particularly those which appear in the first stage of *apoplexia hydrocephalica*, depend upon a plethoric and inflammatory state of the vessels of the brain. And though in many cases, upon dissection, a quantity of fluid has been found in the ventricles of the brain, yet may not this be looked upon as a consequence of the disease, rather than as the cause of it? And is it not probable, that this watery effusion does not take place till the vessels have been oppressed for some time by the excessive congestion of blood, and in consequence of this, and the violent excitement, have lost their tone: whence the aqueous fluids are discharged in considerable quantities into the adjacent cavities, while the absorbents, probably weakened by the same cause, are unable to absorb the fluid so fast as it is effused? It appears to me even doubtful whether the symptoms which generally show themselves in this disease depend upon the effused fluid. Many of them undoubtedly do not; and in the two cases related by Dr. Quin, all the symptoms that generally attend this disease were present, and yet upon dissection, to the astonishment of the spectators, who were prepared to find a great redundancy of water within the cranium, none could be discovered in any part of the brain."

In every case, therefore, Dr. Garnett thinks, it would be proper in the first stage, if no symptoms particularly forbid, to use the debilitating plan to a considerable extent. He thinks the *digitalis*, as being one of the most powerful diuretic remedies with which we are acquainted, a very proper one in this disease; to say nothing of the remarkable power which it seems to possess, of diminishing the action of the arterial system in a very extensive degree, when administered in the inflammatory stage.

Dr. Darwin thinks inactivity, or torpor of the absorbent vessels of the brain, is the cause of *hydrocephalus internus;* yet in another part of his work, he acknowledges, that the torpor of the absorbent vessels may frequently exist as a secondary effect.

Dr. Rush, of Philadelphia, is of opinion, that instead of being considered as an idiopathic dropsy, this disease should be considered only as an effect of a primary inflammation, or congestion of blood in the brain. "It appears," says he, "that the disease, in its first stage, is the effect of causes which produce a less degree of that inflammation which constitutes phrenitis; and that its second stage is a less degree of that effusion which produces serous apoplexy in adults." Hence he calls it *phrenicula*, from its being a diminutive species or state of phrenitis.

The difference of opinions amongst physicians, may, in some degree, be accounted for, if we admit the division of the disease into acute and chronic species. In the former, the disease proves fatal in less than a month; and it is seldom that more than two or three ounces of fluid are found within the ventricles. In the latter species, the patient survives for many months, sometimes for a year or two; and the bones of the cranium are separated from each other to a great distance.

If we are to rank hydrocephalus amongst the inflammations, one of the curative indications will be *blood-letting;* and this ought to be carried to such an extent, as to answer a determinate end, viz. that of lessening topical congestion, and diminishing arterial action. Although the primary stage is the only period in which we can reasonably hope to derive any advantage from this remedy, yet, even during the symptoms which characterise the second stage, some practitioners advise a topical bleeding; from an apprehension, that the same effect is sometimes produced from mere distension of vessels, as when effusion has taken place. Very sudden relief, it is said, has sometimes been obtained from bleeding.

Purging, with calomel, is also necessary, not only on account of its lessening the determination to the head in the true hydrocephalus; but particularly as symptoms, resembling the whole of the latter, have frequently been known to deceive practitioners with regard to the true nature of the patient's complaint. Cases of this kind are recorded by Drs. Armstrong, Underwood, and others.

Blisters were much used by Dr. Percival and others. Dr. Rush observes, that these should be omitted in no stage of the disorder; for even in the inflammatory stage, the discharge they occasion from the vessels of the head, greatly overbalances their stimulating effects upon the whole system. It has been recommended to apply them in the course of the sutures, and to keep up a discharge by means of an issue; but Mr. White observes, that as the *ceratum sabinæ* is capable of exciting a proper discharging surface, it appears preferable, its application being much less troublesome than that of an issue.

In his Observations on the Structure of the Nerves, Dr. Monro observes, that in the bodies of every one of fifteen children, who died from internal hydrocephalus, all the ventricles were distended, and their passages from one to the other were much enlarged. In none of these cases was there any water between the dura matter and surface of the brain; but on cutting into one of the lateral ventricles, all these were found empty. He further adds, that in the chronic species of internal hydrocephalus, where the head is enlarged by water within the ventricles, some surgeons have ventured to discharge the water by a puncture with the trochar. But in two or three cases, where children had died from a great collection of water within the ventricles, he observed that, when the brain collapsed after cutting into one of the ventricles, some part of the septum lucidum was lacerated by the weight of the brain, or of the water in the opposite ventricle, which did not readily enough escape by the natural communication. So that, upon the whole, he considers it dangerous to attempt, as some have proposed, to puncture the tumor; since a laceration of the septum between the ventricles, from the unequal bending and pressure of the parts, when the brain collapses, is very likely to happen.

HYDROCE'PHALUS EXTERNUS; that species of hydrocephalus in which a fluid is confined between the skull and the membranes of the brain, or between the dura and pia mater. See HYDROCEPHALUS. In the fifth volume of the Medical Observations we have an account of a very extraordinary case of this kind. The patient was a child only of a few days old, and had a tumor on his head about the size of a common tea-cup, which had the appearance of a bladder distended with water; near the apex was a small opening, through which a bloody serum was discharged. In other respects the child was healthy. No application was used but a piece of linen dipped in brandy. The tumor continued to increase for many months; at the end of which time, the membrane containing the water appeared equally thick with the other part of the scalp, except one place about the size of a shilling, which continued thin, and at times appeared as if it would burst. He continued in this situation for about seventeen months, when the circumference of the head was 20 inches, the base 16½, the middle 18½, and from the base to the apex near 8½. The water was then drawn off, and the child died in two days. Almost all other cases of this description have proved fatal; the sutures of the skull generally give way, and the whole external part of the head is equally enlarged: but in the instance just now given, there was a deficiency of part of the bones. Although, however, in some instances where the head is thus enlarged to an enormous size, the water is exterior to the brain, and therefore entitled to the appellation of hydrocephalus exterior, yet much more frequently, in those instances where there is a manifest separation of the bones of the cranium at the sutures, the water is still contained within the ventricles; and accordingly the disease may be much more properly distinguished into the *acute* and *chronic* hydrocephalus, than, as is commonly done, into the *internal* and *external*. Although the latter be much slower in its progress, sometimes subsisting even for years, yet it is equally difficult of cure with the former, and very often it proves fatal in a few days, if the water be drawn off by an artificial opening, which may very easily be performed by a mere puncture with a common lancet, without (as some say) any immediate hazard from the operation itself, although the water be lodged in the ventricles; for these are distended to an enormous size, and the substance of the brain almost totally destroyed, so that hardly any thing is to be punctured but membranes. On this subject Dr. Monro says,—"If, indeed, the water is situated between the dura mater and surface of the brain, and of course between the spinal marrow and its sheath from the dura mater, a case which, perhaps, more rarely happens than is generally supposed; or if, from a very evident fluctuation, chiefly about the bregma, we strongly suspect this to be the case, it will, probably, be adviseable to give the patient the only, though small, chance of cure by the operation."

HY'DROGEN, (from *υδωρ*, *water*, and *γινομαι*, *to become*, or *γενναω*, *to produce*, because with oxigen it produces water). It is a simple or elementary substance not perceptible to the senses, but known only by its combinations. Its property of burning with vital air has also caused it to be distinguished by the name of *inflammable air*. This kind of gas has been procured long since: the famous philosophical candle attests the antiquity of the discovery; and the celebrated Hales obtained from most vegetables an air which took fire. It may be extracted from all bodies in which it is a constituent part; but the purest is that afforded by the decomposition of water, and it is this fluid which usually affords it in our laboratories. For this purpose the sulphuric acid is poured upon iron, or zinc; the water, which serves as a vehicle for the acid, is decomposed on the metal; its oxigen combines with it, while the hydrogen gas escapes. This explanation, however contrary to the ancient notion, is not the less a demonstrated truth; in fact, the metal exists in the state of an oxid by its sulphuric acid, as may be proved by precipitating it with pure vegetable alkali. On the other hand, the acid itself is not at all decomposed; so that the oxigen gas cannot have been afforded to the iron but by the water. Water may be decomposed likewise still more directly by throwing it upon iron strongly heated; and hydrogen gas may be obtained by causing water to pass through a tube of iron ignited to a white heat. This gas may also be extracted by the simple distillation of vegetables. It is likewise produced by vegetable fermentation, and animal putrefaction. The properties of hydrogen gas are the following. It has a disagreeable, stinking odour. But Mr. Kirwan has observed, that when it is extracted over mercury, it has scarcely any smell. It contains half its weight of water, and loses its smell the moment it is deprived of this additional substance. He has likewise observed, that the volume of this gas is one-eighth larger when received over water, than when received over mercury. These observations seem to prove, that the offensive smell of this gas arises only from the water which it holds in solution.

This kind of gas is not proper for respiration. It has been asserted by the abbè Fontana that he could not take more than three inspirations of this air, and the count Morrozo has proved that animals perish in it in a quarter of a minute. But on the contrary, several northern chemists have affirmed, in consequence of experiments made on themselves, that hydrogen gas might be respired without danger; and the unfortunate Pilatre de Rozier, some years since, filled his lungs with it at Paris, and set it on fire during the expiration, which formed a very curious jet of flame. When he was informed that the abbè Fontana had objected to the accuracy of the Swedish chemists, he answered, by mixing one-ninth of atmospherical air with very pure hydrogen gas, and respiring the mixture as usual; however, when he attempted to set it on fire, the consequence was a sudden and dreadful explosion. This opposition of opinions, and contradiction of experiments, respecting a phenomenon which seemed capable of unanswerable decision by one single trial, induced professor Chaptal to have recourse to experiments to fix his own ideas on this curious subject.

He found that birds, successively placed in a vessel of hydrogen gas, died without producing the smallest perceptible change upon the gas itself. Frogs, placed in forty inches of hydrogen gas, died in the space of three hours and a half: while others lived fifty-five hours in oxigen gas and atmospheric air; and when he took them out still living, the air was neither vitiated nor diminished. Numerous experiments which he made upon these animals, have led him to observe, that they have the faculty of stopping their respiration, when placed in any noxious gas, to such a degree, that they inspire only once or twice, and afterward suspend every function on the part of the respiratory organ. He has also since found that these animals are not reduced into a putrid mass by remaining in hydrogen gas, as has been affirmed. The fact which may have imposed on those chemists who related the circumstance, is, that frogs are often enveloped in a mucus or sanies, which appears to cover them; but they exhibit the same phenomenon in all the gases. This excellent philosopher and chemist, after having tried the hydrogen gas upon animals, determined to respire it himself; and he found that the same volume of this air might be several times respired without any danger. But he observed that the gas was not changed by these operations; whence he concluded that it is not respirable: for, if it were, it would suffer a change in the lungs, the object of respiration not being confined to the reception and emission of a fluid merely; it is a function much more noble, more interesting, and more intimately connected with the animal economy.

He thinks that we ought to consider the lungs as an organ which is nourished by the air, digesting that which is presented to it, retaining the beneficial, and rejecting the noxious part. Since therefore inflammable air can be respired several successive times without danger to the individual, and without any alteration or change in itself, it may be concluded indeed that it is not a poison, but it cannot be considered as an air essentially proper to respiration.

It has been found that hydrogen gas is not combustible alone; that it does not burn but by the concurrence of oxigen. If a vessel filled with this gas be reversed, and a lighted taper be presented to it, the hydrogen gas is found to burn at the surface of the vessel; but the candle is extinguished the moment it is plunged lower. The most inflammable bodies, such as phosphorus, do not burn in an atmosphere of this kind of gas. It is well known that hydrogen gas is lighter than common air. One cubic foot of atmospheric air weighs seven hundred and twenty grains; a cubic foot of hydrogen gas weighs seventy-two grains. The barometer being at 29′ 9, and the thermometer 60° of Fahrenheit, Mr. Kirwan found the weight of this air to be to that of common air, as eighty-four to one thousand; consequently, it was about twelve times as light. Its specific gravity varies very much, because it is difficult to obtain it constantly of the same degree of purity. That which is extracted from vegetables contains the carbonic acid and oil, which increase its weight. The levity of hydrogen gas has caused certain philosophers to presume, that it ought to arrive at and occupy the superior part of the atmosphere; and, upon this supposition, the most brilliant conjectures have been made respecting the influence which a stratum of this gas, predominating over the rest of the atmosphere, ought to produce in meteorology. They do not seem, however, to have been aware, that this continual loss of matter is not agreeable to the wise economy of nature. They did observe that this gas, during its ascent in the air, combines with other bodies, more especially the oxigen, and that water and other products are the result; the knowledge of which might eventually lead to that of most meteors. The theory of balloons, or aërostatic machines, is founded on this levity of the hydrogen gas.

This gas exhibits various characters, according to its degree of purity, and the nature of the substances which are mixed with it. It seldom happens that it can be produced pure. That which is afforded by vegetables contains oil and the carbonic acid. The inflammable air of marshes is mixed with a greater or less quantity of carbonic acid; and that which is afforded by the decomposition of pyrites sometimes holds sulphur in solution. The colour of hydrogen, when set on fire, varies according to its mixtures. One-third of the air of the lungs, mixed with the inflammable air of pit-coal, affords a flame of a blue colour; inflammable air mixed with nitrous air affords a green colour; the vapour of ether affords a white flame. The various mixtures of these gases, and the degree of compression to which they are subjected, when expressed out of an aperture in order to burn them, have, in the hands of certain operators, afforded very agreeable illuminations, well deserving the attention of the learned and curious.

This kind of gas possesses the property of dissolving sulphur; but in this case it contracts a stinking smell, and forms hepatic gas. Mr. Gengembre put sulphur into inverted vessels filled with hydrogen gas, and dissolved it by means of the burning-glass. The hydrogen gas, by this treatment, obtained all the characteristic properties of hepatic gas. The formation of this gas is almost always an effect of the decomposition of water; for, in fact, the alkaline sulphures, or livers of sulphur, do not emit any disagreeable smell while they are dry; but the moment they are moistened, an abominable smell is perceived, and the sulphate of potass, or vitriolated kali, begins to be formed. These phenomena prove that the water is decomposed; that one of its principles unites to the sulphur, and volatilizes it, while the other combines with the alkali and forms a more fixed product.

We can obtain sulphurated hydrogen gas by dissolving the sulphures or hepars in acids; and those acids in which the oxigen is most adherent disengage the greatest quantity. The muriatic acid produces twice as much as the sulphuric; and that which is produced by this last, burns with a blue flame; but that which is disengaged by the muriatic acid, burns with a yellowish white flame. Scheele has taught us the means of obtaining this gas in great abundance, by decomposing artificial pyrites, formed by three parts of iron and one of sulphur, to which some vitriolic acid is added. The natural decomposition of pyrites in the bowels of the earth also produced this gas, which escapes with certain waters, and communicates virtues of a particular kind to them.

In fine, the most general properties of these gases are: their rendering the white metals black; their being improper for respiration; their imparting a green colour to syrup of violets; their burning with a light blue flame, and depositing sulphur by this combustion; their mixing with the oxigen gas of atmospheric air, and forming water; at the same time that the sulphur, before held in solution, falls down: it is from this circumstance that sulphur is found in the channels of hepatic waters, though their analysis does not show the existence of an atom of that substance held in solution; their impregnating water, and being sparingly soluble in that fluid; while heat or agitation is capable of dissipating them again. It is obvious also, that the air which burns at the surface of certain springs, and forms what is known by the name of *burning springs*, consists of hydrogen gas holding phosphorus in solution. This last has the smell of putrid fish, and several springs of the kind have been discovered. The *ignes fatui*, which glide along burying-grounds, and other places, are also phenomena of the same nature.

HY′DROGEN, SULPHURATED. See SULPHURATED HYDROGEN GAS.

HYDROLA'PATHUM, (*υδρολαπαθον*, from *υδωρ*, *water*, and *λαπαθον*, *the dock)*, also called *Herba Britannica*, and *Lapathum aquaticum;* the common water-dock. *Rumex hydrolapathum, floribus hermaphroditis, valvulis integris graniferis, foliis lanceolatis.* Hudson's Flor. Angl. *Rumex aquaticus*, Linn. Class, *Hexandria.* Order, *Trigynia.* The leaves of this plant manifest considerable acidity, and are said to possess a laxative quality. The root is powerfully astringent, and was formerly much employed, both externally and internally, for the cure of some diseases of the skin, as scurvy, lepra, &c. for which purposes it is even now used on the Continent. The root, powdered, is said to be a good dentrifice.

HY'DROMEL, (*υδρομελι*, from *υδωρ*, *water*, and *μελι*, *mel*, honey); a composition of water and honey, formerly used as a medicine.

HYDROME'TRA, (*υδρομετρα*, from *υδωρ*, *water*, and *μητρα*, *the womb)*, dropsy of the uterus; a genus of disease in the class *cachexiæ*, and order *intumescentiæ*, of Cullen. There is a swelling of the hypogastric region in this case; but the fluctuation is very obscure. It must be considered as a very rare disease, and one that can with difficulty be ascertained, or cured when known to exist.

HYDRO'MPHALOS, (*υδρομφαλος*, from *υδωρ*, *water*, and *ομφαλος*, *the navel);* a tumor of the navel, containing water.

HYDROPHO'BIA, (*υδροφοϐια*, from *υδωρ*, *water*, and *φοϐεω*, *to fear)*, dread of water; properly a symptom which occurs in the *rabies canina*, or canine madness. Dr. Cullen has arranged it under the class *neuroses*, and order *spasmi.* He has been blamed, however, for employing the term *hydrophobia* as a generic name, under which canine madness is included: and it must be allowed, that the dread of water, while it is not universal, is also a symptom occurring only late in the disease, at least in the greater number of cases. Perhaps his arrangement would have been less exceptionable, if, following Linnæus, he had adopted *rabies* as a generic term, and had distinguished this particular species by the epithet of *canina contagiosa*, or the like. Disputes, however, about names, are in general not very important; and it is sufficient to observe, that the affection now to be treated of is canine madness, or that disease which arises from the bite of a mad animal.

This disease commonly does not make its attack till a considerable time after the bite. In some few instances it has commenced in seven or eight days from the accident; but generally the patient continues in health for 20, 30, or 40 days, or even much longer. The bite, if not prevented, will in general be healed long before that time, frequently with the greatest ease; though sometimes it resists all kind of healing applications, and forms a running ulcer, which discharges a quantity of matter for many days. It has been said that the nearer the wounded place is to the salivary glands, the sooner the symptoms of hydrophobia appear. The approach of the disease is known by the cicatrix of the wound becoming high, hard, and elevated, and by a peculiar sense of pricking at the part; pains shoot from it towards the throat; sometimes it is surrounded with livid or red streaks, and seems to be in a state of inflammation; though frequently there is nothing remarkable to be observed about it. The patient becomes melancholy, loves solitude, and has sickness at stomach. Sometimes the peculiar symptom of the disease, *the dread of water*, comes on all at once. We have an instance of one who, having taken a vomit of ipecacuanha, for the sickness he felt at his stomach, was seized with the hydrophobia in the time he was drinking the warm water. Sometimes the disease begins like a common sore throat; and the soreness daily increasing, the hydrophobic symptoms show themselves like a convulsive spasm of the muscles of the fauces. In others, the mind seems to be primarily affected, and the sick have a real *dread* of water or any liquid, before they try whether they can swallow it or not. Dr. James, in his Treatise on Canine Madness, says, a boy sent out to fill two bottles with water, was so terrified by the noise of the liquid running into them, that he fled into the house, crying out that he was bewitched. He mentions also the case of a farmer, who, going to draw some ale from a cask, was terrified to such a degree at its running into the vessel, that he ran out in great haste with the spigot in his hand. But in whatever manner this symptom comes on, it is certain that the most painful sensations accompany every attempt to swallow liquids. Nay, the bare sight of water, of a looking-glass, of any thing clear or pellucid, will give the utmost uneasiness, or even throw the patient into convulsions.

With regard to the affection of the mind itself in this disease, it does not appear that the patients are deprived of reason. Some have, merely by the dint of resolution, conquered the dread of water, though they never could conquer the convulsive motions which the contact of liquids occasioned: while this resolution has been of no avail; for the convulsions and other symptoms increasing, have almost always destroyed the unhappy sufferers.

In this disease there seems to be an extreme sensibility and irritability of the nervous system. The eyes cannot bear the light, or the sight of any thing white; the least touch or motion offends them; and they want to be kept as quiet, and in as dark a place, as possible. Some complain of the coldness of the air, frequently when it is really warm. Others complain of violent heat, and have a great desire for cold air, which yet never fails to increase the symptoms. In all there is a great flow of viscid saliva into the mouth, which is exceedingly troublesome to the patient, as it has the same effect upon the fauces that other liquids have. This, therefore, is perpetually blown off with violence, which, in a patient of Dr. Fothergill's, occasioned a noise not unlike the hollow barking of a dog, and, which he conjectures, might have given rise to the common notion that hydrophobous patients bark like dogs. They have an insatiable thirst, but are unable to get down any drink, except with the utmost difficulty; though sometimes they can swallow bread soaked in liquids, slices of oranges, or other fruits. There is a pain under the *scrobiculus cordis*, as in the tetanus;

and the patients mournfully point to that place as the seat of the disease. Dr. Vaughan is of opinion that it is this pain, rather than any difficulty in swallowing, which distresses the patient on every attempt to drink. The voice is commonly plaintive and mournful; but Dr. Vaughan tells us, that there is a mixture of fierceness and timidity in the countenance which he cannot describe, but by which he could know a hydrophobous person without asking any questions.

In this affection, indeed, the symptoms are so various, that they cannot be enumerated: for we seldom read two cases of hydrophobia which do not differ very remarkably in this respect. Some seem to have, at times, a furious delirium, and an inclination to spit at or bite the by-standers; while others show no such inclination, but will even suffer people to wipe the inside of their mouths, with the corner of an handkerchief, in order to clear away the viscid saliva which is ready to suffocate them. In some male patients, there is an involuntary erection of the penis, and emission of the semen; and the urine is forced away by the frequent return of the spasms. In a letter from Dr. Wolf, of Warsaw, to Henry Baker, F. R. S. dated Warsaw, Sept. 26th, 1776, we have the following melancholy account of the cases of five persons who died of the hydrophobia: "None of them quite lost their right senses; but they were all talking without intermission, praying, lamenting, despairing, cursing, sighing, spitting a frothy saliva, screeching, sometimes belching, retching, but rarely vomiting. Every member is convulsed by fits, but most violently from the navel up to the breast and œsophagus. The fit comes on every quarter of an hour; the fauces are not red, nor the tongue dry. The pulse is not at all feverish; and when the fit is over, nearly like a healthy pulse. The face grows pale, then brown, and during the fit almost black; the lips livid; the head is drowsy, and the ears tingling: the urine limpid. At last they grow weary; the fits are less violent, and cease towards the end; the pulse becomes weak, intermittent, and not very quick; they sweat, and at last the whole body becomes cold. They compose themselves quietly, as if to get sleep, and so they expire. The blood drawn a few hours before death appears good in every respect. A general observation was, that the lint and dressings of the wounds, even when dry, were always black, and that when the pus was very good in colour and appearance." In one of Dr. Wolf's patients, who recovered, the blood stunk intolerably as it was drawn from a vein; and one of Dr. Vaughan's patients complained of an intolerable fetid smell proceeding from the wounded part, though nobody but himself could perceive it. In general, the violent convulsions cease a short time before death; and even the hydrophobia goes off, so that the patients can drink freely. But this does not always happen; for Dr. Vaughan mentions the case of a patient, in whom, "when he had in appearance ceased to breathe, the spasmus cynicus was observable, with an odd convulsive motion in the muscles of the face; and the strange contrariety which took place in the action of these produced the most horrid assemblage of features that can well be conceived. Of this patient also it was remarkable, that in the last hours of his life he ceased to call for drink, which had been his constant request; but was perpetually asking for something to eat."

The hydrophobia seems to be a symptom peculiar to the human race; for the mad animals which communicate the infection, do not seem to have any dread of water. Dr. Wolf, in the letter above quoted, says, in general, that cattle bit at the same time, and by the same animal (a mad wolf), which bit the persons whose cases he related, died nearly with the same frightful raging as the men; but says nothing of their having any hydrophobia: nay, Dr. James and some others assert, that the hydrophobia is not always an attendant on rabies canina in the human race; and indeed it is certain that the disease has proved mortal after this terrible symptom has been removed. With regard to the symptoms of madness in dogs, they are very equivocal; and those particularly enumerated by some authors, are only such as might be expected in dogs much heated or agitated, by being violently pursued and struck. One symptom indeed, if it could be depended upon, would determine the matter: it is said that all other dogs avoid and run away from one that is mad; and even large dogs will not attack one of the smallest size that is infected with this disease. Upon this supposition, they point out a method of discovering whether a dog who has been killed was really mad or not; namely, by rubbing a piece of meat along the inside of his mouth, and then offering it to a sound dog. If the latter eats it, it is a sign the dog was not mad; but if he rather rejects it, with a kind of howling noise, it is certain that he was. Dr. James tells us, that among dogs the disease is infectious to others in the same place; and that, after a kennel has been once infected, the dogs put into it will be, for a considerable time afterwards, in danger of going mad also. An odd remedy he proposes, is, to keep geese for some time in the kennel. He rejects as false, the opinion that dogs when going mad will not bark; though he owns, that there is a very considerable change in their bark, which becomes hoarse and hollow.

In no disease whatever are we more at a loss to discover the causes, than in the hydrophobia. In dogs, foxes, and wolves, it seems to come on spontaneously; though this is contested by some authors. We know, that the causes commonly assigned, viz. heat, feeding upon putrid flesh, want of water, &c. are not sufficient for producing this affection. It does not appear that madness is more frequent among dogs in the warm than in the cold climates; nay, in the island of Antigua, where the climate is very hot, and the water very scarce, this distemper has never, it is said, been observed. As to putrid aliment, it seems natural for dogs to prefer this to any other, and they have been known to subsist upon it for a long time without any detriment. For these reasons, we think the disease arises from a specific contagion, like the small-pox and measles among the human race, which, being once produced by causes unknown, continues to be propagated by the intercourse which dogs have with each other, as the diseases just mentioned continue to be propagated among the human race, by means of the intercourse which they have with one another.

With regard to the immediate cause among mankind, there is not the least doubt that the hydrophobia is occasioned by the saliva of the mad animal being mixed with the blood. It does not appear that this can operate through the cuticle; but, when that is rubbed off, the smallest quantity is sufficient to communicate the disease, and a slight scratch with the teeth of a mad animal has been found as pernicious as a large wound. It is certain also, that the infection has been communicated by the bites of dogs, cats, wolves, foxes, weasles, swine, and even cocks and hens, when affected with rabies. But it does not appear that the distemper is communicable from one hydrophobous person to another, by means of the bite, or any other way. Dr. Vaughan inoculated a dog with the saliva of a hydrophobous child, but the animal continued free from disease for three months; and though the doctor promised to inform the public if it should happen to occur afterwards, nothing in the affirmative appeared on that subject. A nurse also frequently kissed the child during this time of his disorder, but no bad consequence ensued.

When we attempt to investigate the nature or the cause of the hydrophobia by dissections, our inquiries are commonly disappointed. In two bodies opened by Dr. Vaughan, there was not the least morbid appearance: in the very fauces, where we might have expected that the disease would have shown itself most evidently, there was not the least appearance even of inflammation. The stomach, intestines, diaphragm, œsophagus, &c. were all in a natural state; neither do we find in authors of credit any certain accounts of morbid appearances in the bodies of hydrophobous persons after death. Dr. Vaughan therefore concludes, that the poison acts upon the nervous system; and is so wholly confined to it, that it may be doubted whether the qualities of the blood are altered by it or not; and that it acts upon the nerves by impairing and disturbing their functions to such a degree as speedily to end in a total extinction of the vital principle. As to the difficulty in swallowing, generally believed to accompany the dread of water, he treats it as a misrepresentation, as well as that the œsophagus, with the muscles subservient to deglutition, are especially concerned in this disease. The principal foundation of the evil, he thinks, rests on a morbid sensibility, both of the external and internal fauces. For the sight of a liquid, or the application of any substance to the internal fauces, but more especially of a fluid, instantly excites the most painful feelings. Nay, the same symptoms are produced by touching the external fauces with a fluid, or by the contact of cold air with these parts; and nearly in as great a degree. But a solid or a fluid substance being conveyed into the œsophagus, the transit into the stomach is accomplished with little or no impediment; so that, in fact, the difficulty is surmounted before the patient is engaged in the action of swallowing. Nor is the excruciating pain, which never fails to be the companion of every attempt to drink, felt in the fauces and throat; it is, he says, at the *scrobiculus cordis*, to which the sufferer applies his hand. From this last circumstance, therefore, from the presence of the *risus sardonicus*, from the muscles of the abdomen being forcibly contracted, and from the sense of suffocation which seems to threaten the patient with immediate death, Dr. Vaughan has been led to think, that in the hydrophobia a new sympathy is established between the fauces, the diaphragm, and the abdominal muscles.

When a person has been bitten, the appearance of the ensuing hydrophobia is very uncertain. All those who are so bitten do not fall into the disease; nay, Dr. Vaughan relates that, out of thirty bit by a mad dog, only one was seized with the hydrophobia. During the interval, betwixt the bite and the time the disease comes on, there are no symptoms by which we can judge whether it will appear or not. When once it has made its appearance, the event is certainly fatal. The great objects to be aimed at in prevention, are, in the first place, the complete removal of the contagious matter as soon as possible; or, secondly, means of destroying it at the part, where there is even the slightest reason to believe that it has not been completely removed. Of all the means of removal, the completely cutting out the part to which the tooth has been applied, is unquestionably the most to be depended upon. This practice, therefore, should be had recourse to as soon as possible. The sooner it can be accomplished the better. But, as it has been observed, that a peculiar sensation at the part affected always precedes the accession of the disease, even when it takes place at a late period after the bite, there is good ground for believing, that a complete removal of the part may be successful even after a considerable interval. But, besides removal of the contagious matter, by cutting away the part to which it is attached, this should be promoted by careful and long-continued washing; which may be done, in most instances, before a proper opportunity can be had of having recourse to the knife. Cold water should particularly be poured upon the wound, from a considerable height, that the matter may be washed away with some force. Even after removal by the knife, careful washing is still a necessary and proper precaution. And after both these, to prevent, as far as can be, the possibility of any contagious matter lurking about the wounded part, it should not be allowed to heal, but a discharge of matter should be supported for the space of several weeks, by ointment with cantharides, or escharotic applications. By these means there is, at least, the best chance of removing the matter at a sufficiently early period: and this mode of prevention seems to be of more consequence than all others put together, which have hitherto been discovered. But besides removal, prevention may also be attempted, by the destruction of the contagious matter at the part; and where there is the least reason to think, that a complete removal has not been obtained, these should always be had recourse to. With this intention, the actual cautery, or burning with gunpowder, after the manner of the Indians, have been employed; and the action of fire is probably one of the most powerful agents that can be used for this purpose. But recourse has also been had to washing with the caustic alkali, so far diluted that it can be applied with safety: this, from its influence as a solvent of animal mucus, affords some chance of a complete removal of the matter, independent of any influence in changing its nature. It has been thought also, that oil, applied to the part, may be of service. But if recourse be had to it, more active measures should, at least, be previously employed; and even then, some are of opinion that it is of advantage to increase the activity of the unctuous matter, by combining it with mercury.

These means, we are inclined to think most likely to prevent the action of this contagion on the system, after it has been applied by the bite of a rabid animal. A very great variety of other articles indeed have, at different periods, been held forth as infallible, both in the prevention and cure of this affection; but their reputation has, perhaps, universally depended on their having been given to people, who, though really bit by a mad dog, were yet not infected with the contagion: and this happily, either from the tooth being covered in making the bite, or not being smeared with contagious matter, an occurrence by no means unfrequent. Mankind, however, even from the earliest ages, have never been without some boasted specific, which has been held forth as an infallible remedy for this affection, till fatal experience demonstrated the contrary. Boerhaave has given a pretty full catalogue of those specifics, from the days of Galen to his own time; and concludes, that no dependence is to be put in any of them. It is now, therefore, altogether unnecessary to take notice of burnt crabs, the hyæna's skin, mithridate with tin, the liver of the rabid animal, bathing in the sea, the Ormskirk medicine, Palmarius's powder, or a variety of other pretended remedies for this disease, proved by experience to be totally inefficacious.

HYDROPHTHA'LMIA, (*υδροφθαλμια*, from *υδωρ*, *water*, and *οφθαλμος*, *the eye)*, a name given to two diseases different in their nature and consequences. The one is a mere anasarcous or œdematous swelling of the eye-lid; the other, the true hydrophthalmia, which is a swelling in the ball of the eye, from too great a collection of the vitreous or aqueous humours, by which its coats are unnaturally distended.

HYDROPI'PER, (*υδροπιπερις*, from *υδωρ*, *water*, and *πιπερις*, *pepper;* so called from its biting the tongue when chewed, and growing also in marshy places), biting arsmart, lake-weed, or water-pepper; the *Polygonum hydropiper*, Linn. This plant is very common in ditches; the leaves have an acrid burning taste, and seem to be nearly of the same nature with those of the arum. They were formerly recommended as possessing antiseptic, aperient, diuretic virtues, and given in scurvy, and in cachexies, asthmas, hypochondriacal and nephritic complaints, and wandering gout. The fresh leaves have been applied externally as a stimulating cataplasm, but they have no peculiar excellence as such.

HYDROPS, (*υδρωψ*, from *υδωρ*, *water)*; a dropsy. Any species of dropsy may be so termed, as hydrops abdominis or ascites, hydrops ovarii, thoracis, cerebri, pericardii, testis, &c. See Ascites, Hydrothorax, Hydrocephalus, Anasarca, Hydrocele, Hydrocardia, Ovarium, &c.

HYDRORACHI'TIS, (*υδροραχιτις*, from *υδωρ*, *water*, and *ραχις*, *the spine)*, or *spina bifida;* a small, soft, fluctuating tumor, mostly situated on the lumbar vertebræ of new-born children. It is a genus of disease in the class *cachexiæ*, and order *intumescentiæ* of Cullen, and is always incurable. See Spina bifida.

HYDROSA'RCA, (*υδροσαρκα*, from *υδωρ*, *water*, and *σαρξ*, *the flesh);* an accumulation of water in the cellular membrane. See Anasarca.

HYDROSARCOCE'LE, (*υδροσαρκοκηλη*, from *υδωρ*, *water*, *σαρξ*, *the flesh*, and *κηλη*, *a tumor);* the sarcocele, complicated with an accumulation of water in the cellular membrane.

HYDRO-SULPHURET. See Hepatic air.

HYDRO-SULPHURE'TUM STIBII LU'TEUM. See Sulphur antimonii præcipitatum.

HYDRO-SULPHURE'TUM STIBII RUBRUM, formerly named *Kermes mineral.* This remedy, which is a sulphuret of antimony, was formerly in high estimation as an expectorant, sudorific, and antispasmodic, in difficult respiration, rheumatism, scrofula, diseases of the skin, &c. See Antimonium.

HYDROTHO'RAX, (*υδροθωραξ*, from *υδωρ*, *water*, and *θωραξ*, *the chest)*, *hydrops thoracis*, or *hydrops pectoris*, dropsy of the chest; a genus of disease in the class *cachexiæ*, and order *intumescentiæ*, of Cullen. This affection, particularly with respect to its causes, is in many circumstances similar to other kinds of dropsy, particularly to ascites. But from the situation of the water, which is here deposited in the cavity of the thorax, it may naturally be supposed that some peculiar symptoms will occur. Besides the common symptoms of dropsy, paleness of the countenance, scarcity of urine, and the like, this disease is, in some instances, attended with a fluctuation of water within the breast; which, when it does occur, may be considered as a certain distinguishing mark of this affection. But besides this, it is also distinguished by remarkable affections of the circulation and respiration with which it is attended.

The breathing is peculiarly difficult, especially in a recumbent posture; and in many instances patients cannot breathe with tolerable ease, unless when sitting erect, or even stooping somewhat forwards. The pulse is very irregular, and has often remarkable intermissions. But the disease has been thought to be principally characterised by a sudden starting from sleep, in consequence of an almost inexpressible uneasy sensation referred to the breast, and attended with strong palpitation, which may probably arise from an affection either of the circulation or of respiration.

That such symptoms are common attendants of this disease, is undeniable; and they are certainly the best characteristics of this affection with which we are yet acquainted: but it must be allowed that they are present in some cases where there is no water in the breast; and that in other instances where the disease exists, they are either altogether wanting, or occur only in a very slight degree. Certain diagnostics, therefore, of this disease still remain to be discovered.

When hydrothorax is present, from the affection of the vital functions with which it is attended, it may readily be concluded that it is a dangerous disease, and in many instances it proves fatal. The cure, as far as it can be accomplished, is obtained very much on the same principles as in other dropsies. Here, however, probably from the uncertainty of the diagnostics, the artificial abstraction of water, by paracentesis of the thorax, is less frequently had recourse to than in ascites; though, in some instances, after other means have failed, it has been said not only to give relief of symptoms highly urgent, particularly dyspnœa, but even to produce a complete cure. Benefit is often obtained from an artificial discharge of water by the application of blisters to the breast: but in this, as well as other dropsies, a discharge is chiefly effected by the natural outlets, particularly from the use of cathartics and diuretics. In this species of dropsy, more perhaps than in any other, recourse has been had to the digitalis purpurea, proposed by Dr. Withering. There can be no doubt that this medicine often operates as a powerful diuretic, and produces a complete evacuation of water, after other medicines have failed; but from its influence on the pulse, which it renders much slower, it is necessary that it should be employed with the greatest possible caution, and in very small doses. See DIGITALIS.

HYGIE′NE, (*υγιεινη*, from *υγιαζω*, *to be in health*). Modern physicians have applied this term to that division of *therapeia* which treats of the diet of the sick, and the non-naturals. The ancient physicians, whose practice was confined to the means of preserving the health, were hence denominated *hygienists*.

HYGROLO′GIA, (*υγϱολογια*, from *υγϱος*, *a humour* or *fluid*, and *λογος*, *a discourse*), hygrology, or the doctrine of the fluids.

HYGRO′MA, (*υγϱωμα*, from *υγϱος*, *a liquid*), a name given to an encysted tumor, whose contents are either serum, or a fluid like lymph. It sometimes happens that these tumors contain hydatids. Hygromatous tumors require the removal of the cyst, or the destruction of its secreting surface by escharotics.

HY′MEN, (*Υμην*, from *Hymen*, the god of marriage, because this part is supposed to be a test of virgin purity in females); a thin membrane, sometimes circular, of different breadths, more or less smooth, and sometimes semilunar, formed by the union of the internal membrane of the vagina with that on the inside of the alæ, and like a piece of fine white leather somewhat corrugated. This membrane stretches below the nymphæ, in some subjects leaving a very small opening, in others a larger, and in all rendering the external orifice narrower than the rest of the cavity, and to be broken when they are deflowered; an effusion of blood following the breach. This membranous circle may be ruptured by imprudent digital contact, and other accidents. The hymen is justly looked upon as the test of virginity; and when broken or withdrawn, shows that the woman is not in a state of innocence. This notion is very ancient: and yet so various are the natural or accidental appearances of this part, that authors were, for a long time, at variance as to the existence of such a membrane. De Graaf, the most accurate inquirer into these organs, confesses that all he could find was, a different degree of straitness or wideness, and different corrugations, which were greater or less according to the respective ages; the aperture being still the less, and the rugosities the greater, as the subject was younger and more untouched. Modern anatomists, however, have put the natural existence of this part beyond all question. In infants, indeed, it is a fine thin membrane, not very conspicuous, because of the natural straitness of the passage itself, which does not admit of any great expansion in so little room; and this might have led De Graaf into the mistake of its being no more than a corrugation.

Cowper relates the case of a married woman, twenty years of age, whose hymen was found altogether impervious, so as to detain the menses, and to be driven out by the pressure thereof beyond the labia of the pudendum, not unlike a prolapsus of the uterus. On dividing it, a prodigious quantity of grumous blood came forth. It seems the husband, being denied a passage that way, had found another through the meatus urinarius; which was found very open, and its sides extruded like the anus of a cock.

Dr. Denman was once consulted on the case of a young woman, who was twenty-two years of age. This person, having many uterine complaints, with the abdomen enlarged, was suspected to be pregnant, though she persevered in asserting the contrary, and had never menstruated. When she was prevailed upon to submit to an examination, the circumscribed tumor of the uterus was found to reach as high as the navel, and the external parts were stretched by a round soft substance at the entrance of the vagina, in such a manner as to resemble that appearance which they have when the head of a child is passing through them: but there was no entrance into the vagina. On the following morning an incision was carefully made through the hymen, which had a fleshy appearance, and was thickened in proportion to its distension. Not less than four pounds of blood, of the colour and consistence of tar, were discharged; and the tumefaction of the abdomen was immediately removed. Several stellated incisions were afterwards made through the divided edges, which is a very necessary part of the operation; and care was taken to prevent a re-union of the hymen till the next period of menstruation, after which she suffered no inconvenience. The blood discharged was not putrid or coagulated, and seemed to have undergone no other change, after its secretion, but what was occasioned by the absorption of its more fluid parts. Some caution is required when the hymen is closed in those who are in advanced age, unless the membrane be distended by the confined menses; as an instance occurred to Dr. Denman of inflammation of the peritonæum being immediately produced after the operation. Of this the patient died, as in the true puerpural fever; and no other reason could be assigned for the disease.

The *carunculæ myrtiformes* are formed by the portions of lacerated hymen which shrink up and form irregular tubercles. By their elongation and enlargement, sometimes they become very painful and troublesome to the women; but their removal is easy.

HYMENÆ'A COURBARIL, (*hymenœa*, corrupted from *anime*, or *animœa*)*;* the systematic name of the tree which affords the gum *anime*. See Anime. The seeds are covered with a light brown sugary substance, which the Indians scrape off and eat with great avidity, and which is very pleasant and agreeable. At the principal roots under ground, is found, collected in large lumps, a yellowish and transparent gum; which, dissolved in rectified spirit of wine, affords an excellent varnish.

HY'O. Whenever we find anatomical names compounded of this word, they belong to muscles which originate from, or are inserted into, or connected with, the os hyoides; as, *Hyo-glossus*, *Hyo-pharyngeus*, *Genio-hyo-glossus*, &c.

HYOI'DES OS, (*υοειδες*, from the Greek letter *υ*, and *ειδος*, *likeness*, so named from its resemblance); a bone situated between the root of the tongue and the larynx. It derives its name from its supposed resemblance to the Greek letter *υ*, and is, by some anatomical writers, described along with the parts contained in the mouth. Ruysch has seen the ligaments of this bone so completely ossified, that the os hyoides was joined to the temporal bones by anchylosis. In describing this bone, Dr. Hooper says, it may be distinguished into its body, horns, and appendices. The body, which is the middle and broadest part of the bone, is so placed, that it may be easily felt with the finger in the fore part of the throat. Its anterior part, which is placed towards the tongue, is irregularly convex, and its inner surface, which is turned towards the larynx, is unequally concave. The *cornua*, which are flat and a little bent, are considerably longer than the body of the bone, and may be said to form the sides of the *υ*. These horns are thickest near the body of the bone. At the extremity of each is observed a round tubercle, from which a ligament passes to the thyroid cartilage. The appendices, or *cornua minora*, as they are called by some anatomists, are two small processes, which in size and shape somewhat resemble a grain of wheat. They rise up from the articulations of the cornua with the body of the bone, and are sometimes connected with the styloid process on each side, by means of a ligament. It is not unusual to find small portions of bone in these ligaments; and Ruysch, as we have already observed, has seen them completely ossified. In the fœtus, almost the whole of the bone is in a cartilaginous state, excepting a small point of bone in the middle of its body, and in each of its horns. The appendices do not begin to appear till after birth, and usually remain cartilaginous many years. The office of the os hyoides is to support the tongue, and afford attachment to a variety of muscles, some of which perform the motions of the tongue, while others act on the larynx and fauces.

HYO-GLOSSUS, the *Cerato-glossus* muscle of Douglas, and *Basio-cerato-chondro-glossus* of Albinus. It is situated at the side, between the os hyoides and the tongue. It arises from the basis, but chiefly from the corner of the os hyoides, running laterally and forwards to the tongue, which it pulls inwards and downwards.

HYO-PHARYNGE'US, (*υοφαρυγγαιος*; from *υοειδης*, *the hyoid bone*, and *φαρυγζ*, *the pharynx*); a muscle which is so called from its origin at the os hyoides, and its insertion into the pharynx.

HYO'SCIAMUS, (*υοςκυαμος*; from *υς*, *a swine*, and *κυαμος*, *a bean*, so named because hogs eat it as a medicine; or it may be, because the plant is bristly like a swine), also called *Faba suilla;* henbane, or hog's-bean. *Hyosciamus niger*, *foliis amplexicaulibus sinuatis*, *floribus sessilibus*, Linn. Class, *Pentandria.* Order, *Monogynia.* It grows on road sides, and among rubbish. It is a biennial plant, with long fleshy roots which strike deep into the ground, sending out several large soft leaves, deeply slashed on their edges. The following spring the stalks come up: these are about two feet high, garnished with flowers, standing on one side in a double row, fitting close to the stalks alternately. They are of a dark purplish colour, with a black bottom; and are succeeded by roundish capsules which open with a lid at the top, and have two cells filled with small irregular seeds. The seeds, leaves, and roots of this plant, as well as of all other species of this genus, are poisonous: and many well attested instances of their bad effects are recorded; madness, convulsions, and death, being the common consequences. In a smaller dose they occasion giddiness and stupor. The juice of this plant evaporated to an extract is prescribed in some cases as a narcotic; in which respect, undoubtedly, it may prove a powerful medicine if properly managed. The dose is from half a scruple to half a drachm.

HY'OSCIAMUS ALBUS, the white henbane. This plant, a native of the south of Europe, possesses similar virtues to the hyosciamus niger. See Hyosciamus.

HY'OSCIAMUS NIGER; the systematic name of henbane. See Hyosciamus.

HYPERÆ'STHESES; an error of appetite whether by excess or deficiency. It is synonymous with Dr. Cullen's order of *Dysorexiæ.*

HYPERCATHA'RSIS, (*υϖερκαθαρσις*, from *υϖερ*, *supra*, over or above, and *καθαιρω*, *purgo*, to purge); the operation of any medicine, which purges to excess. It is a variety of the *Diarrhœa mucosa*, in Dr. Cullen's *Nosology.*

HYPERCORYPHO'SIS, (*υϖερκορυφωσις*, from *υϖερ*, *above*, and *κορυφη*, *the vertex*), a prominence or protuberance; a term used by Hippocrates, who calls the lobes of the liver and lungs *hypercoryphoses.*

HYPE'RICUM, (*υϖερεικον*; from *υϖερ*, *over*, and *εικὸν*, *an image* or *spectre;* so named, because it was superstitiously thought to have power over evil spirits), St. John's-wort; the *Hypericum perfoliatum*, Linn. *Hypericum floribus trigynis*, *caule ancipiti*, *foliis obtusis pellucido punctatis.* Class, *Polyadelphia.* Order, *Polyandria.* This indiginous plant was greatly esteemed by the ancients, particularly the species commonly named *tutsan*, but it is now very rarely used.

The London Pharmacopœia retains the flowers on account of their great proportion of resinous or oily matter, in which the medical efficacy of the plant is supposed to reside.

HYPE'RICUM PERFORA'TUM; the systematic name of the St. John's wort. See HYPERICUM.

HYPEROSTO'SIS, (*υπεροϛωϛις*; from *υπερ*, *upon*, and *οϛεον*, *a bone*). See EXOSTOSIS.

HYPNO'TICA, (*υπνωτικα*; from *υπνος*, *to sleep*), hypnotics. See ANODYNES.

HYPOCAU'STUM, (of the preposition *υπο*, *under*, and the verb *καιω*, *to burn*), among the Greeks and Romans, a subterraneous place, where was a furnace to heat the baths. Another sort of hypocaustum was a kind of kiln to heat their winter parlours. The remains of a Roman hypocaustum, or sweating-room, was discovered under ground at Lincoln, in 1739. See an account of these remains in the Philosophical Transactions, No. 461, § 29.

HYPOÆ'MA, (*υποαιμα*; from *υπο*, *under*, and *αιμα* *blood*, because the blood is under the cornea); an effusion of red blood into the chambers of the eye. This often occurs on the operation for the cataract, but does not prevent its success, as the red blood is gradually absorbed, and the humours of the eye become as clear as if no hypoæma had taken place.

HYPOCATHA'RSIS, (*υποκαθαρσις* from *υπο*, *under*, and *καθαιρω*, *to purge*), a term applied to a medicine that does not operate so much as was expected, or but very little. A slight diarrhœa is also so called.

HYPOCHONDRI'ACÆ REGIO'NES, (from *υπο*, *under*, and *χονδρος*, *a cartilage*); the hypochondriac regions. These are situated one on each side of the epigastric region, being the spaces in the abdomen that are under the cartilages of the false ribs.

HYPOCHONDRI'ASIS, (*υποχονδριαςις*; from *υποχονδριακος*, *one who is hipped or fanciful*); the hypochondriac affection. It is a genus of disease in the class *neuroses*, and order *adynamiæ*, of Cullen. Although some of the nosological writers, particularly Sauvages, have considered this genus as consisting of different species, Dr. Cullen is of opinion, that there is only one idiopathic species, the *hypochondriasis melancholica*. He considers not only the *hypochondriasis hysterica*, *phthisica*, and *asthmatica*, but also the *biliosa*, *sanguinea*, and *pituitosa*, as being only symptomatic; but he views the true melancholic hypochondriasis as being a proper idiopathic disease, perfectly distinct from hysteria, with which indeed it has often been confounded.

The symptoms of hypochondriasis are, stretching, pressing, griping and tormenting pains under the ribs, and chiefly in the left side; which sometimes are exasperated, and become pungent, burning, or lancinating. Frequently there is an inflation of the left hypochondrium, which sometimes becomes stationary, and, by Hippocrates, was taken for a symptom of an enlarged spleen. When these symptoms take place in the right hypochondrium, they are commonly attended with colic pains, uncertain flying heats, especially in the head, with a transient redness of the face; and very frequently an œdematous swelling of the feet succeeds. To these are superadded almost all the affections of the stomach occurring in dyspepsia, besides a variety of other symptoms, such as palpitations, sleepless nights, and the like. But besides these, there occurs also a particular depression of spirits and apprehension of danger, which may be considered as one of the great characterising symptoms of the disease.

The general causes of the hypochondriac affection are said to be a plethora, and preternatural thickness of the blood; suppressions of customary evacuations; high and full diet, together with a sparing quantity of drink; an hereditary disposition; indolence; atony of the intestines; violent passions of the mind, &c. The hypochondriac affection, when left to itself, is more troublesome than dangerous; but, if improperly treated, it may bring on various diseases of a more fatal tendency, such as melancholy, bloody urine and nephritis, jaundice, vertigo, palsy, apoplexy, &c.

The cure is attempted by such medicines as counteract occasional causes, and obviate urgent symptoms. These may be all comprehended under bleeding, gentle evacuants, preparations of iron, chalybeate waters, the Peruvian bark, and exercise, especially riding on horseback, which, in this disease, is greatly preferable to any other. Extraordinary good effects have been produced by giving, in the first instance, the *dry vomit* of the late Dr. Marriott of Bristol; which consists of equal parts of cupr. vitriolat. and antim. tartaris. rubbed together. From three to five grains of this, taken in a spoonful of water, evacuates the stomach without any fatigue to the patient, and without the relaxation which succeeds, when large quantities of warm water are drank to encourage the operation.

Dr. Hugh Smith says, the fetid and antispasmodic remedies may be used to advantage in hypochondriasis. Thus,

Assafœtida may be given from ℈ss. to ʒss.
Ammoniacum, ℈j. to ʒss.
Castor, ℈ss. to ℈ij.
Camphor, gr. v. to ℈j.
Musk, ℈ss. to ʒss.
Oleum animale, gtt. vj. to xv.
Volatile salts, ℈ss. to ℈j.
Salt and oil of amber, the same.
Valerian, ℥ſs. to ℥ij. in a day.

By these a truce may be gained, and the patient may receive sudden and immediate relief. However, when his circumstances can afford it, a voyage to Madeira, to Spain, Portugal, or some of the warmer countries of Europe, will be the most effectual.

HYPOCI'STIS, (*υποκιϛις*, from *υπο*, *under*, and *κιϛις*, *the cistus*). See HYPOCISTIDIS SUCCUS.

HYPOCY'STIDIS SUCCUS; the juice of the *asarum hypocistis*, Linn. a parasitical plant, growing in warm climates, from the roots of the cistus, not unlike misletoe of the oak. Its inspissated juice, which is of a shining black, like that of liquorice, is a mild astringent, but it has no particular smell nor flavour. Its powers, however, are so inconsiderable, that it is seldom used in modern practice.

HYPOGA'LA, (υπογαλα; from υπο, *under*, and γαλα, *milk*, because it is a milky effusion under the cornea), a collection of white fluid, like milk, in the chambers of the eye. Authors describe two species of this disease; the one taking place, it is said, from a deposition of the milk, as is sometimes observed in women who suckle; the other, from the depression of the milky cataract.

HYPOGA'STRICA SECTIO, in lithotomy, what is called the *high operation*.

HYPOGA'STRICÆ ARTERIÆ, the hypogastric or internal iliac arteries. These dip into the inside of the pelvis, just over the shoulder of the sacrum. When each arrives at the side of the pelvis, it throws down branches to the contents of the pelvis, and then goes through the sciatic notch. See ILIACÆ ARTERIÆ, for the *external hypogastric arteries*.

HYPOGA'STRICÆ VENÆ, the hypogastric veins. These run the same course with their corresponding arteries, except that they do not send off the vena umbilicalis. The hypogastric veins are the internal iliac branches.

HYPOGA'STRIUM, (υπογαστριον, from υπο, *sub*, under, and γαστηρ, *venter*, the belly), or hypogastric region; that region of the belly reaching from three inches below the navel to the os pubis and groins.

HYPOGLO'SSI, (*externi*, or *majores*), in anatomy, the ninth pair of nerves, called *linguales & gustatorii*.

HYPOGLO'TTIS, or HYPOGLOSSIS, (of υπο, *under*, and γλωττα, *the tongue*); a name given to two glands of the tongue. There are four large glands of the tongue; two of them called *hypo-glottides*, situated under it, near the venæ ranulares; one on each side of the tongue. They contribute to the salivary secretions.

HYPOPHYLLOSPE'RMOUS, (from υπο, *under*, φυλλον, *a leaf*, and σπερμα, *seed*), in botany, such plants as bear their seed on the back-side of their leaves.

HYPO'PYON, (υποϖυον; from υπο, *under*, and ϖυον, *pus*; because the matter lies under the cornea); a collection of pus in the anterior or posterior chamber, or else in both chambers of the eye. This disease is a consequence of inflammation of the iris or uvea, or it may be occasioned by an abscess or ulcer of the cornea. It is known by inspecting the eye: a white moveable liquid appears, occupying the chambers of the eye: the iris is partly or entirely imperceptible, obscuring the sight in a like degree.

HYPOSA'RCA, (υποσαρκα, from υπο, *under*, and σαρξ, *flesh*); an anasarca. In Dr. Cullen's *Nosology*, it is synonymous with *Physconia*.

HYPOTHE'NAR, (υποθεναρ, from υπο, *under*, and θεναρ, *the palm of the hand*), the *Abductor Minimi Digiti Manus*; also that part of the hand which is opposite the palm.

HYPO'THESIS, (υποθεσις, from υποθεμι, *to suppose*), any system of general rules, which are founded partly on fact and partly on conjecture. A theory explains every fact; whilst an hypothesis explains only a certain number of facts, leaving some unaccounted for, and others in opposition to it. Some hypotheses are altogether visionary and unsupported.

HYSSOP. See HYSSOPUS.

HYSSOP, HEDGE. See GRATIOLA.

HYSSO'PUS, (υσσοπος; from *Azob*, Heb.) common hyssop, the *Hyssopus officinalis* of Linnæus. *Hyssopus, spicis secundis, foliis lanceolatis.* Class, *Didynamia.* Order, *Gymnospermia.* This well-known plant is esteemed as an aromatic and stimulant. It is, however, chiefly employed as a pectoral; having long been a popular remedy in humoral asthmas, and catarrhal affections. For this purpose, an infusion of the leaves, sweetened with honey or sugar, is usually drank as tea.

HYSSO'PUS OFFICINALIS; the systematic name of the common hyssop. See HYSSOPUS.

HYSTERA'LGIA, pain in the womb; also pain in the belly which resembles labour pains.

HYSTE'RIA, (υστερια, from υστερα, *the womb*); hysterics, or the hysteric passion. This is a genus of disease in the class *neuroses*, and order *spasmi*, of Cullen. There are four species described: 1. *Hysteria chlorotica*, from a retention of the menses. 2. *Hysteria à menorrhagia*, from an immoderate flow of the menses. 3. *Hysteria à leucorrhœa*, from the fluor albus. 4. *Hysteria libidinosa*, from sensual desires.

The hysteria is a convulsive disease, which comes on at uncertain intervals, sometimes longer and sometimes shorter, but at no stated time. The paroxysms commonly begin with a languor and debility of the whole body; yawning, stretching, and restlessness. A sense of coldness also in the extremities almost always precedes, and, for the most part, remains during the whole time of the paroxysm. To this sometimes succeeds a sense of heat, and the two sensations alternate with each other, in different parts of the body. The face is sometimes flushed and sometimes pale; and sometimes the paleness and flushing come on alternately. There is a violent pain in the head; the eyes become dim, and pour out tears; there is a rumbling and inflation of the intestines; a sensation is felt, like that of a globe ascending from the lower part of the abdomen or hypogastrium, which sometimes seems to roll along the whole alimentary canal. It ascends to the stomach, sometimes suddenly, sometimes slowly; and there produces a sense of inflation and weight, together with anxiety, nausea, and vomiting. At last it comes up to the throat, where it produces a sense of suffocation, and difficulty of breathing or swallowing. During this time, there are the most violent pains both in the external and internal parts of the abdomen; the muscles are convulsed; the umbilicus is drawn inwards; and there are frequently such spasms of the intestines, that neither clysters can be injected, nor even flatus pass downwards. Sometimes the paroxysm remits after these symptoms have continued for a certain time, but more frequently the patients fall into fainting fits; sometimes they lie without motion, as if they were in a deep sleep; sometimes they beat their breasts violently and continually with their hands, and sometimes they are seized with general convulsions, and the disease puts on the appearance of an epilepsy. In some patients, the extremities become cold and stiff, and the body has the appearance of one in a catalepsy. Sometimes a most violent beating pain takes place in some part of the head, as if a nail was driving into it, and all visible objects seem to turn round; grievous pains attack the loins, back, and bladder, and the patient makes a surprising quantity of urine, as limpid as water; which last is one of the surest signs of the disease. The mind is very much affected, as well as the body. Sometimes the patients are tormented with vain fears; sometimes they will laugh, at others cry immoderately; and sometimes their temper becomes so peevish and fretful, that they cannot be pacified. The appearances which take place in this affection are, indeed, so varied, that they can hardly be enumerated: they may, however, with propriety, be divided into hysteric fits, which very much resemble those of epilepsy, excepting that they are not attended with an abolition of the internal senses; and hysteric symptoms, such as the *globus hystericus*, *clavus hystericus*, and the like, which are chiefly known to constitute a part of this disease, from being observed to alternate with the fits.

The general cause of hysteria is thought to consist in a too great mobility and irritation of the nervous system, and of consequence the disease may be brought on by whatever debilitates and renders the body irritable. Hence it most frequently attacks females of a weak and lax habit of body, though there are some instances of men being attacked by it. It generally comes on between the age of puberty and thirty-five, and makes its attacks during the time of menstruation, more frequently than at any other. It also more frequently seizes barren women and young widows, than such as are bearing children.

Though this disease is seldom dangerous, it may be rendered so by wrong treatment. It is, at least, extremely difficult of cure, and rarely admits of any thing else than being palliated; for, though it may seem to be conquered by medicine for a time, it very quickly returns, and that from the slightest causes.

The ends principally to be aimed at in the cure of this disease, are, in the first place, the removal of particular convulsive or spasmodic affections immediately producing various appearances in the disease, whether under the form of proper hysteric fits, or merely of what may be called hysteric symptoms; and in the second place, the prevention of the return of symptoms after they have been removed, by the employment of proper remedies, during those intervals from complaint, which patients often have when labouring under this affection.

The most powerful remedy hitherto discovered in hysterical cases is opium. By this commonly the most violent paroxysms are stopped, though it be insufficient to accomplish a radical cure. In Dr. Home's Clinical Experiments, we find an instance of a cure performed by venesection, though this remedy has been generally condemned in hysterical cases. Assafœtida seems to stand next in virtue to opium; though with some it disagrees, and occasions pains in the stomach and vomiting. Æther will also frequently remove an hysteric fit; but its effects are of short duration: and if it do not effect a cure soon after its exhibition, no service is to be expected either by perseverance in the use of it, or by increasing the dose; and in some constitutions it disagrees so very remarkably as to occasion convulsions. If the patient be seized with a violent fit, so that she can swallow nothing, which is frequently the case, it will be proper to apply some strong volatile alkali to her nose; or if that be not at hand, the vapour of burning feathers is sometimes very efficacious. In some instances, benefit is derived from the sudden application of cold water to the face or hands; but still more frequently the application of water in a tepid state, particularly the warm pediluvium, is found to be of very great service in bringing about a favourable termination of any violent hysteric symptom. A plaster of galbanum and assafœtida will also prove serviceable: but it must be remembered, that none of these things will prevent the return of the disease; and therefore a radical cure is to be attempted, in the absence of the fits, by exercise, the Peruvian bark, salts of iron, mineral waters, and other tonics; but particularly, when the state of the patient is such as to be able to bear it, by the use of the cold bath, which, where it does not disagree with the constitution, is often of the greatest service in preventing returns of this affection.

HYSTERIC PASSION. See Hysteria.

HYSTEROCE'LE, from υστερα, *the womb*, and κηλη, *a tumor);* hernia caused by the uterus falling through the perinæum.

HYSTEROTO'MIA, (*υϛεροτομια*; from *υϛερα*, *the womb*, and *τεμνω*, *to cut)*, hysterotomy, the *Cæsarian section*, or *partus Cæsareus* of the Latins. When the delivery could not be accomplished by other means, or when a woman died suddenly with a living child in her womb, an operation to preserve the life of the mother and child in the former case, and to save the child in the latter, has been recommended, and successfully performed, by different persons, and in different ages. Whether it was ever successfully performed on the living subject amongst the ancients seems uncertain; but that it has been successfully practised by the moderns on various occasions, and in several different countries of Europe, there are so many authentic histories on record, that the fact will scarcely admit of doubt: but as this, like many other salutary practices, has been much abused, and in many cases improperly and injudiciously employed (for some of those women who survived the operation were afterwards safely delivered of living children), the circumstances supposed to require this operation, demand a very peculiar enquiry. These are:—

1. *Malformation of the bones of the pelvis.*—When the hand of the operator cannot be introduced within the pelvis; or, in other words, when its largest diameter does not exceed one inch and a half, this conformation is perhaps the only one which renders the Cæsarean operation absolutely necessary: happily, however, such a structure very seldom occurs in practice; and when it does, the accoucheur will readily discover it, by attending to the following circumstances, and to the common marks of a narrow pelvis. Wherever the capacity of the pelvis is so strait as not

to admit any part of the child's head to enter, nor two fingers of the accoucheur's hand to conduct the proper instruments to tear, break down, and extract the child piece-meal, in this case recourse must be had to hysterotomy; an expedient, though dreadful and hazardous, that will give the woman and child the only chance of life: and which, if timely and prudently conducted, notwithstanding the many instances wherein it has failed, may be performed with some probability of success.

Since the first certain accounts of hysterotomy successfully practised by a sow-gelder on his own wife, in the beginning of the sixteenth century, there are on record above seventy well-attested histories, wherein it has been successfully performed: for, of all the cases related by authors, it has not proved fatal to the patient above once in ten or nine instances; which evidently shows the propriety of the practice, and probability of success, both in regard to the mother's own recovery, and for certainly preserving the life of the child. But it should never be attempted, excepting in those cases only where it is absolutely impossible to deliver the woman by any other means whatever; for there are pelvises to be met with, where, without having recourse to this operation, both mother and child must inevitably perish. Such have occurred to many practitioners, who, from want of resolution or from ill-founded prejudice, have allowed their patients to perish from neglect, contrary to a well-known maxim in physic; that, in a desparate case, it is better to employ a doubtful and even desparate remedy, than to abandon the patient to certain destruction. Such, for instance, is a case related by Saviard, of a girl aged 27, whose stature was only three feet, who came to lie-in at Paris, in the *Hotel Dieu;* every method but the operation was in vain attempted; both mother and child died. Mauriceau also relates the history of a woman who was left to die, where the aperture of the pelvis was so small as not to admit the hand of the accoucheur. And, not to multiply instances, M. De la Roche gives a case where the woman had been seven days in labour: the child was saved by the operation; but the woman died the fifth day after, probably from its being too long delayed. The distance, in this subject, from the lower vertebra lumborum and os pubis, was no more than two fingers breadth. The operation, when the necessity is evident, ought therefore to be early performed, that the patient, who from her make and constitution is generally delicate and puny, may have every chance of recovery in her favour, without being exhausted by the fruitless efforts of a tedious and painful labour, as too often has been the case. On these occasions, the prudent accoucheur should call in the advice of his elder brethren of the profession, and, by his cautious and prudent conduct, avoid every cause of censure or reproach.

2. *Constriction, callosity, tumors,* &c. about the vagina or os tincæ.—The vagina and os tincæ are often affected with constrictions from cicatrices, with callosities and tumors; but it is seldom, if ever, necessary to perform the Cæsarean section on this account. Tumors in the vagina may generally be removed with safety, even after the commencement of labour, and delivery happily succeed; or it may be sometimes practicable for the accoucheur to pass his hand by the side of the tumor, to turn the child, and deliver. With regard to constrictions in the vagina, and callosities in the os uteri, there are many instances where, at the commencement of labour, it was impossible to introduce a finger into the vagina; yet the parts have dilated as labour increased, and the delivery terminated happily. At other times, the dilation has begun during pregnancy, and been completed before delivery.

3. *Lacerated uterus* is another cause for which this operation has been recommended.—The uterus may be ruptured from violence in making the delivery; or such an accident may happen naturally, either from the cross presentation of the child in time of pregnancy, or in time of labour, when the pelvis is narrow. These cases are generally fatal; and it is very seldom, if ever, that the life of the mother can be saved by the Cæsarean section, after the fœtus escapes through the torn uterus into the cavity of the abdomen; because it often happens, that inflammation and sphacelus have affected the parts of the uterus that sustained the pressure previous to the rupture; or, if otherwise, convulsions or other fatal symptoms soon ensue. Here it will at least seem doubtful, to a prudent, humane practitioner, how far it would be advisable, after so dreadful an accident, the woman apparently in the agonies of death, rashly to perform another dangerous operation, even with a view to preserve the child, till the mother either recruits or expires outright.

If part of the child be contained within the uterus, and the feet can be reached, the practice is to deliver by the orifice of the womb; but when the whole fœtus has escaped entirely without the uterus, the Cæsarean operation is resorted to as the only means of preserving both mother and child.

4. *Ventral conceptions* is the fourth indication for this operation.—These are either in the ovaria, tubes, or cavity of the abdomen: they seldom arrive at great size; or they very often remain a long time, without occasioning much complaint. The issue of these conceptions has also been no less various than extraordinary; for after being retained for a great many years in an indolent state, at length abscesses or ulcerations have formed, and they have been discharged through all the different parts of the abdomen. In general, as the separation of extra-uterine fœtuses from their involucra may occasion immediate death, in many cases, from the vast hæmorrhagy that might ensue from the non-contractile power of the parts to which they adhere; unless they point outwardly, or excite the most violent symptoms, they ought universally to be left to nature.

5. *Hernia of the uterus* is seldom or never sufficient to induce us to perform the Cæsarean section, as the uterus is very rarely influenced in such a manner, that the orifice cannot be reached, and the delivery successfully made. Many instances are to be found among

surgical authors, where deliveries, under such circumstances, have been happily performed, without having recourse to so hazardous an expedient. Thus Mauriceau mentions a case, where the uterus, in a ventral hernia, was pushed along with the intestines above the belly, and contained in a tumor of a prodigious size; the woman, however, was delivered at the end of her time in the ordinary way. La Mott relates the history of a woman, in a preternatural labour, whose uterus and child hung down pendulous to the middle of her thigh, but whom, notwithstanding, he safely delivered: and Ruysch gives a case where the midwife reduced the hernia before delivery: although it was prolapsed as far as the knee, the delivery was safely performed, and the woman recovered.

6. *The position or bulk of the child.* Since the practice of turning the child and delivering by the feet, and the late improvement of obstetrical instruments, this operation is never to be performed, on account of position, monstrosity, or any other obstacle on the part of the child. Upon the whole, when the pelvis is faulty to such a degree, that no instrument can be conducted to tear and abstract the child, this perhaps is the only case wherein this operation should be performed on the living subject. When a woman advanced in pregnancy dies suddenly, either by accident or by natural disease, it is recommended as an expedient to preserve the life of the child, and very properly, provided the death of the mother be ascertained. But sometimes it is a very difficult point to distinguish between a deliquium and death; and therefore the accoucheur must act with the utmost circumspection. If the operation be delayed but a very short while after the mother expires, it will probably be in vain to make the attempt: for, whatever fabulous stories may be related to the contrary, there are few authentic cases of the fœtus of any animal surviving the mother, perhaps an hour; and therefore every thing should be in readiness to extract the child with all possible expedition, after the event of the mother's death. But, in such cases, the agonies of death often perform the part of labour, and the child is sometimes thrown off *in articulo mortis;* or the os uteri is so much dilated, that there is easy access to pass the hand, turn the child, and deliver. Thus one should be very cautious in having recourse to this operation, even in the above circumstances; which should never be done, but between the seventh and ninth month, nor 1. Till the death of the mother be ascertained beyond doubt; 2. Till the state of the os uteri be examined; 3. Till the consent of the relations has been obtained. It is unnecessary where the disease has been lingering: in such cases the child commonly dies before the mother.

When it is doubtful whether the child be alive or not, it may be determined by applying the hand on the abdomen of the mother about the time of, and for a little while after, her death, when the life of the child will be discovered by its motions and struggling.

7. *The method of performing hysterotomy* on the living subject is this:—Having emptied the bladder, and evacuated the contents of the intestines with repeated emollient glysters, the patient being encouraged, with proper cordials, and every other requisite in readiness, she must be placed on a table or bed, with her left side gently raised with pillows or bolsters, and properly secured by assistants. An incision must be made with a common convex scalpel, beginning rather below the navel at the middle space between it and the spine of the os ilium, carrying it obliquely forwards towards this bone, so that the wound in length may exceed six inches. This external wound is to be carried through the common teguments of the abdomen till the peritonæum is exposed, when the operator should rest a little till the hemorrhagy be entirely abated. He must then, with great caution, make a small opening through this membrane, introduce his finger, and upon this a scalpel (which is preferable to scissars), and with great expedition make a complete dilatation. He must now wipe away the blood with a sponge, press the omentum or intestines gently aside, if in the way, and endeavour to discover to what part of the uterus the placenta adheres, that it may be avoided in making the incision. This may easily be known by a thickness and solidity in the part, which distinguish it from the rest of the uterus; it is still more easily discovered when the membranes are entire. The blood-vessels are less in number, and smallest in the middle and anterior part of the uterus, which therefore, if the placenta does not interfere, is the proper place for making the incision, which must be performed with the utmost attention, lest the child should be wounded: if the membranes are entire, more freedom may be used, and *vice versa.* The direction and length of the wound of the uterus must be the same with the external one. The child must now be quickly extracted, and the placenta carefully separated: these must be given to an assistant, who will divide the chord, and take care of the child, as the operator's attention must be wholly bestowed on the mother. The coagulated blood, &c. being removed by a sponge wrung out of warm water (lest the uterus or intestines be protruded, which are very troublesome to reduce), the lips of the external wound must be quickly brought together, and retained by an assistant till secured by a few stitches; generally three will be sufficient. As many needles should be ready threaded with pretty large broad ligatures; the middle stitch ought to be made first; the needle should be introduced at a proper distance, *i. e.* about an inch and one fourth from the side of the wound, carrying it first from without inwards, and then from within outwards, securing, with a double slip knot, to be ready to untie, lest violent tension or inflammation should ensue. Under the knot a soft compress of lint, charpie, or rolled plaster, should be applied, and the whole dressings must be secured by a proper compress and bandage. The patient must be afterwards treated in the same manner as after lithotomy, or any other serious operation, where danger may be apprehended from the subsequent inflammation.

HYSTRICI'ASIS, (*υςεριχιασις*, from *υςριξ*, *a hedgehog* or *porcupine)*, a disease in which the hair is said to stand erect, like a porcupine's quills. An account of this rare disease is to be seen in the Philosophical Transactions, No. 424.

HY'STRICIS LAPIS. See Bezoar porcinum.

HYSTRI'TIS, (υϛϱιτις; from υϛερα, *the womb)*, or *Metritis*, inflammation of the womb; a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ*, of Cullen. This disease is often confounded with that called the *puerperal or child-bed fever;* but it is essentially distinct from it. The inflammation of the uterus is often apt to terminate by gangrene: there is a pain in the head, with delirium; and the uterine region is so exceedingly tender, that it cannot bear the most gentle pressure without intolerable pain. When the *fundus uteri* is inflamed, there is great heat, throbbing, and pain, above the pubes: if its posterior part, the pain is more confined to the loins and rectum, with a tenesmus; if its anterior part, it shoots from thence towards the neck of the bladder, and is attended with frequent irritation to make water, which is voided difficultly; and if its sides or the ovaria are affected, the pains will then dart into the inside of the thighs.

Inflammations of the uterus, and indeed of the rest of the abdominal viscera, are very apt to take place in child-bed women; the reason of which seems to be the sudden change produced in the habit, and an alteration in the course of the circulating blood by the contraction of the uterus after delivery. The pressure of the gravid uterus being suddenly taken off from the aorta descendens after delivery, the resistance to the impulse of the blood passing through all the vessels derived from it, and distributed to the contiguous viscera, will be considerably lessened: it will therefore rush into those vessels with a force superior to their resistance; and by putting them violently on the stretch, may occasion pain, inflammation, and fever. This contraction of the uterus also renders its vessels impervious to the blood, which had freely passed through them for the service of the child during pregnancy; and consequently a much larger quantity will be thrown upon the contiguous parts, which will still add to their distension, and increase their tendency to inflammation.

An inflammation of the uterus generally may be expected to produce an obstruction of the lochia; but the fever seldom proves fatal, unless the inflammation be violent, and end in a gangrene. The cure is to be attempted by the general means used in other internal inflammations: indeed, the management of this disorder entirely coincides with that of the puerperal fever. See Puerperal fever.

HYVOURAKE, a large tree in America and the Brasils, reckoned by some a species of *Guaiacum.* Its bark is used as we use Brasil wood. The word *hyvourake* signifies, in the Brasilian language, a rare thing.

I

JACK-BY-THE-HEDGE. See Alliaria.

JACOBÆ'A, common rag-wort; the *senecio jacobæa*, Linn. The leaves of this plant have a roughish, bitter, sub-acrid taste, extremely nauseous. A decoction of it is said to have been of infinite service in the cure of epidemic camp dysenteries, but it is nevertheless disregarded as a medicine in the present practice.

JACOBÆUS (Oliger), a celebrated professor of physic and philosophy at Copenhagen, was born in 1651 at Arhusen in the peninsula of Jutland, where his father was bishop. He wrote many medical works, not recognised at present.

JADE-STONE, *Lapis nephriticus*, or *Jaspachates;* a genus of siliceous earths, which gives fire with steel, and is semi-transparent like flint. It does not harden in the fire, but melts in the focus of a burning-glass into a transparent green glass with some bubbles. A kind brought from the river of the Amazons in America, and called *circoncision stone*, melts more easily in the focus into a brown opaque glass, far less hard than the stone itself. The jade-stone is unctuous to the touch; whence Mr. Kirwan seems to suspect, that it contains a portion of argillaceous earth, or rather magnesia. The specific gravity is from 2,970 to 3,389; the texture granular, with a greasy look, but exceedingly hard, being superior in this respect even to quartz itself. It is infusible in the fire, nor can it be dissolved in acids without a peculiar management; though M. Saussure seems to have extracted iron from it. Sometimes it is met with of a whitish milky colour from China; but mostly of a deep or pale green from America. The common lapis nephriticus is of a grey, yellowish, or olive colour. It has its name from a fanciful supposition of its being capable of giving ease in nephritic pains, by being applied externally to the loins.

JAIL-FEVER, a very dangerous fever of the contagious kind, arising from the putrescent disposition of the blood and juices. See Typhus.

JALAP. See Jalapium.

JALA'PIUM, (from *Chalapa* or *Xalapa* in New Spain, whence it is brought), also called *Mechoacanna nigra*, jalap. The plant from which this root is obtained is the *Convolvulus jalapa; caule volubili: foliis* *ovatis subcordatis obtusis obsolete repandis subtus villosis; pedunculis unifloris.* Hort. Kew. Class, *Pentandria.* Order, *Monogynia.* This root is brought to us in thin transverse slices from Xalapa, a province of New Spain. Such pieces should be chosen as are most compact, hard, weighty, dark-coloured, and abound most with black circular striæ. Slices of bryony root are said to be sometimes mixed with those of jalap: these may be easily distinguished by their whiter colour and less compact texture. This root has no smell, and very little taste upon the tongue: but, when swallowed, it affects the throat with a sense of heat, and occasions a plentiful discharge of saliva. Jalap in substance, taken in a dose of about half a drachm (less or more, according to the circumstances of the patient), proves an effectual, and in general a safe purgative, though it sometimes occasions nausea and gripes, like other drastics. An extract made by water purges almost universally, but weakly; and at the same time has a considerable effect by urine. The root remaining after this process gripes violently, because the pure resinous part only is left. On the like principle, the pure resin, prepared with spirit of wine, occasions most violent gripings, and other dangerous symptoms. Triturated with sugar, or with almonds, into the form of an emulsion, or dissolved in spirit, and mixed with syrups, it purges plentifully in a small dose, without occasioning much disorder: the part of the jalap remaining after the separation of the resin, yields to water an extract, which has no effect as a cathartic, but operates powerfully by urine. Nothing more effectually corrects the operation of jalap, when given in powder, than joining it with cream of tartar.

The officinal preparations of this root are:—*Tinct. Jallap.* Edin. Lond. Dubl. *Extract. Jallap.* Edin. Lon. Dubl. *Pulv. Jallap. comp.* Edin. *Tinct. Sennæ. comp.* Edin.

JALA′PPA ALBA. See MECHOACANNA.

JAMAICA BARK. See CHINCHINI CARIBÆA.

JAMAICA PEPPER. See PIMENTO.

JAMES'S POWDER, a medicine prepared by Dr. James, of which the basis has been long known to chemists, though the particular receipt for making it lay long concealed, till made public, in his *Medical and Pharmaceutical Chemistry*, by Dr. Monro. The following is a copy of the receipt, extracted from the Records of Chancery; the inventor, when he took out a patent for selling his powder, having sworn, in the most solemn manner, that it was the true and genuine receipt for preparing it:

> "Take antimony, calcine it with a continued protracted heat, in a flat, unglazed earthen vessel, adding to it, from time to time, a sufficient quantity of any animal oil and salt, well dephlegmated; then boil it in melted nitre for a considerable time, and separate the powder from the nitre, by dissolving it in water."

This extract Dr. Monro accompanies with the following observations. "When the Doctor first administered his powder, he used to join one grain of the following mercurial preparation to thirty grains of his antimonial powder; but in the latter part of his life he often declared, that he had long laid aside the addition of the mercurial. His mercurial, which he called a pill, appears by the records of chancery, to have been made in the following manner: 'Purify quicksilver, by distilling it nine times from an amalgam, made with martial regulus of antimony, and a proportional quantity of sal ammoniac; dissolve this purified quicksilver in spirit of nitre, evaporate to dryness, calcine the powder till it becomes of a gold colour; burn spirits of wine upon it, and keep it for use.' Dr. James, at the end of the receipt given into chancery, says, 'The dose of these medicines is uncertain; but in general thirty grains of the antimonial and one grain of the mercurial is a moderate dose. Signed and sworn to by *Robert James*."

There is the greatest reason to believe, however, that the medicine sold subsequent to the recording of this receipt in chancery, was not made conformable to it. From an analysis made by Dr. Higgins, the London College have introduced into the late editions of their Pharmacopœia, an imitation of Dr. James's powder under the title of *pulvis antimonialis.*

"It has been called Dr. James's *Fever Powder*" continues Dr. Monro, "and many have believed it to be a certain remedy for fevers, and that Dr. James had cured most of the patients whom he attended, and who recovered by the use of this powder. But the bark, and not the antimonial powder, was the remedy which Dr. James almost always trusted to for the cure of fevers. He gave his powders only to clear the stomach and bowels; and after he had effected that, he poured in the bark as freely as the patient could swallow it. The Doctor believed all fevers to be more or less of the intermitting kind; and that if there was a possibility of curing a fever, the bark was the remedy to effectuate the cure: for if the fever did not yield to that, he was sure that it would yield to no other remedy whatever, as he has more than once declared to me when attending patients in fevers along with him."

JAPAN EARTH. See CATECHU.

JAPO′NICA TERRA. See CATECHU.

JARGON, the earth called *terra circona*, or *terra zirconia.* It is a primitive earth lately discovered in the precious stone called jargon, or hyacinth of the island of Ceylon. When calcined it has a white colour, is exceedingly heavy, and rough to the touch, but it has no taste, and is insoluble in watery menstrua.

JA′SMINUM, (*ιαςμινον*; from *jasmen*, Arab. or from *ιον*, *a violet*, and *ιϛαϛωη*, *odour*, on account of the fine odour of the flowers), the jessamine. The flowers of this beautiful plant, the *jasminum officinale* of Linnæus, have a very fragrant smell, and a bitter taste. They afford, by distillation, an essential oil, which is directed, by physicians on the continent, as a topical stimulant in the rheumatism, and in paralytic affections of the limbs.

JA′SMINUM OFFICINALE; the systematic name of the jessamine-tree. See JASMINUM.

JASPACHA'TES. See Jade-stone.

JASPER, a genus of stones belonging to the siliceous class. According to Cronstedt, all the opaque flints are called by this name whose texture resembles dry clay, and which cannot be any other way distinguished from flints, except that they are more easily melted; which perhaps may also proceed from a mixture of iron. Constedt observes that jasper, when fresh broken, so nearly resembles a bole of the same colour, that it can only be distinguished by its hardness. In the province of Darlarne in Sweden, it is found in a kind of hard sand-stone. In other places it is found within such unctuous clefts as are usually met with in Cornish clay, red chalk, and other substances of that kind.

JA'TROPHA, the cassada plant; a genus of the Class *monœcia*, and Order *monadelphia*, of Linnæus; and in the natural method ranking under the 38th order, *Tricocca*. There are nine *species*, of which the most remarkable are, 1. The *curcas*, or English physic-nut, with leaves cordate and angular, a knotty shrub growing about ten or twelve feet high. The extremities of the branches are covered with leaves; and the flowers, which are of a green herbaceous kind, are set on in an umbel fashion round the extremities of the branches, but especially the main stalks. These are succeeded by as many nuts, whose outward tegument is green and husky, which being peeled off discovers the nut, whose shell is black, and easily cracked: this contains an almond-like kernel, divided into two parts, between which separation lie two milk-white thin membranaceous leaves, easily separable from each other. These have not merely a bare resemblance of perfect leaves, but have, in particular, every part, the stalk, the middle rib, and transverse ones, as visible as in any leaf whatsoever. 2. The *gossypifolia*, cotton-leaved jatropha or belly-ach bush, the leaves of which are quinquepartite, with lobes ovate and entire, and glandular branchy bristles. The stem, which is covered with a light greyish bark, grows to about three or four feet high, soon dividing into several wide extended branches. 3. The *multifida*, or French physic-nut, with leaves many-parted and polished, and stipules bristly and multifid, grows to be ten feet high. 4. The *manihot*, or bitter cassada, has palmated leaves: the lobes lanceolate, very entire and polished. 5. The *janipha*, or sweet cassada, has palmated leaves, with lobes very entire; the intermediate leaves lobed with a sinus on both sides. 6. The *elastica*, with ternate leaves, elliptic, very entire, hoary underneath, and longly petioled.

The first species is a native of the West-Indies. A decoction of the *leaves* of that, and of the second species (which grows wild), Dr. Wright informs us, is often used with advantage in spasmodic colics attended with vomiting: it sits easier on the stomach than any thing else, and seldom fails to bring about a discharge by stool. The third species, a native of the same countries, is cultivated there as an ornamental shrub. The *seeds* of all the three are drastic purgatives and emetics; and they yield, by decoction, an oil of the same uses and virtues as the oleum ricini. See Ricinus. The fourth and fifth species, the *janipha* and *manihot*, are natives of Africa and the West Indies, where they are cultivated as articles of food. It is difficult, Dr. Wright says, to distinguish the bitter from the sweet cassada by the roots: but it will be best to avoid those of the cassada that bears flowers, as it is the bitter, which is poisonous when raw. See Cassada.

JA'TROPHA CURCAS; the systematic name of a plant whose seeds resemble the castor-oil nut. See Ricinus major.

I'BERIS, (*ιϐερις*, or *ιϐηϱις*; so named from Iberia, the place of its natural growth), or *Cardimantica;* sciatica cresses; the *Lepidium iberis*, Linn. This plant possesses a warm penetrating pungent taste like that of the common cresses, and is recommended as an antiscorbutic, antiseptic, and stomachic, but it is not known in modern practice.

ICE, *glacies;* water made solid by the abstraction of its heat. It is frequently applied by surgeons to stop hemorrhages, or to resolve external inflammations, as in the case of burns, &c. It is applied, however, to a much more important purpose in cases of strangulated hernia, where a persevering application and renewal of it, has often had the happy effect of occasioning a return of the intestine.

I'CHOR, (of the Gr. *ιχωϱ*), a name for a thin, aqueous, and acrid discharge, which irritates the parts. An ichorous pus, proceeding from an ulcer, indicates an unhealthy action in it.

ICHTHYOCO'LLA, (*ιχθυοκολλα*; from *ιχθυς*, *a fish*, and *κολλα*, *glue)*, also called *Colla piscium;* isinglass, or fish-glue, a gelatinous substance, prepared by rolling up the air-bladders of the *accipenser strurio* of Linnæus, and several other fishes, and drying them in the air, after they have been twisted into the form of a short cord, as we receive it. It affords a viscid jelly by solution in water, in which state it is very nutritious for weakly persons. It is used as an emollient in disorders of the throat, intestines, &c. and surgeons employ cylinders formed of this substance to procure a union of the two extremities of a divided intestine; these being drawn over the tube, and connected by a suture, whilst a free passage is thus allowed for the fæces.

ICHTHYO'SIS, (*ιχθυωσις*: from *ιχθυα*, *the scale of a fish*, from its resemblance), a genus of disease in the second order of Dr. Willan's cutaneous diseases. The characteristic of ichthyosis is a permanently harsh, dry, scaly, and in some cases, almost horny texture of the integuments of the body, unconnected with internal disorder. *Psoriasis* and *Lepra* differ from this affection, in being but partially diffused, and in having deciduous scales. The arrangement and distribution of the scales, in ichthyosis, are peculiar. Above and below the olecranon, on the arm, Dr. Willan says, and in a similar situation with respect to the patella, on the thigh and leg, they are small, rounded, prominent, or papillary, and of a black colour; some of the scaly papillæ have a short narrow neck, and broad irregular tops. On some part of the extremities, and on the trunk of the body, the scales are flat and large, often placed like tiling, or in the same order as scales on the back of a fish ; but in a few cases they have appeared separate, being intersected by whitish furrows. There is usually in this disease a dryness and roughness of the soles of the feet ; sometimes a thickened and brittle state of the skin in the palms of the hands, with large painful fissures, and on the face an appearance of scurf rather than of scales. The inner part of the wrists, the hams, the inside of the elbow, the furrow along the spine, the inner and upper part of the thigh, are perhaps the only portions of the skin always exempt from the scaliness. Patients affected with ichthyosis are occasionally much harrassed with inflamed pustules, or with large painful boils on different parts of the body. It is also remarkable, that they never seem to have the least perspiration or moisture of the skin. This disease did not, in any case known to Dr. Willan, appear to have been transmitted hereditarily ; nor was more than one child from the same parents affected with it. In several instances it was said to have been connate, and in others to have occurred two or three months after birth. Buffon asserts, that the inhabitants of Paraguay are remarkably subject to ichthyosis. Dr. Willan never met with an instance of the horny rigidity of the integuments, *Ichthyosis cornea*, impending the motion of the muscles or joints. It is, however, mentioned by authors as affecting the lips, prepuce, toes, fingers, &c. and sometimes is extended over nearly the whole body. Two cases of this are related in the Phil. Trans. Vol. LXVIII. No. 176.

ICOSA'NDRIA, (from *εικοσι*, *twenty*, and *ανηϱ*, *a man* or *husband)* ; the name of the 12th class in Linnæus's sexual method, consisting of plants with hermaphrodite flowers, which are furnished with 20 or more stamina, that are inserted into the inner side of the calyx or petals. See BOTANY.

I'CTERUS, (*ικτεϱος*, named from its likeness to the plumage of the golden thrush, of which Pliny relates, that if a jaundiced person looks on one, the bird dies, and the patient recovers), the jaundice ; a genus of disease in the class *cachexiæ*, and order *impetigines*, of Cullen. The species described are : 1. *Icterus calculosus*, an acute pain in the epigastric region, increasing after eating ; in this gall-stones pass by stool. 2. *Icterus spasmodicus*, jaundice without pain, after spasmodic diseases and passions of the mind. 3. *Icterus mucosus*, without either pain, gall-stones, or spasm, and relieved by the discharge of tough phlegm by stool. 4. *Icterus hepaticus*, from an induration of the liver. 5. *Icterus gravidarum*, from pregnancy ; disappearing after delivery. 6. *Icterus infantum*, the jaundice of infants. We shall here speak of it generally.

The jaundice first shows itself by a listlessness and want of appetite, the patient becoming dull, oppressed, and generally costive. These symptoms shall continue but a very short time, when a yellow colour begins to diffuse itself over the *tunica albuginea*, or white part of the eye, and the nails of the fingers ; the urine becomes high-coloured, with a yellowish sediment, capable of giving a yellow tinct to linen ; the stools are whitish or grey. In some there is a most violent pain in the epigastric region, which is considerably increased after meals. Sometimes the patient has a continual propensity to sleep ; but in others there is too great watchfulness ; and sometimes the pain is so great, that though the patient be sleepy, he cannot compose himself to rest. As the disease increases, the yellow colour becomes more and more deep ; an itching is felt all over the skin ; and even the internal membranes of the viscera, the bones, and the brain itself, become tinged, as has been shown from dissections, where the bones have been found tinged sometimes for years after the jaundice has been cured.

In like manner, all the secretions are affected with the yellow colour of the bile, which, in this disease, is diffused throughout the whole mass of fluids. The saliva becomes yellowish and bitter ; the urine excessively high-coloured, in such a manner as to appear almost black ; nay, the blood itself is sometimes said to appear of a yellow colour when drawn from a vein ; yet, Dr. Heberden says, that he never saw the milk altered in its colour, even in cases of very deep jaundice. In process of time, the blood begins to acquire a tendency to dissolution and putrefaction ; which is known by the patient's colour changing from a deep yellow to a black or dark yellow. Hemorrhages ensue from various parts of the body, and the patients frequently die of an apoplexy ; though in some the disease degenerates into an incurable dropsy ; and there have not been wanting instances of some who have died of the dropsy, after the jaundice itself had been totally removed.

As the jaundice consists in a diffusion of the bile throughout the whole system, it thence follows, that, whatever may favour this diffusion, is also to be reckoned among the causes of jaundice. Many disputes have arisen concerning the manner in which the bile is resorbed into the blood : but it is now generally agreed that it is taken up by the lymphatics of the gall-bladder and biliary ducts. Hence, a jaundice may arise from any thing obstructing the passage of the bile into the duodenum, or from any thing which alters the state of the lymphatics, in such a manner as to make them capable of absorbing the bile in its natural state. Hence the jaundice may arise from scirrhi of the liver or other viscera, pressing upon the biliary ducts, and obstructing the passage of the bile ; from flatus distending the duodenum, and shutting up the entrance of the ductus communis choledochus into it ; from the same orifice being plugged up by viscid bile, or other sordes ; but by far the most frequent cause of jaundice is the formation of calculi, or more properly, of biliary concretions : for although they were long considered as being of a calcareous nature, yet more accurate experiments have now demonstrated, that they consist principally of a sebaceous matter ; accordingly, while they are so light as to swim in water, they are also highly inflammable. These calculi are of almost all sizes, from that of a small pea to that of a walnut, or bigger : they are of different colours ; and sometimes appear as if formed in the inward part by crystallization, but of lamellæ on the outer part ; though sometimes the outward part is covered with rough and shining crystals, while the inward part is lamellated. These enter into the biliary ducts, and obstruct them, causing a jaundice, with violent pain for some time; and which can be cured by no means, till the concretion is either passed entirely through the ductus communis, or returned into the gall-bladder. Sometimes, in the opinion of many celebrated physicians, the jaundice is occasioned by spasmodic constrictions of the biliary ducts; but this is denied by others, and it is not yet ascertained, whether these ducts are capable of being affected by spasm or not, as the existence of muscular fibres in them has not with certainty been discovered. It cannot, however, be denied, that violent fits of passion have often produced jaundice, sometimes temporary, but frequently permanent. This has been by some deemed a sufficient proof of the spasmodic contraction of the ducts; but their opponents suppose, that the agitation occasioned by the passion, might push forward some biliary concretion into a narrow part of the duct, by which means a jaundice would certainly be produced, till the concretion was either driven backward, or forward, into the duodenum altogether. But even supposing the ducts themselves to be incapable of spasm, yet there can be no doubt that by a spasm of the intestines, biliary concretions may be retained in the ducts; and indeed it is principally where the duct entering obliquely into the intestine, forms, as it were, a species of valve, that these concretions are retained.

In a very relaxed state of the body there is also an absorption of the bile, as in the yellow fever; and indeed in all putrid disorders there is a kind of yellowish tinct over the skin, though much less than in the true jaundice. The reason of this is, that in these disorders there is usually an increased secretion of bile, commonly of a thinner consistence than in a healthy state, while the orifices of the lymphatics are probably enlarged, and thus ready to absorb a fluid somewhat thicker than what they ought to take up in a healthy state; but these disorders are of short duration, in comparison with the real jaundice, which sometimes lasts for many years. These affections, however, cannot with propriety, in any case, be considered as real instances of jaundice; for, to constitute that disease, bile must not only be present in the blood, but wanting in the alimentary canal.

It is observable, that women are more subject to jaundice than men, which probably arises from their more sedentary life; for this, together with some of the depressing passions of the mind, are found to promote the accession of the disease, if not absolutely to produce it. Pregnant women are also frequently attacked by the jaundice, which goes off after their delivery.

As jaundice may arise from many different causes, some of which cannot be discovered during the patient's life, the prognosis must, on this account, be very uncertain. The only cases which admit of a cure, are those depending upon biliary concretions, or obstructions of the biliary ducts by viscid bile; for the concretions are seldom of such a size that the ducts will not let them pass through, though frequently not without extreme pain. Indeed this pain, though so violent, and almost intolerable to the sick person, affords the best prognosis; as the physician may readily assure his patient that there is a great hope of his being relieved from it. The coming on of a gentle diarrhœa, attended with bilious stools, together with the cessation of pain, are signs of the disease being cured. We are not, however, always to conclude, because the disease is not attended with acute pain, that it is therefore incurable; for frequently the passage of a concretion through the biliary ducts is accompanied only with a sensation of slight uneasiness.

The great object to be aimed at in the cure of jaundice is, unquestionably, the removal of the cause which obstructs the passage of bile into the intestine: but, before this can be accomplished, remedies are often necessary for alleviating urgent symptoms; which may be done, sometimes by supplying the want of bile in the alimentary canal, sometimes by affording an exit for bilious matter from the general mass of blood, but most frequently by obviating the effects of distention and obstruction to the circulation in the system of the liver.

The measures to be employed for the removal of the obstruction must depend very much on the nature of the obstructing cause. When the jaundice arises from indurated swellings or scirrhi of the viscera, it is absolutely incurable; nevertheless, as these cannot always be discovered, the physician ought to proceed in every case of jaundice as if it arose from calculi.

The indications here are, 1. To dissolve the concretions; and, 2. To prevent their formation a second time. But unhappily the medical art has not yet afforded a solvent for biliary concretions. They cannot even be dissolved, when tried out of the body, either by acids or alkalies, or any thing but a mixture of oil of turpentine and spirit of wine; and these substances are by far too irritating to be given in sufficient quantity to affect a concretion in the biliary ducts. Boerhaave observes, that diseases of the liver are much more difficult to cure than those in any other part of the body; because of the difficulty there is in getting at the part affected, and the tedious and round-about passage the blood has to it. See HEPATITIS. Glisson observes, that black cattle are subject to biliary concretions, when fed with hay or dried straw in winter, but are cured by succulent grass in the spring; and Van Swieten tells us a strange story of a man who cured himself of the jaundice, by living almost entirely on grass, of which he devoured such quantities, that the farmers were wont to drive him out of their fields; but other practitioners have by no means found this in any degree effectual. The only method of cure now attempted in the jaundice, is to expel the concretion into the intestines; for which vomits and exercise are principally employed. The former are justly reckoned the most efficacious medicines, as they powerfully shake all the abdominal and thoracic viscera; and thus tend to dislodge any obstructing matter that may be contained in them. But if there be a tendency to inflammation, vomits must not be exhibited till bleeding has been premised. We must also proceed with caution, if the pain be very sharp; for, in all cases where the disease is attended with violent pain, it will be necessary to allay it by opiates before the exhibition of an emetic. There is also danger, that, by a continued use of vomits, a concretion which is too large to pass, may be so impacted in the ducts, that it cannot even be returned into the gall-bladder, which would otherwise have happened. In all cases, therefore, if no relief follows the exhibition of the second or third emetic, it will be prudent to forbear their further use for some time.

Of all kinds of exercise, that of riding on horseback is most to be depended upon in this disease. It operates in the same manner with vomits, namely, by the concussion it gives to the viscera; and, therefore, the cautions necessary to be observed in the use of vomits are also necessary to be observed in the use of riding. Cathartics also may be of service, by cleansing the *primæ viæ*, and soliciting a discharge of the bile into the intestines; but they must not be of too dastric a nature, else they may produce incurable obstructions, by bringing forward concretions that are too large to pass. Anodynes, and the warm bath, are serviceable by their relaxing quality, and there can be no doubt that, from acting as powerful antispasmodics, they often give an opportunity for the discharge of concretions by very slight causes, when they would otherwise be firmly retained. Soap has been supposed to do service as a solvent; but some think this is a mistake, and that it acts in no other way than as a relaxant, or as a gentle purgative.

When all means of relief fail, as in cases of scirrhus, we can then only attempt to palliate the symptoms, and preserve the patient's life as long as possible. This is best accomplished by diuretics; for thus a great quantity of bilious matter is evacuated, and the system is freed from the bad consequences which ensue on its stagnation in the habit. But even this is by no means equal to the common evacuation by stool; nor can all the attempts to supply the want of bile in the intestines, by bitters and other stomachics, restore the patient to his wonted appetite and vigour. If the pain be very violent we must have recourse to opiates; or, if the blood has acquired a tendency to dissolution, it must be counteracted by proper antiseptics.

If the disease goes off, its return must be prevented by a course of tonic medicines, particularly the Peruvian bark and antiseptics: but we can by no means be certain that the jaundice will not return, and that at any interval; for there may be a number of concretions in the gall-bladder, and though one has passed, another may very quickly follow, and produce a new fit of jaundice; and thus some people have continued to be affected with the disease, at short intervals, during life.

In the East Indies, mercury has been much recommended as exceedingly efficacious in disorders of the liver, especially those which follow intermitting and remitting fevers. Dr. Monro, in his Observations on the Means of Preserving the Health of Soldiers, acquaints us, that he has seen some icteric cases which he thought received benefit from taking a few grains of *calomel* at night, and a purge next morning; and this repeated two or three times a week.

Infants are subject to a temporary jaundice, commonly called the *gum*, soon after birth, the cause of which is not well understood. It differs remarkably from the common jaundice; as, in the latter, the disease is first discoverable in the white of the eyes; but though the skin of infants in the gum is all over yellow, their eyes always remain clear. The disorder goes off spontaneously, or by the use of a gentle purgative or two. In common cases, the exhibition of *raw eggs* as food, is an easy cure.

I'CTUS, (from *ico*, to strike); a stroke or blow. It signifies also the beating of an artery, when the finger is applied to examine the state of the pulse.

I'CTUS SOLA'RIS, a stroke of the sun; also called *insolatio*, and by the French, *coup de soleil*. This name is given to fevers that arise from too violent an influence of the sun's heat, particularly on the head. A long exposure of the head to a hot sun has often produced an inflammation of the brain, that was speedily fatal. The symptoms are those described under Phrenitis. In hot countries, persons not accustomed to labour in the sun, are sometimes struck by its heat, whilst on journeys, &c. and die on the spot; others fall into a comatous state, and die in a few hours, with symptoms of high delirium. If the party escape with his life, he is frequently attacked afterwards with violent head-achs, which in some instances affect the eyes. In others, mania takes place, gutta serena, &c.

IDIOPATHIC (ιδεοπαθικος, from ιδιος, *peculiar*, and παθος, *an affection)*; an epithet applied to a disease which does not depend on any other disease. In this respect it is opposed to a symptomatic disease, which is dependant on another.

IDIOSY'NCRASY, (of the Gr. ιδιοσυνκρασια, from ιδιος, *peculiar*, συν, *with*, and κρασις, *a temperament)*; a singularity or peculiarity of constitution, in which a person is affected by certain stimuli, which, if applied to a hundred other persons, would produce no such effect. For instance, some people cannot see a finger bleed without fainting; violent inflammation is induced on the skin of some persons, by substances that are perfectly innocent to others; and the stomach is disordered by particular meats, which are wholesome in almost every other known instance.

JECORA'RI, (from *jecur*, the liver); a plant so named from its supposed efficacy in diseases of the liver. See Hepatica terrestris.

JEJU'NUM, (from *jejunus*, empty); the second portion of the small intestines, so called because it is mostly found empty. The jejunum begins at the last incurvation of the duodenum, and is there connected to the beginning of the mesocolon. From thence it bends downward from left to right, and obliquely forward, or from the vertebræ, and makes several convolutions, which lie chiefly in the upper part of the umbilical region. Through all this course it is connected to the mesentery, in a manner to be explained under that article.

It is a difficult matter to fix the exact bounds between this intestine and the ileum. The external marks of a redder colour in the one than in the other, though generally common, are not constant; and the internal marks fixed from the plurality of valvulæ conniventes are indeterminate, and oftentimes appear only from dissection. These two intestines may be better distinguished by their different situations, which are very regular; but, as even this mark is not particular enough, the most easy way that Dr. Monro was able to contrive, which will, in most cases, be found sufficiently exact, is to divide both intestines into five parts, and to allow nearly two-fifths to the jejunum, and three-fifths and a little more to the ileum.

The coats of the jejunum are nearly of the same structure with those of the duodenum, but thinner. The common coat is a continuation of the mesentery; and the cellular substance is in less quantity than in the duodenum, and indeed seems to be altogether wanting along the great curvature of the convolutions, where the longitudinal fibres of the muscular coat adhere very closely to the external membrane. This muscular coat is not so strong as that of the duodenum. The longitudinal plane of fibres is very thin, and almost imperceptible, except along the great curvature, opposite to the connection of the mesentery, where we see, through the membranous coat, a kind of whitish ligamentary band, about the third part of an inch in breadth, which is continued along the great curvature of all the convolutions of this intestine, and of the ileum. This ligamentary band is like those which we observe on the sides of the small extremity of the stomach. It adheres perfectly to the membranous coat, and to the longitudinal fibres of the muscular, which are here more visible, and appear stronger than in any other place.

The valvulæ conniventes in the jejunum are very broad, very numerous, and lie very near each other. On the side of the great curvature, their circumference is continuous and uniform; but next the small curvature, there are several breaks in them. Some go quite round, others only some part of the way; while some very small ones go obliquely between two large ones, forming a kind of communication.

The papillæ of the tunica villosa are here more raised, more loose and floating, than in the duodenum; and each of them seems to be divided into several others, by incissures of a very singular kind. In other respects they agree pretty much with the intestines in general. The lacunæ of the jejunum are of the same structure with the duodenal; but they are disposed in a different manner. They are partly single, at different distances from each other; and partly in several clusters, like flat oblong bunches of grapes, called *plexus glandulosi Peyeri.* These are in the largest quantity near the great curvature, and they cross through several valvulæ conniventes at once. The vessels, nerves, &c. are spoken of under the article Mesentery.

JELLY, or *Gelatine*, a name given by modern chemists to certain mucilaginous substances that are very soluble in water, and not at all in spirits of wine; obtained from all the soft and white parts of animals, such as the membranes, tendons, aponeuroses, cartilages, ligaments, and skin, by boiling them in water. If the decoction or jelly be strongly evaporated, it affords a dry, brittle, transparent substance, known in common by the name of glue.

JELLY, a vegetable solution, of a tremulous consistence; easily soluble in hot but difficultly so in cold water. When strongly boiled for some time it loses the property of gelatinizing; and hence the reason why, in making jellies, if the quantity of sugar is not double that of the juice, it requires so long boiling to evaporate the superfluous water, and the jelly loses its gelatinizing property, or if it does gelatinize, it soon spoils. It has a pleasant sub-acid taste, and is always coloured by the fruit from which it is obtained. When dried, it becomes transparent like glue. It is obtained by pressing out the juice of ripe fruits, allowing it to repose, and boiling it up and straining it through flannel. The juices of blackberries, currants, gooseberries, &c. combined with sugar and gelatinized, is well known in our kitchens; as is their use as a means of assuaging thirst in fevers, &c. and as a remedy for the sore-throat.

JELLY, OAT, a culinary preparation of common oats, recommended by many of the German physicians in hectic disorders, to be taken with broth of snails or cray-fish. It is made by boiling a large quantity of oats, with the husk taken off, with some hartshorn-shavings and currants, together with a leg of veal cut to pieces, and with the bones all broken: these are to be set over the fire with a large quantity of water, till the whole is reduced to a sort of jelly; which when strained and cold will be very firm and hard. A few spoonfuls of this are taken every morning, diluted with a bason of either of the abovementioned broths, or any other warm liquor.

JESSAMINE. See Jasminum.

JERUSALEM COWSLIPS. See Pulmonaria maculata.

JERUSALEM OAK. See Botrys vulgaris.

JERUSALEM SAGE. See Pulmonaria maculata.

JESUITICUS CORTEX. See Cinchona.

JESUITS' BARK. See Cinchona

JET, a black inflammable substance of the bituminous kind, harder than asphaltum, and susceptible of a good polish. It becomes electrical by rubbing, attracting light bodies like yellow amber. It swims on water, so that its specific gravity must be less than 1000; notwithstanding which it has been frequently confounded with the *lapis obsidianus*, the specific gravity of which, according to Kirwan, is no less than 1744. It also resembles cannel-coal extremely in its hardness, receiving a polish, not soiling the fingers, &c. so that it has also been confounded with this. The distinction, however, is easily made betwixt the two; for cannel-coal wants the electrical properties of jet, and is likewise so heavy as to sink in water; its specific gravity being no less than 1273; whereas that of jet, as has already been said, is less than 1000; M. Magellan is of opinion that jet is a true amber, differing from the yellow kind only in the mere circumstance of colour, and being lighter on account of the greater quantity of bituminous matter which enters into its composition. When burning, it emits a bituminous smell. It is never found in strata or continued masses like fossil stones; but always in separate and unconnected heaps like the true amber. Great quantities of it have been dug up in the Pyrenean mountains: alſo near *Batalha*, a small town of Portugal; and in Galicia in Spain. It is found also in Ireland, Sweden, Prussia, Germany, and Italy.

JEW'S-PITCH. See Bitumen judaicum.

IGNA′TIA AMA′RA; the systematic name of the plant which affords St. Ignatius's bean. See Faba indica.

IGNA′TII FABA. See Faba indica.

IGNATIUS'S BEAN. See Faba indica.

I′KAN; the name of a somewhat oval, oblong, compressed root, brought from China. It is extremely rare, and would appear to be the root of the orchis tribe; but it is little known amongst us.

I′LEUM, (ειλεον; from ειλεω, *to roll about*, from its many convolutions); the last portion of the small intestines. The convolutions of this intestine surround those of the jejunum on the two lateral and lower sides, and it passes in a winding course from the left side, by the hypogastrium, to the right side, where it terminates a little below the right kidney, joining the intestina crassa, in the manner that we shall relate hereafter. The lateral convolutions are supported by the ossa ilium, so called, not from this intestine, but from the region of the abdomen termed *ilia.*

The structure of the ileum is much the same with that of the jejunum; only the internal duplicatures, or valvulæ conniventes, decrease gradually both in number and size. Near the extremity of the ileum their direction is changed; and, instead of being transverse or circular, they become longitudinal, and terminate in a kind of pylorus, which advances into the cavity of the great intestines, as we shall see under the article Cœcum.

We observe likewise in this intestine, as in the jejunum, single or solitary glands or lacunæ, and also reticular glands, or glands in clusters; the last of which, at the extremity of this intestine, are often of a large extent: but the greatest part of these glands appear to be flatter here than in the jejunum. The cellular substance of the external coat is in less quantity than in the foregoing intestines; and the ileum appears commonly more pale, or not so red as the jejunum.

Sometimes, though rarely, we meet with processes sent off from the jejunum or ileum, and of the same structure with these intestines. Their form, being similar to that of the finger of a glove, appears to have given them the name of *appendices digitales.* They are mentioned by different anatomists, and have sometimes been found to form true herniæ. The blood-vessels, nerves, &c. are spoken of under the article Mesentery.

I′LEX AQUIFO′LIUM; the systematic name of the common holly. See Aquifolium.

I′LIA, (the plural of *Ile*, ειλη, Gr.); the flanks, or that part of the body in which the small intestines are inclosed.

ILIAC REGION; another name for the hypogastric region. See Hypogastrium.

ILI′ACA PA′SSIO, (ειλεις, ειλος, ειλειος, described as a kind of nervous colic, whose seat is the ilium), the iliac passion, or *volvulus*, a violent vomiting, in which, the peristaltic motion of the intestines being inverted, the fæcal portion of the food is voided by the mouth. See Colica.

ILI′ACÆ ARTERIÆ, the *iliac arteries.* These are formed by the bifurcation of the aorta, near the last lumbar vertebra. Anatomists divide them into *internal* and *external.* The *internal iliac artery*, also called the *hypogastric*, is distributed in the fœtus into six, and in the adult into five branches, which are divided about the pelvis, viz. the little iliac, the gluteal, the ischiatic, the pudical, and the obturatory; and in the fœtus the umbilical. The *external iliac* proceeds from the pelvis, through Poupart's ligament, forming the femoral artery.

ILI′ACÆ VENÆ. These are formed by the bifurcation of the vena cava, about the last vertebra of the loins. Presently after leaving the cava, they each divide into two branches; one named *iliaca externa*, or anterior; the other, *iliaca interna*, or posterior. The external is also simply named *iliaca;* the internal is called *hypogastrica.* They run the same course as the iliac arteries do.

ILI′ACUS INTE′RNUS, à thick, broad, and radiated muscle, situated in the pelvis, upon the inner surface of the ilium. It arises fleshy, from the transverse process of the last vertebra of the loins, from all the inner lip of the spine of the os ilium, from the edge of that bone between its anterior superior spinous process and the acetabulum, and from most of the hollow part of the ilium. It joins with the psoas magnus, where it begins to become tendinous; and is inserted along with it. The use of this muscle is to assist the psoas in bending the thigh, and to bring it directly forwards.

ILI′ACUS EXTE′RNUS. See Pyriformis.

I′LIUM OS, (from *ilia*, the small intestines; so named because it supports the *ileum*), the haunch bone. It is the superior portion of the os innominatum, which is a distinct bone in the fœtus. See Innominatum os.

ILLICE′BRA, (from ειλεω, *to turn*, because its leaves resemble worms), called by the different names of *Vermicularis*, *Piper murale*, and *Sedum minus;* wall-pepper, or stone-crop. This species of sedum, the *Sedum acre* of Linnæus, in its recent state, is extremely acrid. If taken largely, it acts powerfully on the primæ viæ, proving both emetic and cathartic; applied to the skin as a cataplasm, it frequently produces vesications and erosions. Boerhaave therefore imagines that its internal employment must be unsafe; but experience has discovered, that a decoction of this plant is not only safe but very effectual in scorbutic complaints. A handful of the herb is to be boiled in eight pints of milk till they are reduced to four. Of this three or four ounces are given every, or every other, morning. Macquer says, that not only ulcers simply scorbutic, but those of a scrophulous, and even cancerous tendency, have been cured by this plant.

ILLI′CIUM ANISA′TUM; the systematic name of the plant whose seeds are called the star aniseed. See Anisum stellatum.

IMBRICA′TUS, (from *imbrex*, a tile), in botany, imbricated. The leaves or scales of plants are said to be imbricated when they are disposed so as to lie one on the edge of the other, after the manner of tiles on a house. The term is applied to leaves, and their serratures in the bud: to the stem, when covered with scales; to the calyx, as in *hieracium*, *sonchus*, and other *syngenesia;* and to the spike, having flowers so close as to press over each other.

IMPERATO′RIA, (from *impero*, to overcome; so named because its leaves extend and overwhelm the lesser herbs which grow near it), or *Magistrantia*, master-wort; the *Imperatoria ostruthium* of Linnæus. Class, *Pentandria.* Order, *Monogynia.* Its roots are imported from Italy, notwithstanding it is indigenous to Britain. They have a fragrant smell, and a bitterish pungent taste. The plant was formerly thought to be of such singular efficacy, as to have caused it to be distinguished by the name of *divinum remedium.* At present it is considered merely as an aromatic, and consequently is superseded by many of that class which possess superior activity.

IMPERATO′RIA OSTRU′THIUM, the systematic name of the herb master-wort. See Imperatoria.

IMPERFECT, in botany, a term applied to such flowers, as want the petala; and therefore they are sometimes called *apetalous*, and sometimes *stamineous. Imperfect plants*, are such as are found to want their flowers or seeds.

IMPERVIOUS, (from *in*, the negative sign, *per*, *through*, and *via*, a way); such a closeness of pores, or particular configuration of parts, as will not admit another to pervade or pass through.

IMPETI′GINES, (from *impeto*, to infest); an order in the class *cachexiæ* of Cullen; who defines the *impetigines* to be those disorders, from a general bad habit, manifesting themselves principally by disfiguring the skin and other external parts of the body. The itch, &c. though affecting the skin, yet not being connected necessarily with the habit, he places in the class *locales.*

IMPETI′GO, a cutaneous affection, described by Celsus and other authors, as a disease in which several red, hard, dry, prurient spots arise in the face and neck, and sometimes all over the body, and disappear by furfuraceous or tender scales. Blancard says it is the *lepra Græcorum.*

I′MPETUS, a term which has been variously used by physical writers; but now obtains more commonly in mechanics, to express the blow or force with which one body strikes against another. Physicians speak of the *impetus* of the circulation, when the blood is urged on with extraordinary force.

IMPOSTHUME, or *Abscess*, a collection of matter or pus in any part of the body, either owing to previous inflammation in that part, or to a translation of it from some other part. See Abscess.

IMPOTENCY, or IMPOTENCE, terms more particularly used to denote an inability to coition. Impotency with respect to men, has been falsely represented to be the same as sterility in women; since failing to propagate the species, which frequently occurs, is by no means a demonstration of insufficiency for the venereal act in either sex. There are many causes of impotence; as, a natural defect in the organs of generation, which seldom admits of a cure. Accidents or diseases may also cause it; and in such cases the impotence may or may not be remedied, according as these are curable or otherwise. The most common causes, and almost the only, are, early and immoderate venery, or the practice of masturbation in youth. See Onanism. We have instances on record, of unfitness for generation in men by an impediment to the ejection of the semen in coition, from a wrong direction which the orifice at the *verumontanum* had got, whereby the seed was thrown up into the bladder. M. Petit cured one patient under such a difficulty of emission, by making an incision like to that commonly made in lithotomy.

The late Mr. John Hunter, in his Treatise on the Venereal Disease, considers impotency as depending upon two causes; the one he refers to the mind, the other to the organs concerned.

1. *As to impotency depending upon the mind*, he observes, that as the parts of generation are not necessary for the existence or support of the individual, but have a reference to something else in which the mind has a principal concern; so a complete action in those parts cannot take place without a perfect harmony of body and of mind: that is, there must be both a power of body and disposition of mind; for the mind is subject to a thousand caprices, which affect the actions of these parts.

Copulation is an act of the body, the spring of which is in the mind; but it is not volition: and according to the state of the mind, so is the act performed. To perform this act well, the body should be in health, and the mind should be perfectly confident of the powers of the body: the mind should be in a state entirely disengaged from every thing else: it should have no difficulties, no fears, no apprehensions, not even an anxiety to perform the act well; for even this anxiety is a state of mind different from what should prevail; there should not be even a fear that the mind itself may find a difficulty at the time the act should be performed. Perhaps no function of the machine depends so much on the state of the imagination as this.

The will and reasoning faculty have nothing to do with this power; they are only employed in the act, so far as voluntary parts are made use of: and if they ever interfere, which they sometimes do, it often produces another state of mind which destroys that which is proper for the performance of the act; it produces a desire, a wish, a hope, which are all only diffidence and uncertainty, and create in the mind the idea of a possibility of the want of success, which destroys the proper state of mind, or necessary confidence.

There is perhaps, as Mr. Hunter observes, no act in which a man feels himself more interested, or is more anxious to perform well; his pride being engaged in some degree, which, if within certain bounds, would produce a degree of perfection in an act depending upon the will, or an act in voluntary parts; but when it produces a state of mind contrary to that state on which the perfection of the act depends, a failure must be the consequence.

The body is not only rendered incapable of performing this act by the mind being under the above influence, but also by the mind being, though perfectly confident of its power, yet conscious of an impropriety in performing it: this, in many cases, produces a state of mind which shall take away all power. The state of a man's mind respecting his sister takes away all power. A conscientious man has been known to lose his powers on finding the woman he was going to be connected with unexpectedly a virgin.

Shedding tears arises entirely from the state of the mind, although not so much a compound action as the act in question; for none are so weak in body that they cannot shed tears: it is not so much a compound action of the mind and strength of body joined, as the other act is; yet, if we are afraid of shedding tears, or are desirous of doing it, and that anxiety is kept up through the whole of an affecting scene, we certainly shall not shed tears, or at least not so freely as would have happened from our natural feelings.

From this account of the necessity of having the mind independent respecting the act, we must see that it may very often happen that the state of mind will be such as not to allow the animal to exert its natural powers; and every failure increases the evil. We must also see, from this state of the case, that this act must be often interrupted; and the true cause of this interruption not being known, it will be laid to the charge of the body, or want of powers. As these cases do not arise from real inability, they are to be carefully distinguished from such as do; and perhaps the only way to distinguish them is, to examine into the state of mind respecting the act. So trifling often is the circumstance which shall produce this inability depending on the mind, that the very desire to please shall have that effect, as in making the woman the sole object to be gratified.

Mr. Hunter illustrates this subject, and also the method of cure, by the case of a gentleman who lost his virility through a desire to perform the act with one particular woman well; which desire produced in the mind a doubt or fear of the want of success. This being the cause of the inability of performing the act, he told him, that if he had a perfect confidence in himself in that respect, he was to go to bed to this woman, but first promise to himself that he would not have any connection with her for six nights, let his inclinations and powers be what they would. He engaged to do this, and the endeavour to keep his word soon produced such a total alteration in the state of his mind, that the power took place, and so that he had once broken the spell, the mind and powers went on together, and this inconvenience never returned any more.

2. *Impotence from a want of proper correspondence between the actions of the genital organs.*—Mr. Hunter, when considering the diseases of the urethra and bladder, had remarked, that every organ in an animal body, without exception, was made up of different parts, whose functions or actions were totally different from one another, although all tending to produce one ultimate effect. In all such organs when perfect (he observes), there is a succession of motions, one naturally arising out of the other, which in the end produces the ultimate effect; and an irregularity alone in these actions will constitute disease, at least will produce very disagreeable effects, and often totally frustrate the intention of the organ. This principle Mr. Hunter, on the present occasion, applies to the actions of the testicles and penis: for we find that an irregularity in the actions of these parts sometimes happens in men, producing impotence; and something similar, he says, may probably be one cause of barrenness in women.

In men, he divides the parts subservient to generation into two; the essential, and the accessory. The testicles are the essential; the penis, &c. the accessory. As this division arises from their uses or actions in health, which exactly correspond with one another, a want of exactness in the correspondence or susceptibility of those actions may also be divided into two: where the actions are reversed, the accessory taking place without the first or essential, as in erections of the penis where neither the mind nor the testicles are stimulated to action; and the second is where the testicles perform the action of secretion too readily for the penis, which has not a corresponding erection. The first is called *priapism;* and the second is what ought to be called *seminal weakness.*

The mind has considerable effect on the correspondence of the actions of these two parts: but it would appear in many instances, that erections of the penis depend more on the state of mind than the secretion of the semen does; for many have the secretion, but not the erection; but in such, the want of erection appears to be owing to the mind only.

Priapism often arises spontaneously; and often from visible irritation of the penis, as in the venereal gonorrhœa, especially when violent. The sensation of such erections is rather uneasy than pleasant; nor is the sensation of the glans at the time, similar to that arising from the erections of desire, but more like to the sensation of the parts immediately after coition. Such as arise spontaneously are of more serious consequence than those from inflammation, as they proceed probably from causes not curable in themselves or by any known methods. The priapism arising from inflammation of the parts, as in a gonorrhœa, is attended with nearly the same symptoms; but generally the sensation is that of pain, proceeding from the inflammation of the parts. It may be observed, that what is said of priapism is only applicable to it when a disease in itself, and not when a symptom of other diseases, which is frequently the case.

The common practice in the cure of this complaint is to order all the nervous and strengthening medicines; such as bark, valerian, musk, camphor, and also the cold bath. Mr. Hunter says, good effects have resulted from the cold bath; but sometimes it does not agree with the constitution, in which case, he found the warm bath of service. Opium appears to be a specific in many cases; from which circumstance, upon the whole, he would recommend the trial of a soothing plan.

3. *Seminal weakness*, or a secretion and emission of the semen without erections, is the reverse of a priapism, and is by much the worst disease of the two. There is great variety in the degrees of this disease, there being all the gradations from the exact correspondence of the actions of all the parts to the testicles acting alone. In every case of the disease, there is too quick a secretion and evacuation of the semen. Like to the priapism, it does not arise from desires and abilities; although when mild it is attended with both, but not in a due proportion; a very slight desire often producing the full effect. The secretion of the semen shall be so quick, that simple thought, or even toying, shall make it flow.

Dreams have produced this evacuation repeatedly in the same night: and even when the dreams have been so slight, that there has been no consciousness of them when the sleep has been broken by the act of emission. Some cases have occurred, in which the testicles have been so ready to secrete, that the least friction on the glans has produced an emission. Mr. Hunter knew an instance in which the simple action of walking or riding produced this effect, and that repeatedly in a very short space of time. This patient, a young man, tried every supposed strengthening medicine, the cold bath, and sea-bathing, but with no effect. By taking 20 drops of laudanum on going to bed, he prevented the night emissions; and by taking the same quantity in the morning, he could walk or ride without the beforementioned inconvenience. Mr. Hunter directed this to be continued for some time, although the disease did not return, that the parts might be accustomed to this healthy state of action, and the patient got well. It was, however, found necessary, as the constitution became more habituated to the opiate, to increase the dose of it.

The spasms, upon the evacuation of the semen in such cases, are extremely slight, and a repetition of them soon takes place; the first emission not preventing a second; the constitution being all the time but little affected. *When the testicles act alone*, without the accessory parts taking up the necessary and natural consequent action, it is a still more melancholy disease; for the secretion arises from no visible or sensible cause, and does not give any visible or sensible effect, but runs off similar to involuntary stools or urine. It has been observed that the semen is more fluid than natural in some of these cases.

There is great variety in the diseased actions of these parts; of which Mr. Hunter, in his Treatise on the Venereal Disease, relates some striking proofs. In many of those cases of irregularity, when the erection is not strong, it goes off without the emission: and at other times an emission may happen almost without an erection; but these arise not from debility, he thinks, but from affections of the mind.

In many of the preceding cases, Mr. Hunter says, washing the penis, scrotum, and perinæum, with cold water, is often of service; and to render it colder than we find it in some seasons of the year, common salt may be added to it, and the parts washed when the salt is almost dissolved. Cases may occur in which a cautious exhibition of cantharides (See CANTHARIDES) may be attempted; but this should not be ventured upon without a very accurate discrimination of the symptoms. In some Mr. Hunter found the cicuta of service (see CICUTA); but in all, the adaptation of powerful remedies must be accompanied with great circumspection, if we would hope for success in treating these difficult and almost impracticable cases.

IMPREGNATION. See CONCEPTION and GENERATION.

INCARNATIVES, (*incarnantia*, from *incarno*, to bring flesh upon); medicines which assist nature in filling up wounds or ulcers with flesh; or rather remove the obstructions to that process. The term is now obsolete.

INCINERATION, (from *in*, and *cinis*, ashes), in chemistry, the reduction of vegetables into ashes, by burning them gently.

INCISI′VUS INFE′RIOR. See LEVATOR LABII INFERIORIS.

INCISI′VUS LATERA′LIS. See LEVATOR LABII SUPERIORIS ALÆQUE NASI.

INCISI′VUS ME′DIUS. See DEPRESSOR LABII SUPERIORIS ALÆQUE NASI.

INCISO′RES, (from *incido*, to cut; from their use in cutting the food); the name of the four front teeth in both jaws. See TEETH.

INCONTINENCE, a term applied to such discharges of the natural secretions as are involuntary, through weakness; as when there is an involuntary discharge of urine, semen, &c. See ENURESIS.

I′NCUBUS, (from *incubo*, to lie upon); a disease in which the patient fancies that something lies upon his chest whilst asleep. See NIGHT-MARE, and ONEIRODYNIA GRAVANS.

INCURVATION; the bending of a bone, or any other body, from its natural shape. See SPINE, and MOLLITIES OSSIUM.

INDEX, (from *indico*, to point out, because it is naturally used for that purpose), the fore finger. See DIGITUS.

INDIAN CRESS. See NASTURTIUM INDICUM.

INDIAN DATE PLUM. The fruit of the *Diospyros lotus* of Linnæus. When ripe it has an agreeable taste, and is very nutritious.

INDIAN LEAF. See CASSIA LIGNEA.

INDIAN PINK. See SPIGELIA.

INDIAN RUBBER, the substance otherwise

known by the names of Elastic gum, Cayenne resin, Cautchuc; or, by the French, Caoutchouc. See Caoutchouc.

INDIAN WHEAT. See Zea mays.

INDICATION, (from *indico*, to show), in medicine, that which demonstrates what ought to be done in any case. It is threefold; preservative, which relates to what preserves health: curative, which expels a present disease; and vital, as it respects the powers and reasons of diet. The indication of cure in all diseases is to remove the proximate or immediate cause.

INDICATOR, (from *indico*, to point; so named from its office of extending the index or fore finger), also named *Extensor indicis;* the *extensor secundi internodii indicis*, *proprius vulgo indicator* of Douglas; an extensor muscle of the fore finger. This muscle is situated chiefly on the lower and posterior part of the fore arm. It arises by an acute fleshy beginning from the middle of the posterior part of the ulna, and its tendon passes under the same ligament with the extensor digitorum communis, along with part of which, it is inserted into the posterior part of the fore finger.

INDIGENOUS, (of *indigena)*, an epithet which denotes the native of a country, or that which was originally born or produced in the country where it is found. In this sense, particular species of animals and plants are said to be *indigenous* in the country where they are native, in opposition to exotic.

INDIGESTION; a crudity, or want of due concoction of food in the stomach. See Digestion and Dyspepsia.

INDURATION, (from *durus*, hard), that change in a body, by which it becomes harder or firmer than natural in its consistence. Thus a tumor is indurated either by the addition of solid particles, as in scirrhi and glandular swellings; or else by transpiring its thinner parts through the skin.

INEBRIANTS, (from *inebrio*, to make drunk), a term applied to that class of substances that affect the nerves in a particular and agreeable manner, and through them alter and disturb the functions of the mind. They are properly divided into native and artificial; the former chiefly in use among the oriental and other nations, the latter principally throughout Europe. *Natural Inebriants*, are: 1. Opium; in use all over the East, and of which the Turks, through custom, swallow largely. 2. Peganum harmala, Syrian rue. The seeds are sold in Turkey for this purpose; and with these, as Bellonius relates, the Turkish emperor Solyman kept himself intoxicated. 3. Maslac of the Turks, or bangue of the Persians; prepared from the dust of the male flower of hemp, or from the leaves. 4. Bangue of the Indians, from the leaves of the hibiscus abelmoschus. 5. Seeds of various species of the datura, or thorny apple. 6. Pinang, or betel of the Indians. 7. Roots of black henbane. 8. The hyoscyamus physaloides. 9. Berries of the deadly night-shade. 10. Leaves of millefoil, are used by the Dalecarlians to render their beer intoxicating. 11. Tobacco, and several others less material are mentioned; such as clary, saffron, and darnel. *Artificial Inebriants*, are fermented liquors from farinaceous seeds; wines, and spirits drawn by distillation.

INERTIA, in physics, a term applied to matter; and defined by Sir Isaac Newton to be a passive principle by which bodies persist in their motion or rest, receive motion in proportion to the force impressing it, and resist as much as they are resisted. It is also defined, by the same author, to be a power implanted in all matter, whereby it resists any change endeavoured to be made in its state.

INFANCY, the earliest period of human life. Fred. Hoffman says, that the human species are *infants* until they begin to talk, and *children* to the age of puberty. Anatomy discovers to us, that during infancy there is much imperfection in the human frame: its parts are disproportioned, and its organs incapable of those functions which in future life they are designed to perform. The head is larger in proportion to the bulk of the body than that of an adult. The liver and pancreas are much larger in proportion than in advanced life; their secretions are more in quantity also. The bile is very inert; the heart is stronger and larger than in future life; the quantity of blood sent through the heart of an infant, in a given time, is also more in proportion than in adults. Though these circumstances have their important usefulness, yet the imperfection attending them subjects this age to many injuries and dangers from which a more perfect state is exempted. Dr. Percival observes, in his *Essays Medical and Experimental*, that of all the children who are born alive, two thirds do not live to be two years old. Infants have a larger proportion of brain than adults, hence are most subject to spasmodic disorders; and hence the diagnostics of diseases are in many respects obscure or uncertain, as particularly those taken from the pulse, which, from the irritability of the tender bodies of infants, is suddenly affected by a variety of accidents too numerous, and seemingly too trivial, to gain our attention. However, no very great embarrassment arises to the practitioner from hence; for the disorders in this state are generally acute, less complicated than those in adults, and are more easily discovered than is generally apprehended. The physical education of infants is a matter of great importance to society.

INFECTION. See Contagion and Fumigation.

INFIBULATION, among the Romans, an operation performed on their singing boys, in order to preserve their voices. This operation, which was merely a perforation through opposite sides of the prepuce, prevented their retracting the prepuce over the glans, and is the very reverse to circumcision, kept them from injuring their voices by premature and preposterous venery; serving as a kind of padlock, if not to their inclinations, at least to their abilities. It appears by some passages in Martial, that a less decent use was made of infibulation among the luxurious Romans: for some ladies of distinction, it seems, took this method of confining their paramours to their own embraces. Celsus says, infibulation was sometimes practised for the sake of health, and that nothing destroys it more than the odious practice this operation seems calculated to prevent. Authors have not determined what the fibula of the ancient surgeon was, though no doubt it was for different purposes. In the present case, the fibula seems to mean a ring of metal, not unlike what the country people put through the noses of swine.

INFIRMARY, a place where sick persons are taken care of either for nursing or cure. See Hospital.

INFLAMMABILITY, that property, or principle, in bodies, which disposes them to kindle or catch fire. It is well known that heat and conflagration are produced in combustible bodies from adventitious causes: as in the case of hay, that has been stacked in a moist or imperfectly dry state.

INFLAMMABLE AIR, or *hydrogen*. See the article Hydrogen.

INFLAMMATIO, (from *inflammo*, to burn), or *Phlogosis*, inflammation; a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ*, of Cullen. There are two species: 1. *Phlegmone*, known by inflammation of a bright red colour; tumor pointed, throbbing, and tending to suppuration. 2. *Erythema*, which is inflammation of a dull red colour, vanishing upon pressure, spreading unequally, with a burning pain, and tumor scarcely perceptible, ending in disquamation, or vesicles of the skin. The latter having been treated of under the article Erysipelas, we shall here confine ourselves to Dr. Cullen's general account of phlegmasia.

When any part of the surface of the body is affected with unusual redness, heat, pain, and tumor, we name the disease an *inflammation* or *phlegmasia*. These symptoms of inflammation are never very considerable, without the whole system being at the same time affected with *pyrexia*. The internal parts are subject to inflammation as well as the external; and we judge them to be inflamed, when, together with pyrexia, there is a fixed pain in any internal part, attended with some interruption in the exercise of its functions. We judge of the presence of inflammation also from the state of the blood drawn from the veins. When the blood, after cooling and concreting, shows a portion of the gluten separated from the rest of the mass, and lying on the surface of the crassamentum; as such separation happens in all cases of more evident phlegmasia, so, in ambiguous cases, we from this appearance, joined with other symptoms, conclude the presence of inflammation. At the same time it must be observed, that as several circumstances in blood-letting may prevent this separation of gluten from taking place in blood otherwise disposed to it, so we cannot always conclude, from the want of such appearance, against the presence of inflammation.

The *phænomena of inflammation* all concur in showing, that there is an increased impetus of the blood in the vessels of the part affected; and as at the same time the action of the heart is not always considerably increased, Dr. Cullen supposes that the increased impetus of the blood in the particular part is owing especially to the increased action of the vessels of the part itself. The cause of this increased action is therefore to be inquired after, and is the proximate cause o inflammation. In many cases we can manifestly perceive, that inflammation arises from the application of stimulant substances to the part. When the application of stimulants therefore is evident, we seek for no other cause of inflammation; but as, in many cases, such application is neither evident, nor (with any probability) to be supposed, we must in such cases seek for some other cause of the increased impetus of the blood in the vessels of the part.

Many physicians have supposed, that an obstruction of the extreme vessels, any how produced, may prove a cause of inflammation; but many difficulties attend this doctrine.

1. The supposition of an *error loci* is not at all probable. For the motion of the blood in the extreme vessels is so weak and slow, as readily to admit a retrograde course of it: and therefore, if a particle of blood should happen to enter a vessel whose branches will not allow its passage, it will be moved backwards till it meet with a vessel fit for transmitting it: and the frequent ramifications and anastomoses of the extreme arteries are very favourable to this.

2. The supposition of a preternatural lentor or viscidity of the blood, is not well founded: for it is probable, that nature has specially provided against a state of the fluids so incompatible with the exercise of the most important functions of the animal economy. While motion continues to prevent any separation of parts, and heat continues to preserve the fluidity of the more viscid, there seems to be always so large a quantity of water present, as to give a sufficient fluidity to the whole.

3. Dr. Cullen supposes that no general lentor ever does take place; because, if it did, it must show more considerable effects than commonly appear.

4. There are no experiments directly in proof of a preternatural lentor prevailing in the mass of the blood; nor is there any evidence of certain parts of the blood occasionally acquiring a greater density and force of cohesion than ordinary; neither is there any proof of the denser or more coherent parts being present in the mass of blood in such greater proportion than usual, as to occasion a dangerous spissitude. The experiments of Dr. Browne Langrish on this subject afford no conclusion, having been made on certain parts of the blood separated from the rest; without attending to the circumstances of blood-letting, which very much alter the state of the separation and concretion of the blood drawn out of the veins.

5. In the particular case of inflammation, there are several circumstances which render it probable that the blood is then more fluid than usual.

6. Though an obstruction should be supposed to take place, it will not be sufficient for producing the effects appearing in inflammation. An obstruction of one vessel does not, as has been imagined, increase the velocity of the blood in the neighbouring vessels which are free; and in fact it appears from many observations and experiments, that considerable obstructions may be formed, and may subsist, without producing the symptoms of inflammation.

Obstruction, therefore, is not to be considered as the cause of inflammation; but, at the same time, it is probable, that some degree of obstruction does take place in every inflammation. The distention, pain, redness, and tumor, attending inflammation, are only to be explained by supposing, that the extremities of the arteries do not readily transmit the unusual quantity of blood impelled into them by the increased action in the course of those vessels. Such an obstruction may be supposed to happen in every case of an increased impetus of the blood; but it is probable, that, in the case of inflammation, there is also a preternatural resistance to the free passage of the fluids.

From the doctrine of fever we are led to believe, that an increased action of the heart and arteries is not supported for any length of time by any other means than a spasm affecting the extreme vessels: and that the same spasm takes place in inflammation, seems probable from hence, that every considerable inflammation is introduced by a cold stage, and is accompanied with that and the other circumstances of pyrexia; and it seems also probable, that something analogous to this occurs even in the case of those inflammations which seem less considerable, and to be purely topical.

From all this, the *nature of inflammation* may be explained in the following manner. Some causes of inequality in the distribution of the blood may throw an unusual quantity of it upon particular vessels, to which it must necessarily prove a stimulus. But, further, it is probable, that, to relieve the congestion, the *vis medicatrix naturæ* increases still more the action of these vessels, which it effects by the formation of a spasm on their extremities, as in all other febrile diseases. A spasm, therefore, of the extreme arteries, supporting an increased action in the course of them, may be considered as the proximate cause of inflammation, at least in all cases not arising from direct stimuli applied. That this is the case, seems probable from the consideration of rheumatism. This is a species of inflammation which is often manifestly produced, either by cold applied to over-distended vessels, or by causes of an increased impetus and over-distention in vessels previously constructed. Hence the disease especially appears at seasons liable to frequent and considerable vicissitudes of heat and cold. To this we may add, that the parts of the body most frequently affected with inflammation, are those exposed both to over-distention, from a change in the distribution of the fluids, and at the same time to the immediate action of cold. Hence quinseys and pneumonic inflammations are more frequent than any others.

That a spasm of the extreme vessels takes place in inflammation is further to be presumed from what is, at the same time, the state of the whole arterial system. In every considerable inflammation, though arising in one part only, an affection is communicated to the whole system; in consequence of which, an inflammation is readily produced in other parts besides that first affected. This general affection is well known to physicians under the name of *diathesis phlogistica*. It appears most commonly in persons of the most rigid fibre: is often manifestly induced by the tonic or astringent powers of cold; is increased by all tonic and stimulant powers applied to the body; is always attended with a hardness of the pulse; and is most effectually taken off by the relaxing powers of blood-letting. From these circumstances it seems probable, that the *diathesis phlogistica* consists in an increased tone, or contractility, and perhaps *contraction*, of the muscular fibres of the whole arterial system. Such a state of the system presumes a spasm of the extreme vessels, and the general state commonly arises from that begun in a particular part; though it be also probable, that the general state may arise and subsist for some time without the obvious inflammation of any particular parts.

If an inflammation is cured while the state and texture of the part remains entire, the disease is said to terminate by *resolution*. This happens when the previous congestion and spasm have been in a moderate degree, and the increased impetus of the blood has been sufficient to overcome the spasm, to dilate the vessels, and to remove the congestion, so that the part is restored to its ordinary and healthy state. A resolution takes place also when the increased impetus of the fluids has produced an increased exhalation into the adjoining cellular texture, or an increased excretion in some neighbouring part, and has thereby relieved the congestion in the vessels, and relaxed the spasm of the inflamed part. Lastly, a resolution may take place when the increased impetus of the blood in the whole system occasions such an evacuation as, though in a distant part, may prove sufficient to take off the phlogistic diathesis of the whole system, and thereby relieve the congestion and spasm of the particular part affected by inflammation.

The tumor which appears in inflammation may be imputed in part to the congestion of fluids in the vessels; but is owing chiefly to an effusion of matter into the adjoining cellular texture; and accordingly tumors seldom appear but in parts adjoining to a lax cellular texture. If, in this case the matter effused be only a larger quantity of the ordinary exhalent fluid, this, when the free circulation in the vessels is restored, will be readily absorbed, and the state of the part will become the same as before: but if the increased impetus of the blood in an inflamed part, dilate the exhalent vessels to such a degree that they pour out an entire serum, this will not so readily be absorbed; and, from the experiments of Sir John Pringle and Mr. Gaber we learn, that under stagnation, the serum may undergo a particular change, by having the gluten present in it changed into a white, opaque, moderately viscid, mild liquor, which we name *pus*. When this change happens in the inflamed part, as it is at the same time attended with an abatement of the redness, heat, and pain, which formerly distinguished the disease, it is said to be terminated by *suppuration;* and an inflamed part containing a collection of pus, is called an *abscess*. In inflammation, the tendency of it to suppuration may be discovered by the continuance of the inflammation, without the symptoms of resolution; by some remission of the pain of distention; and by the pain being of a throbbing kind, more distinctly connected with the pulsation of the arteries; by the pulse of the arteries being fuller and softer; and often by the patient's being afflicted frequently with cold shiverings. This happens at no determinate period; and when the tendency is determined, the time necessary to a complete suppuration is different in different cases. When pus is completely formed, the pain formerly in the part entirely ceases, and a weight is felt in it. If the collection is formed immediately under the skin, the tumor becomes pointed, the part becomes soft, and the fluctuation of the fluid within can be commonly perceived; and, at the same time, the redness of the skin, which formerly prevailed, is entirely gone.

In abscesses, while the pus is formed of one part of the matter which had been effused, the other and thinner parts are absorbed; so that in the abscess, when opened, pus alone appears. This pus, however, is not the converted gluten alone: for the conversion of this being the effect of a particular fermentation, which may affect the solid substance of the part, and perhaps every solid of animal bodies; so it most readily and particularly affects the cellular texture, and thereby a great deal of this is eroded, and forms a part of the pus; and it generally happens also, that some of the smaller red vessels are eroded, and some red blood appears mixed with the blood in abscesses. Hence we may see how an abscess, when formed, may either spread into the cellular texture of the neighbouring parts, or, by eroding the incumbent teguments, be poured out upon the surface of the body, and produce an open ulcer.

The *matter of abscesses*, and of the ulcers following them, is various, according to the nature of what is effused; and which may be: 1. A matter thinner than serum. 2. An entire and pure serum. 3. A quantity of red globules. 4. A matter furnished by particular glands seated in the part. Of these, the second only affords a proper pus, the effusion of which, whether in abscesses or ulcers, seems to be the peculiar effect of an inflammatory state of the vessels; and from this cause it is, that, when ulcers do not produce a proper pus, we in many instances bring them to a state of suppuration, by the application of stimulants exciting inflammation, such as balsams, mercury, copper, &c.

When the matter effused into the cellular texture of an inflamed part is tainted with a putrid ferment, this produces, in the effused matter, a change approaching more or less to a complete putrefaction. When this is in a moderate degree, and affects only the fluids effused, with the substance of the cellular texture, the part is said to be affected with a *gangrene;* but if the putrefaction affect also the vessels and muscles of the part, the disease is said to be a *sphacelus.*

A gangrene may arise from a putrid ferment acting on the matter which is most commonly effused, and likewise from that matter being peculiarly disposed to putrefaction; as particularly seems to be the case of the red globules of blood effused in a large quantity. In a third manner also, a gangrene seems frequently to arise from the violent excitement of the inflammation destroying the tone of the vessels; whereby the whole fluids stagnate and run into putrefaction, which taking place in any degree, destroys further the tone of the vessels, and spreads the gangrene.

A tendency to gangrene may be apprehended from an extreme violence of pain and heat in the inflamed part, and from a great degree of pyrexia attending the inflammation. The actual coming on of it, is perceived by a change of colour in the part, from a clear to a dark red; by blisters arising upon it; by its becoming soft, flaccid, and insensible; and by the ceasing of all pain while these appearances take place. As the gangrene proceeds, the colour of the part becomes livid, and, by degrees, quite black; the heat entirely ceases, the softness and flaccidity of the part increases; it loses its consistence, acquires a cadaverous smell, and may then be considered as affected with a sphacelus.

The schools of physic have commonly reckoned a fourth way in which inflammation may terminate, viz. by a *scirrhus*, or an indolent hardness of the part. This, however, according to Dr. Cullen, is a rare occurrence; and seems not to depend so much upon the nature of inflammation, as upon the circumstances of the part affected. Scirrhosity is chiefly observed in glandular parts, and is owing to the parts readily admitting a stagnation of the fluids.

Besides these, there are the following ways, not commonly taken notice of, in which inflammations terminate. One is, by the effusion of a portion of the entire mass of blood, either by means of rupture or anastomosis, into the adjoining cellular texture. This happens especially in inflammations of the lungs, where the effused matter, by compressing the vessels, and stopping the circulation, occasions a fatal suffocation; and this is perhaps the manner in which the peripneumony most commonly proves fatal. Another kind of termination is that of certain inflammations on the surface of the skin, when there is poured out under the cuticle a fluid too gross to pass through its pores; and which therefore separates it from the skin, and raises it up in the form of a vesicle, containing the effused fluid. A third way is, when the internal viscera are inflamed, there appears almost always upon their surface an exsudation, which appears partly in a viscid concretion upon their surface, and partly in a thin serous fluid, effused into the cavities in which the inflamed viscera are placed. Though these appearances very constantly accompany those inflammations which have proved fatal, it is however probable, that like circumstances may attend those inflammations terminated by resolution, and may contribute to the event, as there are instances of a pneumonic inflammation terminating in an hydro-thorax.

But whilst we thus diligently enumerate the mischievous, we must by no means pass by the salutary, effects, of inflammation. According to Mr. Hunter's account, this principle is no less useful to the animal economy in some instances, than it is formidable in others. Thus we are indebted to it for the important processes of adhesion, union by the first intention, granulation, ossification, suppuration, &c. and it is divisible into species, according to these peculiar effects. Mr. Hunter, in his Treatise on the Blood, &c. points out four, with their characteristic signs, which merit the attention of every chirurgical student. He speaks of the *adhesive*, the *œdematous*, the *cutaneous*, the *erysipelatous*, the *venereal* inflammations; as well as of the *inflammation producing carbuncle;* and his discussions on the nature of the blood, as it is concerned in the sustentation and restoration of parts (in which inflammation is often a necessary agent), is highly curious. Some portions of the latter subject will be found under the article Blood, but the ingenious author's theories concerning the former are, in general, too nice for abridgment, and much too copious for extraction in this place.

The remote causes of inflammation may be reduced to four heads. 1. The application of stimulant substances, among which are to be reckoned the action of fire, or burning. 2. External violence operating mechanically in wounding, bruising, or over-stretching the parts. 3. Extraneous substances lodged in any part of the body, though they be neither of an acrid quality, nor of a pointed form. 4. Cold, in a certain degree, not sufficient immediately to produce gangrene. We cannot perceive that in different cases of inflammation there is any difference in the state of the proximate cause, except in the degree; and though some difference of inflammation may arise from the difference of its remote causes, this is not necessary to be taken notice of here; because the different appearances which attend different inflammations may be referred, for the most part, to the difference of the part affected.

For the cure of inflammations, Dr. Cullen lays down the following indications. 1. To remove the remote causes when they are evident and continue to operate. 2. To take off the phlogistic diathesis affecting the whole system, or the particular part. 3. To take off the spasm of the particular part, by remedies applied to the whole system, or to the part itself.

The means of removing the remote causes will readily occur, from considering the particular nature and circumstances of the different kinds. Acrid matters must be removed, or their action must be prevented by the application of demulcents. Compressing and overstretching powers must be taken away; and from their several circumstances, the means of doing so will be obvious.

The means of taking off the phlogistic diathesis of the system are the same with those mentioned under the cure for Synocha. The means of taking off the spasm also from the particular part, are much the same with those already mentioned. Only it is to be remembered, that topical bleedings, such as cupping with scarifications, applying leeches, &c. are in this case much more indicated; and that some of the other remedies are to be directed more particularly to the part affected, as will be more fully considered under the heads of those diseases attended with particular inflammations.

When a tendency to suppuration is perceived, the proper indication is, to promote the production of perfect pus as much as possible. For this purpose, various remedies, supposed to possess a specific power, have been proposed: but it does not appear that any of them are possessed of a virtue of this kind; and, in Dr. Cullen's opinion, all that can be done is to favour the suppuration, by such applications as may support a moderate heat in the part, by some tenacity confine the perspiration, and by an emollient quality may weaken the cohesion of the teguments, and favour their erosion. As all abscesses are occasioned by the effusion of fluids, and as, in the case of certain effusions, a suppuration becomes not only unavoidable, but desirable, it may be supposed that most of the means of procuring a resolution, by diminishing the force of the circulation, &c. ought to be avoided. But as we observe, on the one hand, that a certain degree of increased impetus, or of the original symptoms of inflammation, is necessary to produce a proper suppuration; so it is then especially necessary to avoid those means of resolution which may diminish too much the force of the circulation. And, on the other hand, as the impetus of the blood, when violent, is found to prevent the proper suppuration; so, in such cases, though a tendency to suppuration may have begun, it may be proper to continue those means of resolution which moderate the force of the circulation. The opening of abscesses, when completely formed, is the particular business of the surgeon. See Abscess.

When an inflammation has taken a tendency to gangrene, that event is to be prevented by every possible means; and these must be different, according to the nature of the several causes. The treatment after a gangrene has taken place, is described in the articles Gangrene and Mortification. The other terminations of inflammation do not admit of any treatment, except that of obviating them by resolution; and the means of effecting this falls to be noticed under their particular heads.

INFLATION, the blowing up, stretching, or filling any part with air. Thus the lungs are *inflated* when air is drawn into them in respiration.

INFLORE'SCENCE, in botany, the manner in which flowers are fastened to the plants by their peduncles.

INFLU'ENZA, *(influenza,* Ital. so named because it was supposed to be produced by a peculiar influence of the stars); a species of catarrh. See Catarrhus. It is the *Catarrhus à contagione* of Cullen. The phenomena of contagious catarrhs have been much the same with those of the simple kind; but the disease has always been particularly remarkable for this, that it has been the most widely and generally spreading epidemic known. It has seldom appeared in any one country of Europe, without appearing successively in almost every different part of it; and, in some instances, it has been also transferred to America, and has been spread there in like manner, so far as we have had opportunities of being informed.

The catarrh from contagion appears with nearly the usual symptoms of a common cold; and seems often to take place in consequence of the application of cold. Indeed catarrh from cold and from contagion are in most respects so similar, that when this epidemic rages, it is impossible to determine, in a person having symptoms of catarrh after exposure to cold, whether the disease proceeds from the one cause or the other. In most instances, however, catarrh from contagion comes on with more cold shivering than the catarrh arising from cold alone; and the former does also not only sooner show febrile symptoms, but to a more considerable degree. Accordingly, it more speedily runs its course, which is commonly finished in a few days. It sometimes ends by a spontaneous sweat; and this, in some persons, produces a miliary eruption. It is, however, the febrile state of this disease especially that is finished in a few days; for the cough and other catarrhal symptoms do frequently continue longer, and often, when they appear to be going off, they are renewed by any fresh application of cold.

From some remarks on the influenza that appeared in the spring of the year 1782, by Dr. Hamilton, we may derive as much as will serve to illustrate the nature of this malady. The periodical medical publications give detailed accounts of this complaint in other instances; but the symptoms and treatment in all these bear a general resemblance to the disease we now speak of.

The symptoms with which this epidemic was attended, were various in different persons, according to the state of the habit. It began amongst the soldiers; and the first symptoms were a severe cough, straightness about the breast, and laborious respiration. The patients generally complained of a stoppage in the trachea; giving the sensation of a ball lodged there. A flow of thin acrid mucus from the nose, always took place, so as to excoriate the upper lip, and vellicate the Schneiderian membrane. There was sneezing, and a pain of the head, much increased by this last symptom, and most severe in the course of the frontal sinuses. A soreness over the eyes, chiefly about the eyebrows, which they described as seated in the bone. This rendered the eyes stiff, and painful to be opened; nor could they bear a strong light: a rheum also distilled from them, not unlike what we see in the measles. There were universal pains over the body; though in most cases only a slight fever, whilst in others it ran very high, with a considerable acceleration of the pulse, and faintness, but no great degree of thirst. The pain of the breast was seldom felt but on attempting to cough: then it resembled the pricking of pins; but it was seldom or never felt so low down as the cartilago ensiformis. The throat and mouth had a sense of heat; with an uncommon smarting over the fauces. In some, these and the tongue were dry, and somewhat parched, and the thirst was great. Some bled at the nose; and one had abscesses formed in both his ears, which burst, and continued to discharge for some weeks. A diarrhœa was not a common symptom; yet it occurred in several. The appetite, in many, was impaired; and a nausea, in several cases, took place. The sleep was for the most part broken and disturbed. The pulse by no means hard. Some had a hoarseness, and frequent hawking up of mucus; in others there was little or none of this. The heat, that succeeded the cold, which more or less marks every febrile paroxysm, sometimes went so far as to be followed by perspiration. In many, however, this did not happen; but the skin remained dry. The belly was seldom costive; the face sometimes swelled, and the eyes appeared sunk, as in the erysipelas. There was a weakness of the knees on motion, and a great prostration of strength in particular instances.

In the neighbourhood of Stamfordham, and that of Newcastle-upon-Tyne, the influenza was accompanied with colic pains, and cramps in the region of the abdomen and stomach; and some there also had a purging. Some had ulcers in the throat and fauces; but these were very slight, and the instances few. Many had a slight vertigo; and some, delirium. Agueish paroxysms have been mentioned as a concomitant of the disease, by some writers; especially in the more marshy parts of the island. We need not doubt their existence, any more than that the influenza was frequently accompanied with a remittent fever; while, in the more dry and open situations, it would partake more of peripneumony. Dr. Huxham found this the case in the spring epidemic of 1743. Efflorescences on the skin were amongst the symptoms observed during the epidemic at Bath, as well as a redness and soreness of the throat; from whence Dr. Falconer imagines that there is a similarity between it and the scarlet fever, as described by Dr. Withering. Persons of the middle age, *cæteris paribus*, felt it most; but few of any age, sex, or temperament, escaped it; the infirm and the valetudinarian, suffering most. The influence of the weather, and greater or less exposure to it, in rendering the symptoms more violent, were very conspicuous. Both the extremes of *old age and infancy were more exempt* from it than any other; that is, such as were in good health.

Dr. Hamilton contends, that the cause of the influenza is not a specific contagion communicated by the atmosphere, but by *actual contact.* He says, the state of the air is only a *predisposing* cause. Because cold air can give birth to a common catarrh, we are not thence to conclude that it gives birth to the influenza. Cold moist air renders indeed the application of a *materies morbi* more effectual, and to these united causes we are to attribute the disease.

The attacks of this disorder were not at the same time. If the cause lay in the air, all must have been seized at once; for though it often spread rapidly, it was still progressively; sometimes slowly and gradually. After all that has been said on the general subject of this contagion, it appears that the degree of fatality attending its attacks, on the whole, was not considerable.

Among the means of cure, which were various in various persons, none appear of more material consequence to consider than *venesection.* This, however, should be by no means indiscriminately practised, since it was found, on many occasions, to be improper. At Stamfordham, bleeding was pretty generally used in the beginning of the epidemic; but they found reason to alter the practice, as they became more acquainted with its nature.

The *natural crisis* of the complaint appears to have been by the skin; *diaphoretics*, therefore, and *diluents* constitute the chief part of the cure. *Emetics*, or rather nauseating doses of antimonials, when early used, seemed very serviceable. Whilst diaphoretic, they also were expectorant when given in full doses, and in this sense they proved useful in the beginning of the disease. They also proved laxative, cleansing the primæ viæ, and opening obstructions in the vessels, whereby the different secretions were more equally performed. Considerable advantage was likewise obtained from the prudent use of *opiates*. *Nitre* has occasionally been had recourse to; but it sometimes renders worse the very symptom for the relief of which it has been administered. Dr. Fothergill says, that common doses of nitre, the saline draughts, and other cooling salts, he has found to increase a cough, by their irritating qualities. A *generous diet* was conducive to recovery: even in the course of the disease, many bore a more liberal use of wine than is generally given in catarrhal affections from cold alone. The pediluvium was of great service, and some particular cases required the bark. We need scarcely dissuade from the warmer *sudorifics*, or the stronger *purges*. These, when resorted to, were always found as prejudicial, as diaphoretics and laxatives were useful.

In short, a cautious discrimination is necessary, between this and other diseases appearing sporadically at the same time; for where it proves complicated, the method of cure must vary; and more or less of the inflammatory diathesis prevailing, may lead to mistakes with respect to the genuine nature of the disease. Not only the weather, situation, and constitution, but intercurrent diseases, all unite to vary the appearance of the epidemic; to all of these the cautious and prudent practitioner ought strictly to attend.

INFUNDIBULIFO′RMIS, in botany, an appellation given to such monopetalous or one-leaved flowers as resemble a funnel in shape, or which have a narrow tube at one end, and gradually widen towards the limb or mouth.

INFUNDI′BULUM, (from *infundo*, to pour in); a canal that proceeds from the vulva of the brain to the pituitary gland in the sella turcica. See Cerebrum, Vol. I. It is found to be impervious in some subjects.

INFUSION, (*infusum*, from *infundo*, to pour upon), in pharmacy, a method employed to extract the virtues of aromatic and volatile substances, which would be dissipated by decoction, and destroyed by maceration; and to separate substances of easy solution, from others which are less soluble. The process consists in pouring upon the substance to be infused, placed in a proper vessel, the menstruum, either hot or cold, according to the directions; covering it up, agitating it frequently, and after a due time straining or decanting off the liquor, which is now termed the infusion. *Maceration* differs from infusion, in being continued for a longer time, and can only be employed for substances which do not easily ferment or spoil. The details for various infusions employed in medicine, may be found in the Pharmacopœias.

INFU′SUM; an infusion. See Infusion.

INGE′STA, a term used for the various kinds of substances received as aliment into the stomach.

INGLU′VIES; the craw, crop, or gorge of a bird. This term also denotes gluttony.

INGREDIENTS (from *ingredior*, to go in together), a general name for all the articles which go into the composition of any one medicine.

I′NGUEN; the groin. It is the lower and lateral part of the abdomen immediately above the thigh.

INGUINAL LIGAMENT. See Poupart's ligament.

INHALER; a machine for steaming the lungs with warm water, recommended by Mr. Mudge in the cure of the catarrhous cough. The body of the instrument resembles a porter-pot, holds about a pint, and the handle, which is fixed to the side of it, is hollow. See Pl. VI. Vol. I. In the lower part of the vessel, where it is soldered to the handle, is a hole, by means of which, and three others on the upper part of the handle, the water, when it is poured into the inhaler, will rise to the same level in both. To the middle of the cover, a flexible leathern tube, about six or seven inches long, is fixed, with a mouth-piece of wood or ivory. In the cover there is a valve fixed, which opens and shuts the communication between the upper and internal part of the inhaler and the external air. This valve is extremely simple; being formed only of a short tube descending inwards from the cover, and having beneath a small hole, upon which a ball of cork plays. When the mouth is applied to the end of the tube, in the act of inspiration, the air rushes into the handle, and up through the body of warm water; and the lungs become, consequently, filled with hot vapour. In exspiration, the mouth being still fixed to the tube, the breath, together with the steam on the surface of the water in the inhaler, is forced up through the valve in the cover. In this manner, therefore, the whole act of respiration is performed through the inhaler, without the necessity, in the act of exspiration, of either breathing through the nose, or removing the pipe from the mouth. For an account of the effects of this process, see Catarrhus.

INJE′CTIO, an injection; a medicated liquor to be thrown into any natural or preternatural cavity of the body by means of a syringe. This remedy, though applicable to a variety of cases in surgery, is nevertheless most common as a means of curing the gonorrhœa (see Gonorrhœa), we shall therefore present to the choice of the practitioner, a few formulæ of acknowledged utility; observing, that in all injections for the gonorrhœa, the proportion of active materials is to be varied according to existing circumstances, and especially in the cases of women, who will bear much more powerful remedies of this kind than men.

℞ Aquæ ammoniæ acetatæ ℥j.
Aquæ distillatæ ℥iij. Misce.

℞ Mucilag. sem. cydonii ℥iv.
Calomelanos ʒss. Misce.

℞ Pulv. cerussæ comp. ℈j.
Zinci vitriolati gr. vj.
Aquæ rosæ ℥iv. Misce.

℞ Balsami copaibæ ʒij.
Mucilag. arabici gummi ℥ss.
Aquæ calcis ℥iv. Misce.

℞ Æruginis præp. gr. x.
Olei amygdalæ ℥iv.
Solve conterendo ut fiat injectio.

℞ Cupri vitriol. gr. iv.
Aquæ distillatæ ℥iv. Misce.

℞ Hydrargyri purificati drach. j.
Mucilaginis arabici gummi ℥iss.
Aquæ distillatæ ℥iss. Fiat injectio.

℞ Aquæ distillatæ ℥viij.
Hydrargyri muriati gr. j. ad ij.
Solve, ut fiat injectio.

℞ Aquæ lithargyri acetati gutt. viij.
Aquæ rosæ ℥iv. Misce.

℞ Aquæ distillatæ ℥iv.
Acidi muriatici gutt. viij. Misce.

This is used with very good effect, in cases of gonorrhœa, where the scalding of the urine proves a troublesome symptom.

℞ Olei amygdalæ ℥iv.
Aquæ lithargyri acetati gutt. viij. Misce.

℞ Aquæ distillatæ ℥iv.
Tinct. opii gutt. xx. ad xl. Misce.

℞ Zinci vitriolati gr. x.
Aquæ distillatæ ℥iv. Misce.

Dr. Saunders of London recommends the following:

℞ Cupr. ammoniat. (Ph. Edin.) ʒj.
Aquæ rosæ ℥v.
Solve, et utatur, more solito, pro injectione.

℞ Oxymel. ærugin. ʒss.
Mellis rosæ ℥ij.
Decoct. hordei ℥iiiss. Misce.

The late Dr. G. Fordyce employed the following:

℞ Aq. fontis ℥viij.
Gum. arabic. ʒvj.
Calomel. ʒss. Misce.

℞ Aq. rosæ ℥ij.
Ceruss. acetat. gr. v. ad x. Misce.

℞ Ol. olivæ ℥ij.
Hydrarg. (saliva, vel mucilag. gum. arabic. extinct.) ʒi. ad ʒiii. Fiat injectio.

When injections are used, the syringe employed should have a short but wide pipe, just so large that its orifice will readily go into the orifice of the urethra. If the whole pipe of the syringe be much smaller than the orifice of the urethra, it is attended with two disadvantages: 1. With a small pipe, if it is not perfectly smooth, the patient easily wounds the inside of the urethra; thereby rendering himself liable to an ulceration of the part, and consequent absorption of the poison. 2. The injection, instead of going into the cavity of the urethra, will, in proportion as the patient presses the piston, run out side-ways, through the orifice of the urethra. If the piston itself does not apply closely to the sides of the syringe, even if the pipe is sufficiently large, so that it perfectly closes the orifice of the urethra, the liquor will still regurgitate between the piston and the syringe, instead of going into the urethra; and thus the patient may imagine that he has injected the liquor properly, when, perhaps, very little has entered.

The name *injection* is also very commonly applied to a clyster. See Enema.

INJECTION, in an anatomical sense, the forcibly throwing a liquid, by means of a syringe or tube, into some canal or sinus, or into the vessels or tubes of an animal body prepared for that purpose. The late Dr. Monro recommended the following methods, which have been little, if at all, improved upon, by later anatomists.

The instrument with which the liquor is commonly thrown into the vessels should be a tight easy-going syringe of brass, to which several short pipes are fitted, and can be fixed by screws; the other extremities of these pipes being of different diameters, without any screw, that they may slide into other pipes, which are so exactly adapted to them at one end, that, when they are pressed a little together, nothing can pass between them. And because their cohesion is not so great as to resist the pushing force of the injection, which would drive off this second pipe, and spoil the whole operation; therefore the extremity of this second sort of pipes, which receives the first kind, is formed on the outside into a square, bounded behind and before by a rising circle, which hinders the key that closely grasps the square part from sliding backwards or forwards; or a bar of brass must stand out from each side of it, to be held with the fingers. The other extremity of each of these second sort of pipes is of different diameter; and near it a circular notch, capable of allowing a thread to be sunk into it, is formed: by this, the thread tying the vessel at which the injection is to be made, will not be allowed to slide off.

Besides this form described, common to all this second sort of pipes, we ought to have some of the larger ones, with an additional mechanism, for particular purposes; as, for instance, when the larger vessels are injected, the pipe fastened into the vessel ought either to have a valve or a stop-cock, that may be turned at pleasure, to hinder any thing getting out from the vessel by the pipe; otherwise, as the injection, in such a case, takes time to coagulate, the people employed in making the injection must either continue all that while in the same posture; or, if the syringe is too soon taken off, the injected liquor runs out, and the larger vessels are emptied. When the syringe is not large enough to hold at once all the liquor necessary to fill the vessels, there is a necessity of filling it again. If, in order to do this, the syringe was to be taken off from the pipe fixed in the vessel, some of the injection would be lost, and what was exposed to the air would cool and harden ; therefore some of the pipes ought to have a reflected curve tube coming out of their side, with a valve so disposed, that no liquor can come from the straight pipe into the crooked one, but, on the contrary, may be allowed to pass from the crooked to the straight one: the injector then, taking care to keep the extremity of the reflected pipe immersed in the liquor to be injected, may, as soon as he has pushed out the first syringe full, fill it again by only drawing back the sucker; and, repeating this quickly, will be able to throw several syringefuls into the vessels. All these different sorts of pipes are commonly made of brass.

The liquors thrown into the vessels, with a design to fill the small capillary tubes, are either such as will incorporate with water, or such as are oily: both kinds have their advantages and inconveniences, which will be noticed.

1. All the different kinds of glue, as ichthyocolla, common glue, &c. dissolved and pretty much diluted, mix easily with the animal fluids, which is of great advantage, and will pass into very small vessels of a well-chosen and prepared subject, and often answer the intention sufficiently, where the design is only to prepare some very fine membrane, on which no vessels can be expected to be seen so large as the eye can discover whether the transverse sections of the vessels would be circular, or if their sides are collapsed. But when the larger vessels are also to be prepared, there is a manifest disadvantage to the usefulness and beauty of the preparation; for, if nothing but the glutinous liquor is injected, one cannot keep a subject so long as the glue takes of becoming firm; and, therefore, in dissecting the injected part, several vessels will probably be cut and emptied. To prevent this, one may indeed either soak the part well in alcohol, which coagulates the glue; but then it becomes so brittle, that the least handling makes it crack ; and if the preparation is to be kept, the larger vessels appear quite shrivelled, when the watery part of the injection is evaporated: or the efflux of the injection may be prevented, by carefully tying every vessel before we are obliged to cut it; still, however, that does not hinder the vessels to contract when the glue is drying. If, to obviate these difficulties, the glutinous liquor should first be injected in such quantity as the capillary vessels will contain, and the common oily or wax injection is pushed in afterwards to keep the larger vessels distended, the wax is very apt to harden before it has run far enough; the two sorts of liquors never fail to mix irregularly, and the whole appears interrupted and broken by their soon separating from each other; which is still more remarkable afterwards, when the watery particles are evaporated.

Alcohol, coloured, mixes with water and oils, and so far is proper to fill the very small vessels with: but, on the other hand, it coagulates any other liquor it meets, which sometimes blocks up the vessels so much, that no more injection will pass. Then it scarce will suspend some of the powders that prove the most durable colours ; and as it entirely evaporates, the vessels must become very small ; and the small quantity of powder left, having nothing to serve for connecting its particles together, generally is seen so interrupted, that the small ramifications of vessels rather have the appearances of random scratches of a pencil, than of regular continued canals.

Melted tallow, with a little mixture of oil of turpentine, may sometimes be made to fill very small vessels, and keeps the larger ones at a full stretch; but where any quantity of the animal liquors are still in the vessels, it is liable to stop too soon, and never can be introduced into numbers of vessels which other liquors enter; and it is so brittle, that very little handling makes it crack, and thereby renders the preparation very unsightly.

The method which Dr. Monro found to succeed best, in making *fine injections*, is, first to throw in coloured oil of turpentine, in such a quantity as would fill the very small vessels; and, immediately after, to push common coarse injection into the larger ones. The oil is subtile enough to enter rather smaller capillary tubes than any colouring can. Its resinous parts, which remain after the spirituous are evaporated, give a sufficient adhesion to the particles of the substance with which it is coloured, to keep them from separating, and it intimately incorporates with the coarser injection; by which, if the injection is rightly managed, it is impossible for the sharpest eye to discover that two sorts have been made use of.

All the liquors with which the vessels of animals are artificially filled, having very faint, and nearly the same colours, would not all appear in the very small vessels, because of their becoming entirely diaphanous, without a mixture of some substance to impart its colour to them; and where several sorts of even the largest vessels of any part were filled, one sort could not be distinguished from another, unless the colour of each was different; which has likewise a good effect in making preparations more beautiful. Wherefore anatomists have made use of a variety of such substances, according to their different fancies or intentions; such as gamboge, saffron, ink, black ivory, &c. which can be easily procured from painters. Our design being only to consider those that are fit to be mixed with the injecting liquors proposed to fill capillary vessels, which is scarce ever to be done in any other, except the branches of the arteries and of some veins, we shall confine ourselves to the common colours employed to these last named two sorts of vessels, which colours are red, green, and sometimes blue, without mentioning the others, which require very little choice.

Anatomists have, no doubt, proposed to imitate the natural colours of the arteries and veins in a living creature, by filling the arteries with a red substance, and the veins with a blue or green. From this, likewise, there are other advantages, such as the strong reflection which such bodies make of the rays of light, and the unaptness that such bodies have to transmit these same rays, without at least a considerable reflection of the rays peculiar to themselves; or, in other words, their unfitness to become completely pellucid; without which, the very fine vessels, after being injected, would still be imperceptible. The animal or vegetable substances made use of for colouring injections, such as cochineal, indigo, &c. have all one general fault of being liable to run into little knots which stop some of the vessels. Their colour fades sooner too when kept dry; they more easily yield their tincture when the parts are preserved in a liquor; and insects will eat them: for which reasons, we should rather prefer the mineral kind. The green-coloured powder generally used is verdigrease; but that called *distilled verdigrease* is better, because its colour is brighter, and it dissolves in oily liquors.

Dr. Monro's method of preparing the injection composed of these materials, is to take, for the fine sort, a pound of oil of turpentine, which is gradually poured on three ounces of vermillion, or distilled verdigrease finely powdered, or rather well levigated by grinding on marble; stir them well with a small wooden spatula till they are exactly mixed, then strain all through a fine linen rag. The separation of the grosser particles is, however, rather better made, by pouring some ounces of the oil upon the powder, and, after stirring them together strongly, stop rubbing with the spatula for a second or so, and pour off into a clean vessel the oil with the vermillion or verdigrease suspended in it. Continue this sort of operation till no more of the powder comes off; and reject what remains.

The coarser composition for injection is thus prepared: Take tallow, one pound; wax, bleached white, five ounces; common oil, three ounces; melt them in a skillet put over a lamp; then add Venice turpentine, two ounces; and as soon as this is dissolved, gradually sprinkle in of vermillion or verdigrease prepared, three ounces; then pass all through a clean, dry, warmed linen-cloth, to separate all the grosser particles; and, when you design to make it run far into the vessels, some oil of turpentine may be added immediately before it is used.

2. For *choosing a fit subject*, Dr. Monro lays down the following general rules: (1.) The younger the animal to be injected is, the injection will, *cæteris paribus*, go farthest, and *vice versa.* (2.) The more its fluids have been dissolved and exhausted in life, the success of the operation will be greater. (3.) The less solid the part designed to be injected is, the more vessels will be filled. (4.) The more membranous and transparent parts are, the injection shows better; whereas, in the solid very hard parts of a rigid old animal, that has died with its vessels full of thick strong blood, it is scarce possible to inject any great number of small vessels.

Therefore, in preparing a subject for injecting, the principal things to be aimed at, are: to dissolve the fluids, empty the vessels of them, relax the solids, and prevent the injections coagulating too soon. To answer all these intentions, authors have proposed to inject tepid or warm water by the arteries, till it returns clear and untinged by the veins; and the vessels are thereby so emptied of blood, that all the parts appear white. After this, they push out the water by forcing in air; and, lastly, by pressing with their hands, they squeeze the air also out. After this preparation, one can indeed inject very minutely; but generally there are some inconveniences. For in all the parts where there is a remarkable *tunica cellulosa*, it never fails to be full of the water, which is apt to spoil any parts designed to be preserved either wet or dry; and some particles of the water seldom miss to be mixed in the larger as well as smaller vessels with the oily injection, and make it appear discontinued and broken: wherefore it is much better to let this injection of water alone, if it can be possibly avoided, and rather to macerate the body or part to be injected a considerable time in water, made so warm as one can hold his hand easily in it; taking care to keep it of an equal warmth all the time, by taking out some of the water as it cools, and pouring in hot water in its place; by which the vessels will be sufficiently softened and relaxed, the blood will be melted down, and the injection can be in no danger of hardening too soon; whereas, if the water is too hot, the vessels shrink, and the blood coagulates. From time to time we squeeze out the liquids as much as possible at the cut vessel by which the injection is to be thrown in. The time this maceration is to be continued, is always in proportion to the age of the subject, the bulk and thickness of what we design to inject, and the quantity of blood we observe in the vessels, which can only be learned by experience; at least, considerable care ought to be taken, that the whole subject, or part macerated, is perfectly well warmed all through; and that we continue the pressure with our hands till no more blood can be brought away, whatever position we put the subject in.

When the syringe, injections, and subject, are all in readiness, one of the second sort of pipes is chosen, as near to the diameter of the vessel by which the injection is to be thrown as possible; for, if the pipe is too large, it is almost needless to say it cannot be introduced. If the pipe is much smaller than the vessel, it is scarce possible to tie them so firmly together, but, by the wrinkling of the coats of the vessel, some small passage will be left, by which part of the injection will spring back on the injector in the time of the operation, and the nearest vessels remain afterwards undistended, by the loss of the quantity that oozes out. Having chosen a fit pipe, it is introduced at the cut orifice of the vessel, or at an incision made in the side of it; and then a waxed thread being brought round the vessel, as near to the part cut as possible, by the help of a needle or a flexible eyed probe, the surgeon's knot is made with the thread, and it is drawn as firmly as the thread can allow; taking care that it shall be sunk into the circular notch of the pipe all round; otherwise it will very easily slide off, and the pipe will be brought out probably in the time of the operation; which ruins it.

If there have been large vessels cut, which communicate with the vessels you design to inject, or if there are any others proceeding from the same trunk, which you do not resolve to fill, let them be all carefully now tied up, to save the injected liquor, and make the operation succeed better.

When all this is done, both sorts of injections are to be warmed over a lamp, taking care to stir them constantly, lest the colouring powder fall to the bottom and burn. The oil of turpentine needs to be made no warmer than will allow the finger to remain in it, if the subject has been previously well warmed in water. When the maceration has not been made, the oil ought to be scalding-hot, that it may warm all the parts which are designed to be injected. The coarse injection ought to be brought near to a boiling. In the mean time, having wrapt several folds of linen round the parts of the syringe which the operator is to gripe, and secured the linen with thread, the syringe is to be made very hot by sucking boiling water several times up, and the pipe within the vessel is to be warmed by applying a sponge dipped in boiling water to it.

After all is ready, the syringe being cleared of the water, the injector fills it with the finer injection; and then introducing the pipe of the syringe into that in the vessel, he presses them together, and either with one hand holds this last pipe firm, with the other gripes the syringe, and with his breast pushes the sucker; or, giving the pipe in the vessel to be held by an assistant, in any of the ways mentioned in the description of these sorts of pipes, he gripes the syringe with one hand, and pushes the sucker with the other, and consequently throws in the injection; which ought to be done slowly, and with no great force, but proportioned to the length and bulk of the part to be injected and strength of the vessels. The quantity of this fine injection to be thrown in is much to be learned by use. The only rule in this matter is, to continue pushing till there occurs a stop which would require a considerable force to overcome. This, however, will not hold where all the branches of any vessel are not injected; as for instance, when the vessels of the thorax only are to be injected: for the aorta bears too great a proportion to the branches sent from it, and therefore less fine injection is requisite here. As soon as that stop is felt, the sucker of the syringe is to be drawn back, that the nearest large vessels may be emptied. Then the syringe is taken off, emptied of the fine injection, and filled with the coarser, which is to be pushed into the vessels quickly and forcibly, having always regard to the strength and firmness of the vessels, bulk, &c. of the part. Continue to thrust the sucker, till a full stop, or a sort of push backwards, is felt, when you must beware of thrusting any more, otherwise some of the vessels will be bursted, and the whole or a considerable share of the preparation you designed, will be spoiled by the extravasation. You should immediately stop the pipe by the turn-cock, and take out the syringe to clean it, and allow sufficient time for the coarse injection to coagulate fully before any part is dissected. Ruysch, immediately after throwing in the injection, put the body into cold water, and moved it continually for some time, to prevent the vermilion separating from the tallow.

3. The *injection of the lymphatic system* is much more difficult than that of the sanguiferous, on account of the extreme smallness of the vessels; so that till of late years it was reckoned impracticable. Methods indeed had been attempted for this purpose; but, by reason of the improper form of the instruments and the inferior skill of anatomists in former times, we may justly look upon this as one of the most modern improvements in anatomy.

The first thing to be considered, when the lymphatics are to be injected, is a proper method of discovering them; for this is by no means an easy matter, on account of their smallness and transparency.—To find out these vessels the subject must be viewed in a proper place, where the light is neither very strong nor very weak. Mr. Sheldon, who has written a treatise upon this subject, recommends a winter forenoon from ten to two; it being chiefly in the winter season that anatomical preparations are made, and because at that time of the day the light is more clear and steady. He says also, from his own experience, that the light passing through the glass of a window is better for this purpose than the open air, as the vessels are more distinctly seen. The injecting of the vessels is likewise rendered more difficult in the open air, by the ease with which the humidity is evaporated from them. It will likewise be necessary to incline the part in various ways to the light, as some of the vessels are most easily discoverable in one position and some in another. The lacteal trunks under the peritoneal coats of the intestines, and the lymphatics on the external surface of the liver, &c. particularly require this method. He dissuades from the use of magnifying glasses. "I am persuaded," says he, "that those who attempt to find them through this medium, will not acquire that *visus eruditus* which is obtained to a surprising degree by those who have been much experienced in injecting lymphatic vessels. A lateral light is likewise preferable to an horizontal, or even to an oblique sky-light."

The subjects must be laid upon a table of sufficient height, which might be contrived with a ledge fixed to the table in such a manner as to be water proof; which would be useful for preventing the quicksilver, which is almost always necessary for injecting these vessels, from being lost. The surface of the table should likewise be hollowed, so that the mercury which falls may be collected in the middle, where an hole with a stopper may be made to take out occasionally the quicksilver which collects. The materials for injecting these vessels are only quicksilver, and the coarse injection of anatomists; the former being always used in injecting the lymphatics and lacteals, it being almost impossible to fill them with any other fluid in the dead body. The ceraceous injection is chiefly used for the thoracic duct; and in some particular instances, where the lymphatic trunks have been found larger than the ordinary size, a coarse injection has been made use of, and this is managed as in the injection of blood-vessels.

The instruments necessary for injecting the lymphatic vessels are the injecting tube and pipes, lancets, blow-pipes, knives, scissars, forceps, and needles, which are generally known and supplied by every instrument-maker.

The subjects should be as free from fat as possible. In the human subject those who have died universally dropsical, or of an ascites or anasarca, are the best, for the following reasons, viz. in such there is little or no animal oil, and but a very small quantity of red blood; both of which, when they occur in great abundance, very much impede the discovery of the lymphatic vessels: but when the cellular vessels are loaded with water, the absorbents are more readily traced, and with less risk of wounding them in dissection: the preparations also, particularly the dried ones, are more lasting. This circumstance is found to be of most consequence in preparing the absorbent vessels of the trunk and extremities of the human subject. Of all the viscera in young subjects, only the liver and lungs can be injected with success; and these may be successfully injected even in the fœtus. It will be most proper to begin the operation upon the subject immediately after death, as lymph or chyle will then be more readily found in the vessels, than when we wait a longer time. In preparing the lacteals, previously distended with milk in the living subject, it is proper to have the intestines and mesentery plunged (with the ligature upon the root of the latter) into rectified spirits of wine. This process will coagulate the chyle; and the fluid being opaque, the vessels will be beautifully seen when we mean to prepare the parts, by preserving them in proof-spirit as wet specimens. We may also prepare the lacteals by the method used by the late Mr. Hunter; in consequence of which they will be very conspicuous, by the indigo absorbed from the cavity of the intestines. By tying the thoracic duct near its insertion into the angle formed between the subclavian and jugular veins on the left side, or by tying these veins on both sides, we may distend almost all the absorbents of the animal. Thus we are enabled to pursue these vessels in many parts where they have not yet been discovered, where they can scarcely be traced by injection, and even in some parts where it is utterly impossible for the injections to reach them.

To inject these vessels, we must open one or more of them, directing the point of the lancet almost always towards the trunk or trunks of the vessels, and taking care not to carry the incision through the opposite side. If the vessels happen to lie under the peritoneum, as the lacteals, or under the pleura, as the lymphatics of the lungs, we may cut into their cavity through these membranes. In injecting those of the extremities, however, and in many other parts of the body, it is absolutely necessary to dissect the vessels we design to fill, away from the fat and reticular substance, before we attempt to open them with the lancet. The tube, with the pipe affixed to it, is previously to be filled with mercury: the anatomist then inflates the vessel by means of the blow-pipe, takes the tube from the assistant, and introduces the small tube into the puncture. In this operation it will be found necessary not to carry the tube farther into the vessel than is sufficient to give the mercury a free passage; for, if we introduce it farther, the passage of the mercury will be impeded by the pipe being pushed against the side of the vessel. Should not the fluid be able to effect a passage, it will then be necessary to press upon the surface of it in the tube with our fingers. If it descend freely, and without any of it passing between the side of the vessel and small pipe, we have only to fill up the tube with mercury as the latter descends; but if it gets out, we must then tie the vessel. This, however, should always be avoided if possible; because, if not very dexterously performed, the operator will be apt to separate the tube from the vessel; and on this account the puncture ought always to be very small, no larger indeed than is necessary to allow the pipe to get in with difficulty. As the injection proceeds, the pressure upon the surface of the quicksilver must be carried on higher and higher in the course of the lymphatic, till we come near the gland or glands into which the vessels terminate; otherwise we shall seldom get the cells of the glands, or the vessels emerging from the opposite side of the glands, well injected. In injecting the lymphatic vessels of the extremities, it will be useful to raise the part where the pipe is inserted, higher than the other end of the limb, and to make the assistant press with his hands along the skin in the course of the vessels, which will favor the progress of the injection. When the vessels are sufficiently filled, which may be known by the swelling of them, and by the resistance the mercury meets with, the assistant passes a ligature about the vessel, and ties it above the puncture, before the anatomist withdraws the injection-pipe.

We next proceed to the method of dissecting and preparing the injected parts either for immediate demonstration, or for long preservation. In the dissection, great care is requisite, on account of the exquisite thinness of their coats: but if this should happen by accident, it will then be necessary to introduce the pipe at the ruptured part, and, having secured it above and below with ligatures, to fill it again as before directed. A variety of different shaped knives, some single and others double-edged, will be necessary for various parts of the body. A sharp-pointed forceps is necessary, in order to lay fast hold of the smallest portion of cellular substance; but they ought not to be so sharp as to endanger the puncturing of the vessels: nor should they by any means be bowed or stiff in the spring, to prevent the fingers of the operator from being wearied in the operation. They should also be made in such a manner as to hold large as well as small portions of reticular substance. For dissections of this kind, fine pointed scissars and lancets fixed in handles are sometimes necessary; and it is frequently of use to plunge the parts into water, in order to loosen the reticular membrane connected with the outside of the coats of the vessels; by which means they may be dissected more easily, and with less danger of wounding them. The blood may be extracted by frequently changing the water. After being injected with quicksilver, the parts should not be allowed to remain long in the water, because the volatile alkali formed by putrefaction is apt to change the colour of the mercury.

The dissection being performed, the preparation is then to be preserved either in a wet or dry state, according to its nature. Preparations of the larger parts, as the trunk or extremities, should be preserved dry; and to dry them effectually, they should be exposed to a free current of air, but not to the rays of the sun; and the vessels should be displayed in their natural situation. When fully dried, they ought then to be varnished over with transparent spirit or copal varnish; which will not only preserve them from insects, but render them more beautiful, and the vessels more conspicuous. They should then be inclosed in glass cases, where they are to be placed in a horizontal position, and handled as little as possible.

To make preparations of the thoracic duct, we must in the first place fill the aorta, vena cava superior, and vena azygos or intercostalis, with coarse injection; then fill, with the same, the vessels below the right crus or little muscles of the diaphragm. The duct is sometimes also prepared with quicksilver. Mr. Sheldon recommends to anatomists to make drawings of any thing new or remarkable in their preparations of the lymphatic vessels with quicksilver; as most of those specimens, particularly such as are dried, become at last totally useless by reason of the drying of the vessels and the escape or blackening of the mercury; or from the varnish growing more and more opaque with age. The quicksilver injection, however, in some cases is very useful. Sometimes it is necessary to fix the preparations upon stiff paper or pasteboard, on account of their weight after being injected with mercury. The paper or pasteboard on which they are fastened ought to be of various colours, according to the nature of the preparation, in order to form a proper ground for showing the lymphatic vessels. Such small preparations as are preserved in spirits, or oil of turpentine, may be kept in bottles well closed with stoppers; and the larger in common preparation glasses.

INNOMINA'TA ARTE'RIA; the first branch that is given off by the arch of the aorta. It soon divides into the right carotid and right subclavian arteries.

INNOMINA'TUM OS, (*innominatum*, from *in*, priv. and *nomen*, a name); so called because the three bones of which it originally was formed, grew together, and formed one complete bone, which was then left nameless. The ossa innominata are two large irregular bones, situated one on each side of the pelvis. Each is divided into three portions, viz. the ilium, ischium, and pubis, which are three distinct bones in the fœtus. See Ilium, Ischium, and Pubis. The *ossa innominata* are joined, at their back-part, tó each side of the os sacrum by a sort of suture, with a very thin intervening cartilage, which serves to cement those bones together; and strong ligaments go from the circumference of this unequal surface, to connect them more firmly. The ossa innominata are connected together at their forepart by the ligamentous cartilage interposed between the two ossa pubis. These bones can therefore have no motion in a natural state, except what is common to the trunk of the body, or to the os sacrum. But it has been disputed, whether or not they loosen so much from each other, and from the os sacrum, in child-birth, by the impulse of labour, as that the ossa pubis recede from each other, and thereby allow the passage between the bones to be enlarged. See Pelvis. Several observations show that this relaxation sometimes happens; but those who had frequently opportunities of dissecting the bodies of women who died immediately after being delivered of children, teach us to beware of regarding this as the common effect of child-birth; for they found such a relaxation in very few of the bodies which they examined.

Considering the great weight that is supported in our erect posture, by the articulation of the ossa innominata with the os sacrum, there is great reason to think, that if the conglutinated surfaces of these bones were once separated, (without which the ossa pubis cannot shuffle on each other), the ligaments would be violently stretched, if not torn; and from thence many disorders would arise.

Each os innominatum affords a socket (the acetabulum) for the thigh-bones to move in; and the trunk of the body rolls here so much on the heads of the thigh-bones, as to allow the most conspicuous motions of the trunk, which are commonly thought to be performed by the bones of the spine. This articulation is usully described by anatomists after the ossa femoris are examined.

The pelvis forms a large bason above, where it is continued with the abdomen. It is strongly fenced by these bones on the sides, back, and forepart, and appears with a wide opening below, in the skeleton; but, in a recent subject, a considerable part of this space is filled by the sacro-sciatic ligaments, pyriformis, internal obturator, levatores ani, gemini, and coccygæi muscles, which support and protect the contained parts better than bones could have done. Hence space is only left at the lowest part of it, for the large excretories, the vesica urinaria, the intestinum rectum, and in females, the uterus, to discharge themselves.

INOCULATION, (*inoculatio*, from *inoculo*, to ingraft); the insertion of variolous or vaccine matter under the skin, in order to communicate the small-pox or cow-pox. As the preference due to the latter is now universally admitted, we shall confine ourselves to the instructions for vaccine inoculation disseminated by the Jennerian Society in London.

1. *Modes of inoculation.*—The constitutional, as well as local symptoms of the vaccine affection, depend in a great degree on the mode in which the virus is inserted. The smaller the wound in the skin is, the lighter in general is the disease. Fluid matter is better than dry, when it can be procured, because more likely to produce infection; and the operation is more lightly and quickly performed. Hence, the patient from whom the matter is to be taken should be present, if possible, and the matter transferred immediately.

Inoculation is generally performed in the upper arm, near the insertion of the deltoid muscle; but in adults, who are likely to use the arm much, it is more adviseable to inoculate on the inside of the leg, a little below the knee. The point of a lancet being charged, the skin should be stretched, that the cuticle may be penetrated with more ease. A small superficial puncture is then to be made with the point of the lancet, which will be more likely to leave the matter in contact with the skin, and to produce the desired effect, if it be held nearly in a horizontal direction. It is also worthy of remark, that when held in this direction, the lancet meets with greater obstruction when it has penetrated to a sufficient depth. On the contrary, when it is inserted in a more oblique or a perpendicular direction, it often penetrates suddenly to such a depth as to cause an effusion of blood, which washes away the matter, and prevents the operation from succeeding. In order to render infection more certain, the point of the lancet may be charged with matter a second time, and wiped on the puncture. When several successive inoculations are to be performed, the lancet should be dipped in cold water, and wiped after every puncture.

Dry matter has been sometimes known to succeed after the expiration of several months, but that which is recent is always preferable. Dry matter on glass may be moistened with a little cold or tepid water on the point of a lancet, allowing it some time to dissolve, and blending it by a little friction with the lancet. It must not be much diluted, but of a thick consistence. It is to be inserted in the same manner as the recent fluid. Dry matter on the barrel of a quill may be applied without dilution, to a very small abrasion or incision of the skin: and, being held in contact for some time, and then repeatedly drawn over the part, it will dissolve and be lodged in the wound.

When ivory lancets, toothpicks, and vaccinators, charged with dry matter, are used, the matter should not be first diluted, but a puncture having been first made with a common lancet, the point of the instrument is to be inserted, and held in the puncture half a minute or more; when the matter will gradually dissolve, and remain in the part. If the part of the instrument which is charged, be afterwards wiped repeatedly upon the edges of the puncture, it will tend to ensure success. Thread, charged with dry matter, may be used either dry or just moistened with cold or tepid water. A slight incision or abrasion is then to be made, not more than an eighth part of an inch in length, on which a small portion of the thread is to be placed. This is to be covered with a small bit of paper, and to be retained two or three days by a bandage or mild adhesive plaster.

Inoculated patients must be cautioned not to wear tight sleeves, and not to injure the arm by pressure, friction, or any other violence, lest extensive inflammation or ulceration should ensue. One vaccine vesicle secures the patient from all danger of the small-pox; but in many instances it is better to inoculate in both arms, especially when the small-pox is epidemic, or the matter is dry, or the place of the patient's residence distant.

2. *Signs of Infection.*—When vaccine inoculation proves successful, a small red spot, with a degree of elevation which may be felt, commonly commences on the third day. When examined with a magnifying glass, it seems to consist of a small tumor, surrounded by a slight efflorescence.

Between the third and sixth day, including that of the inoculation, a vesicle appears, the shape and magnitude of which depends much on the mode in which the inoculation has been performed: when it is performed by a slight puncture, the vesicle will be small and circular. The edge of the vaccine vesicle is elevated and well defined; the centre is depressed, and a speck is there visible, of a darker colour than the rest of the surface. This vesicle is distinguished from other vesicles by the peculiarity of its structure, which is cellular, and somewhat hard and firm. At first it is of a light pink colour, sometimes blended with a bluish tint, gradually changing its progress into a pearl colour. Its contents are limpid, and almost colourless. It commonly increases in size till about the tenth day.

In its early stages it has usually a small inflamed ring about its base, which about the ninth day begins to spread rapidly; and about the tenth forms an areola, more or less circular, an inch and a half or more in diameter. This areola is of a pink, scarlet, or crimson hue; and is attended with some degree of hardness and tumefaction. It continues nearly stationary a day or two, and then begins to fade; sometimes forming, on its decline, two or three concentric circles. When the areola is perfectly formed, the vesicle begins to decline; first it turns brown in the centre; then it is gradually converted into a hard, smooth, shining scab, of a dark mahogany brown colour, approaching to black; and, in its general appearance, has not unaptly been compared to the section of a tarmarind stone. This scab commonly falls off about the end of the third week; and leaves a circumscribed cicatrix, clearly denoting that the true skin has been affected.

3. *Constitutional symptoms.* — The constitutional symptoms sometimes occur at a very early period; but more commonly from the seventh to the eleventh day. In some cases the patient is drowsy; in others restless. Sometimes there is a chilliness, succeeded by heat, thirst, head-ach, and other marks of febrile affection. Now and then a sickness or vomiting takes place, especially in infants. The constitutional symptoms, of whatever kind, are in general slight and transient, and such as require no remedy. In a great proportion of cases, there is no perceptible indisposition; nevertheless, the person vaccinated is not the less secure from the future infection of the small-pox, provided the progress of the vesicle has been regular and complete. Care must be taken not to confound the symptoms of infantile, or other diseases, with those of vaccine inoculation.

4. *Medical treatment.*—In general, no medicine is required in this mild affection; but if the symptoms happen to run a little more high than usual, the same remedies are to be applied, as if they proceeded from any other cause. No preparation is necessary; and no carthartics need be given either before or after vac-

cination. Should inflammation of the arm exceed the usual bounds, which rarely happens but from tight sleeves, pressure, or friction; it may soon be checked, by the very frequent application of compresses of linen, dipped in water, aqua lithargyri acetati composita, or a solution of one drachm of zincum vitriolatum in a pint of water. These are to be applied cold. If the scab be rubbed off prematurely, and ulceration take place, cooling and astringent applications may be used, such as a drop of aqua lithargyri acetati, which should be allowed to dry on the part, and then be covered with compresses, dipped in water, or any of the saturnine applications abovementioned, and frequently renewed. When the ulceration is deep or extensive, a poultice, either of bread and milk, or of bread with any of the saturnine preparations, may be applied, as the case seems to require. They must never be applied till they are nearly, or quite cold.

In such foul and obstinate sores as resist the foregoing applications, the unguentum hydrargyri nitrati, the argentum nitratum, or other similar applications, are sometimes resorted to with advantage. A single dressing with these substances is usually sufficient; after which the sore heals under the mildest applications. Spurious pustules are frequently followed by ulceration at an early period. This ulceration is to be treated in the same manner as if it proceeded from the genuine species.

An assurance of perfect security from vaccine inoculation can only be obtained by carefully observing the whole progress of the disease. If any doubt remain, the operation ought to be repeated. When the patient has been previously exposed to the infection of the small-pox, that disease will be superceded more or less, according to the time which is suffered to elapse before the inoculation of the cow-pock.

5. *Peculiarities of the Vaccine Vesicle.*—Certain deviations are occasionally met with, even in the genuine vaccine vesicle; chiefly with regard to its rise, duration, and contents. It seldom or never appears earlier, but often later, than the period already mentioned; sometimes not till after the expiration of a fortnight or three weeks; but if it then makes a regular progress, it renders the patient equally secure as if it had appeared at the usual time. Sometimes the vesicle is ruptured by external violence. In that case, the scab will in general be less firm, and of a lighter colour. Occasionally also, instead of the regular progress to desiccation, as above described, it passes into a state of ulceration, with a much more extended inflammation. The contained fluid, instead of being limpid as usual, is now and then found opake.

6. *Spurious Pustules.*—When these occur, the inoculation affords no security against the small-pox. The success of it is doubtful, when there is any considerable deviation from the usual course of the disease; whether premature inflammation, irritation, itching, or vesication occurs; or the progress of the vesicle is too rapid, its contents yellow or opake, its texture soft, its centre elevated, or its form not well defined; or whether a premature efflorescence takes place, and a distinct, vivid, circumscribed areola is wanting. This anomalous vesicle, or spurious pustule, as it is called, is more liable to be broken than the regular genuine vesicle, from its centre being more elevated, and its texture less firm. When broken, it is frequently succeeded by ulceration; or by a light brown, or amber-coloured creeping scab.

Spurious pustules may be occasioned not only by matter taken from a genuine vesicle at too late a period; or by that which has been injured by keeping, exposure to heat, or any other cause. They may also be occasioned by using rusty lancets in inoculation;—by rude and unskilful methods in performing the inoculation; or by the genuine vesicle having been destroyed at an early stage; and the regular progress of the disease thus interrupted.

7. *Methods of taking vaccine matter.*—Matter may be taken from a genuine vesicle at any time from its commencement till the areola begins to spread; commonly till the eighth or ninth day, sometimes later, but never after the areola is fully formed. It is to be taken by small superficial punctures, made in several parts of the vesicle with the point of a lancet, introduced horizontally. Time should be allowed for the fluid to exude, which will appear on the vesicle in the form of small pellucid drops. If necessary, very slight pressure may be applied with the flat surface of the lancet, to quicken the discharge. Great caution must be observed in this process; or violent inflammation, and extensive ulceration may sometimes ensue.

The matter may be received on the points of common lancets, when it is designed for use immediately, or within a very few days; otherwise these instruments cannot, with propriety, be employed either for the preservation or conveyance of vaccine matter, as when charged with that fluid they soon rust. An ivory lancet is not liable to this objection. It may be fixed in a handle, and screwed into a case, in order to exclude air. A common method is, to take two small square pieces of glass, on the centre of one of which the matter may be received, by applying the glass to the vesicle, punctured in several places, in the manner before described, and covered with the fluid; it may then be suffered to dry, and applied to the vesicle repeatedly. When fully charged, and dry, it is to be covered with the corresponding piece of glass, and wrapped up in writing paper, or goldbeater's skin. Matter may be also taken on thread, which, being imbued with it, must be suffered to dry, and then charged again: this process may be repeated till it is well saturated. It may be kept in a phial, or in a quill, or a piece of tobacco-pipe, stopped with white wax: the heat necessary to melt sealing-wax might injure the matter. Another way of preserving matter is, to take it on the end of a quill, which, when dry, may be inserted into the barrel of another quill: or if slender portions of a quill be pointed like tooth-picks, a number of them, when charged, may be inclosed in the barrel of one quill. These, as well as the thread, afford convenient modes of conveying the matter in a letter to any distant place.

A small instrument made of ivory, shaped like the tooth of a comb, and pointed like a lancet, which has been called a *Vaccinator*, seems to be in every respect adapted to the same purpose; and not being liable to bend, it is introduced into the puncture with more ease and certainty than the tooth-pick. These instruments require much less matter to charge them than thread or glass; but when they are not intended to be used soon, they ought to be repeatedly charged. When they are to be used in a short time, it is sufficient to wrap them in paper. Matter must always be allowed to dry without heat in the shade, and be kept in a dry and cool place. Every practitioner, who has not a constant succession of patients, ought to take matter when he has an opportunity, and to preserve it for any future occasion.

INOSCULATION, (from *in*, and *osculum*, a little mouth or orifice), the same as anastomosis. See ANASTOMOSIS.

INSA'NIA, (from *in*, not, and *sanus*, sound), insanity, or mental derangement; a genus of disease in the class *neuroses* and order *vesaniæ* of Cullen. It is characterized by erroneous judgment from imaginary perceptions, or recollections, attended with agreeable or painful emotions in the person. See MANIA.

INSERTION, in anatomy, the close conjunction of the vessels, tendons, fibres, and membranes of the body, with some other parts. This term is particularly applied to the muscles, which are said to have their *origin* and *insertion*.

INSITION, in botany, the same as ingrafting, viz. the act of inserting and uniting a scion, or bud, into the substance of the stock, by bringing the new layer of their barks into contact, and securing them in that position.

INSPIRATION, (*inspiratio*, from *in*, and *spiro*, to breath in); the act of drawing the air into the lungs. See RESPIRATION.

INSTRUMENTS, in a chirurgical sense, the implements and mechanical contrivances, by means of which operations are performed on the human body, for the cure of its accidents or diseases. Scarcely in any greater degree has surgery been benefited by modern ingenuity, than by successive improvements in the construction of the ancient instruments, defective in many important particulars, and the invention of new ones adapted to the improved state of the art. Our obligations, however, are by no means confined to the original conceptions of those ingenious men who have contributed to the improvement of surgery, by their practice and writings: their ingenuity would have availed little, as it respects the operative part, if that had not been seconded by the efforts of able mechanics, who, after making themselves thoroughly acquainted with the inventor's ideas of the thing to be done, have produced an implement of a convenient form. To no one has surgery greater obligations, in this and other respects, than to Mr. Savigny, of London, to whom we are indebted for the correct delineations in the six plates of which the following are explanations:

For Amputation.—Pl. VI. Fig. 1. The saw now in universal use, being much more neat, simple, and expeditious in passing through the bone than that formerly made with a frame and bow.

Fig. 2. The small, or metacarpal saw, for removing splinters of bone, or for the amputation of fingers or toes.

Fig. 3. and 4. Amputation knives of the most convenient form; the latter having a double edge, as employed in Mr. Alanson's method of operating.

Fig. 5. A catlin, for dividing the interosseous parts.

Fig. 6. A tourniquet of the most approved and secure kind.

Fig. 7. A pair of spring forceps, with a sliding button, for holding the extremity of an artery, whilst the ligature is put on.

Fig. 8. A common tenaculum.

Fig. 9. A pair of strong nippers, for separating fragments of bone which the saw cannot conveniently reach.

For trepanning.—Pl. VII. Fig. 1. The improved trephine, for removing circular portions of bone in injuries of the cranium. *a*, Is a moveable spring plate, by which the centre-pin may be retracted, in the manner of a common pencil-case, when the teeth of the trephine have made a sufficient channel. *b*, The point of the centre-pin as it should be when the operation commences.

Fig. 2. Forceps, for extracting the circular piece of bone after it has been cut through.

Fig. 3. A pair of spring forceps, used for the same purpose.

Fig. 4. A lenticular, to remove the jagged particles of bone left by the trephine. *a*, The scraping edge. *b*, A cup, to receive the fragments.

Fig. 5. A raspatory, for scraping flat surfaces of bone.

Fig. 6. An elevator, with circular grooves, to lengthen or shorten it as a lever, when applied upon.

Fig. 7. A triangular rest; having, at *a*, a pivot to receive the elevator. This instrument is not always safe in the application, and therefore little used.

Fig. 8. A more simple and effectual instrument for the same purpose, in which the finger of the operator is used as a fulcrum.

Fig. 9. A brush, for cleaning the teeth of the crown, if necessary.

Fig. 10. The double or head saw, having a convex or straight edge, useful where a circular saw cannot be employed.

Trocars.—Fig. 11. Mr. Savigny's improved round trocar, and spring canula, of the largest size.

Fig. 12. Mr. Pott's trocar and needle, for the hydrocele. *a*, The external canula. *b*, The internal canula. *c*, The needle.

Fig. 13. and 14. Mr. Andre's spring trocars; the latter used for the hydrocele.

Fig. 15. M. Pouteau's trocar, for puncturing the bladder through the rectum. The canula is secured by tapes passed through the openings in the canula.

Fig. 16. Mr. Bell's double canula, for bronchotomy. *a*, The external. *b*, The internal canula. *c*, A stop, to prevent the latter from being drawn out.

Fig. 17. An oval-shaped canula, for the empyema.

Fig. 18. A shorter one, for bronchotomy.

Fig. 19. Sir James Earle's elastic syringe, for injecting the hydrocele. *a*, The cylinder, detached. *b*, A section of the same, containing a ball, which prevents the return of the injected liquor.

For Lithotomy.—Pl. VIII. Fig. 1. Mr. Hawkins's cutting gorget, improved. *a*, Its beak, which enters the groove of the staff. *b*, The handle of wood.

Fig. 2. Another view of the same instrument, of the smallest size, showing the handle formed at the angle.

Fig. 3. Mr. Cline's cutting gorget. *a*, Its beak, as seen in fig. 1. *b*, Its cutting edge, which is perfectly straight, and forms an angle with the beak.

Fig. 4. The same instrument, of the middle size.

Fig. 5. The common blunt gorget, without a beak.

Fig. 6. A pair of curved forceps, for extracting the stone.

Fig. 7. A pair of straight forceps, for the same purpose. Of these there are three sizes in use.

Fig. 8. Mr. Hunter's scalpel, for lithotomy.

Fig. 9. A male staff, in which is a groove for the reception of the beak of the cutting gorget. These are furnished of various sizes, and the handles are made rough, like a file, that they may be held more steadily. The instruments called *sounds*, are in all respects the same, except in not being grooved.

Fig. 10. A female staff, shorter, but thicker, than the male.

Fig. 11. A short female sound, slightly curved.

Fig. 12. A hamula; useful for extracting the fragments of a calculus.

Fig. 13. Mr. Astley Cooper's gorget, with two cutting edges, one on each side of the beak.

For the teeth.—Pl. IX. Fig. 1. The improved key tooth-instrument, having a curve at its extremity, and an alteration in the form of its bolster. The handle is fixed by the notch *a*, receiving the spring catch *b*, on the superior part of the handle. *c*, A small projection, to which the claw may be occasionally fixed, for extracting the dentes sapientiæ.

Fig. 2. Mr. Rae's instrument, for the latter purpose.

Fig. 3. A key instrument, invented by Mr. Savigny. *a*, A milled head screw, retaining the claw. *b*, Another, for securing the handle.

Fig. 4. The bolster and curved neck of the common instrument applied to a tooth; the angular direction of its action shown at *a*.

Fig. 5. The bolster and claw of the improved instrument, in the like circumstances.

Fig. 6, The pulican, for extracting the incisores. *a*, A screw acting, through the handle, on the upper piece *b*, to which the claw is attached, and which slides through a dove-tail *c*, in the body of the instrument.

Fig. 7. Mr. Rae's instrument, for the same purpose. Its points *a*, recede or approach by the same means as the former. *b*, The head of the screw, for this purpose.

Fig. 8. A common punch, for extracting stumps.

Fig. 9. A pair of paces, for the same and other purposes. *a*, A front view of their points when closed.

Fig. 10. A pair of hawk's-bill paces, for the same purposes as the pulican.

Fig. 11. A lever, for elevating stumps: a very useful invention.

Fig. 12. A set of gum-lancets, in one handle.

Fig. 13. A set of instruments for scaling the teeth, &c. with a handle, to be screwed to any one that may be required.

For the extraction of Polypi.—Fig. 1. Dr. Denman's ligator, for fixing a ligature on the polypus in utero.

Fig. 2. and 3. Loops for the same, invented by Dr. Hunter.

Fig. 4. A small double canula, like that of Levrette, for nasal polypi.

Fig. 5, 6, 7. Mr. Sharp's loop, probe, and needle, for nasal polypi.

Fig. 8. Forceps, for the extraction of polypi or other fungous substances. These are sometimes used as artery forceps, in amputation.

Fig. 9. The pharyngotomy, useful for puncturing tumors in the fauces; the point being concealed in its canula, till pushed forward into the tumor. *a*, A nut, that regulates the projection of the point. *b*, The point so projected out of the canula.

Fig. 10. Tonsil scissars, for cutting off excrescences about the fauces.

Miscellaneous.—Pl. X. Fig. 1. A speculum oris.

Fig. 2. Mr. Bell's knife and conductor, for dividing the phimosis.

Fig. 3. A knife, used for the same purpose. *a*, The blade. *b*, The grooved conductor. *c*, A longitudinal groove in the flat shoulder of the knife, allowing it to advance rather beyond the end of its conductor, at the same time that it is elevated.

Fig. 4. The gula forceps, for extracting bodies that stick in the œsophagus.

Fig. 5. Forceps, for dilating the ear, to examine its cavity, &c.

Fig. 6. An eyed needle, with a handle, for conveying a ligature.

Fig. 7. Mr. Home's blunt silver needle, for passing the ligature in aneurisms.

Fig. 8. A jugum penis. *a*, The compress. *b*, A screw, to regulate the pressure. *c*, The cleft end, which falls upon the neck of the screw *d*, where it is secured.

Fig. 9, 10. Crooked needles, which are made of all sizes.

Fig. 11, 12, Straight needles.

Fig. 13. Seton needles; one of them defended by a tortoise-shell case.

Fig. 14. A needle in a canula, for conveying setons through large tumors; improved by Mr. Savigny. *a*, The canula. *b*, The needle. *c*, Its point, projecting about half its length beyond the extremity of the canula. *d*, The needle drawn back into the canula.

Fig. 15. A small cutting needle, for common purposes.

Fig. 16. A needle, with a flat handle, and an eye at the point; calculated for passing the ligature in operations for the aneurism.

Fig. 17. Mr. Weir's spring tenaculum, having a sliding ring, to be advanced towads the points.

Fig. 18. A hook, with double points, useful in dissecting large tumors.

Fig. 19. Mr. Bell's curved silver director, for conveying setons through tumors in the joints.

Fig. 20. The common bullet forceps.

Fig. 21. A steel instrument, for extracting balls, where the forceps cannot be used. It has a scoop at each end, adapted to receive the ball.

Fig. 22. The common flat circular pessary. This may be made of box wood or cork, and of any size required.

Fig. 23. Dr. Clarke's oval pessary.

Fig. 24. Dr. Denman's globular pessary. This is made of cork and of any size that the case may require.

Fig. 25. An improved knife, for the fistula in ano; having a second blade, blunt on its edges, but sharp at the point, and sliding closely parallel with the cutting one, designed to conduct the button with more ease through the extremity of a sinus.

Fig. 26. Professor Richter's knife, for the bubonocele.

Operations on the Eye.—Pl. XI. Fig. 1. A side view of Mr. Wathen's levator palpebræ. Being made of soft silver, the form may be easily adapted to the part.

Fig. 2. The speculum of M. Pellier, of annealed silver wire, admitting of any variation of form.

Fig. 3. Spring forceps, with a sliding ring, for retaining the eye-lids.

Fig. 4. Thin curved scissars, for enlarging the section of the cornea, &c.

Fig. 5. La Faye's Cysostome, for wounding the capsule in extracting the cataract. *a*, The lancet, which recedes into the sheath, except when pressed out by the button *b*. *c*, A screw, regulating the length of the point. *d*, *d*, Two rings, for the fingers of the operator.

For the instruments employed in couching, &c. see Pl. XIV. Vol. I. and the article CATARACT.

INTEGUMENTS, in anatomy, denote the common coverings which invest the body; as the cuticula, cutis, &c. What are called the *common integuments*, are, the skin, with the fat and cellular membrane adhering to it. See ANATOMY. The term *Integument* is also extended to the particular membranes which invest certain parts of the body; as the coats or tunics of the eye.

INTERCOSTA'LES ARTERIÆ; the *intercostal arteries.* The superior intercostal artery is a branch of the subclavian; the other intercostal arteries are given off from the aorta.

INTERCOSTA'LES VENÆ, the intercostal veins. These, for the most part, accompany the arteries. They have been distinguished into *dextræ*, *superiores*, and *inferiores.* They empty themselves into the *vena azygos.*

INTERCOSTA'LES MUSCULI, the intercostal muscles; situated, as their name implies, between the ribs. On each side of the chest, there are eleven double rows; and these decussate each other like the strokes of the Roman letter X. The *intercostales externi* arise from the inferior acute edge of each superior rib, and run obliquely forwards, the whole length from the spine to near the joining of the ribs with their cartilages; from which, to the sternum, there is only a thin membrane covering the internal intercostals. The *intercostales interni* arise in the same manner as the externi: but they begin at the sternum, and run obliquely backwards, as far as the angle of the rib; and from that to the spine they are wanting. Both these are inserted into the upper obtuse edge of each inferior rib, as far back as the spine, into which the posterior portion is fixed.

By means of these muscles, the ribs are equally raised upwards during inspiration. Their fibres being oblique, give them a greater power of bringing the ribs near each other, than could be performed by straight ones. But, by the obliquity of the fibres, they are almost brought contiguous: and as the fixed points of the ribs are before and behind, if the external had been continued forwards to the sternum, and the internal backwards to the spine, it would have hindered their motion, which is greatest in the middle, though the obliquity of the ribs renders it less perceptible; and, instead of raising the fibres fixed to the sternum and spine, would have depressed the ribs.

The portions of the external intercostals which arise from the transverse processes of the vertebræ where the ribs are fixed to them, and other portions that pass over one rib and terminate in the next below it, Albinus calls *Levatores costarum longiores et breviores.* The portions of the internal that pass over one rib, and are inserted into the next below it, are by Douglas called, *Costarum depressores proprii Cowperii.* These portions of both rows assist in raising the ribs in the same manner as the rest of the intercostals.

The muscles here described are the *supra costales*, and *infra costales* of Winslow.

INTERCOSTA'LIS NERVUS; the *intercostal nerve*, also called the great intercostal or sympathetic nerve. This nerve arises in the cavity of the cranium, from a branch of the sixth and one of the fifth pair, uniting into one trunk, which passes out of the cranium through the carotid canal, and descends by the sides of the bodies of the vertebræ of the neck, thorax, loins, and os sacrum. In its progress it receives the small accessory branches from all the spinal nerves. In the neck it gives off the upper, middle, and lower cervical ganglions; from which the cardiac and pulmonary nerves arise. In the thorax it gives off the splanchnic or anterior intercostal, which perforates the diaphragm, and forms the semilunar ganglions, from which branches of nerves pass to all the abdominal viscera. They also form, in the abdomen, ten peculiar plexuses, distinguished by the name of the viscus to which each belongs; as the cœliac, splenic, hepatic, superior, middle, and lower mesenteric; two renal, and two spermatic. The posterior intercostal nerve gives accessory branches about the pelvis and ischiatic nerve, and at length terminates.

INTERMENT. See BURIAL.

INTERMITTENT FEVER. See the articles FEVER, TERTIAN, QUARTAN, &c.

INTERNO'DIUM, in botany, that part of the stalk of a plant, which is situated between joint and joint.

INTERO'SSEI MANUS, (*interosseus*, from *inter*, between, and *os*, a bone); small muscles situated between the metacarpal bones, and extending from the bones of the carpus to the fingers. They are divided into *internal* and *external;* the former are to be seen only on the palm of the hand, but the latter are conspicuous on both sides of the hand.—There are three *interossei interni:* The first, which Albinus names *posterior indicis*, arises tendinous and fleshy from the basis and inner part of the metacarpal bone of the fore-finger, and likewise from the upper part of that which supports the middle-finger. Its tendon passes over the articulation of this part of these bones with the fore-finger, and uniting with the tendinous expansion that is sent off from the extensor digitorum communis, is inserted into the posterior convex surface of the first phalanx of that finger. The second and third, which Albinus names *prior annularis*, and *interosseus auricularis*, arise, in the same manner, from the bases of the outsides of the metacarpal bones which sustain the ring-finger and the little-finger, and are inserted into the outside of the tendinous expansion of the extensor digitorum communis that covers each of those fingers. These three muscles draw the fingers, into which they are inserted, towards the thumb. The *interossei externi* are four; for among these is included the small muscle on the outside of the metacarpal bone that supports the fore-finger. By Douglas it is called *extensor tertii internodii indicis;* and by Winslow, *semi-interosseus indicis.* Albinus describes it among the interossei, and gives it the name of *prior indicis.* This first interosseus externus is found, on dissection, to arise by two tendinous and fleshy portions. One springs from the upper half of the inner side of the first bone of the thumb, and the other from the ligaments that connect the os trapezoides with the metacarpal bone of the fore-finger, and likewise from all the outside of this latter bone. These two portions unite as they descend, and terminate in a tendon, which is inserted into the outside of that part of the tendinous expansion from the extensor digitorum communis that is spread over the posterior convex surface of the fore-finger. The second, which Albinus calls *prior medii*, is not quite so thick as the last described muscles. It arises by two heads, one of which springs from the inner side of the metacarpal bone of the fore-finger, chiefly towards its convex surface, and the other arises from the adjacent ligaments, and from the whole outer side of the metacarpal bone that sustains the middle-finger. These two portions unite as they descend, and terminate in a tendon, which is inserted, in the same manner as the preceding muscle, into the outside of the tendinous expansion that covers the posterior part of the middle-finger. The third belongs likewise to the middle-finger, and is therefore named by Albinus, *posterior medii.* It arises, like the last-described muscle, by two origins, which spring from the roots of the metacarpal bones of the ring and middle-fingers, and from the adjacent ligaments, and is inserted into the inside of the same tendinous expansion as the preceding muscle. The fourth, called by Albinus *posterior annularis*, differs from the two last only in its situation, which is between the metacarpal bones of the ring and little-fingers. It is inserted into the inside of the tendinous expansion of the extensor digitorum communis that covers the posterior part of the ring-finger. These four muscles serve to extend the fingers into which they are inserted, and likewise to draw them inwards, towards the thumb, except the *posterior medii*, which, from its situation and insertion, is calculated to pull the middle-finger rather outwards.

INTERO'SSEI PEDIS; small muscles situated between the metatarsal bones; resembling the interossei of the hand, and, like them, divided into *internal* and *external.* The *interossei pedis interni* are three; and these arise tendinous and fleshy from the basis and inside of the metatarsal bones of the middle, the third, and the little-toes. Each terminates in a tendon that runs to the inside of the first joint of these toes, and from thence to their upper surface, where it loses itself in the tendinous expansion that is sent off from the extensors. The use of these three muscles is to draw the toe, into which each is inserted, towards the great-toe. Of the *interossei externi*, four in number, the first arises tendinous and fleshy from the outside of the root of the metatarsal bone of the great toe, from the os cuneiforme internum, and from the root of the inside of the metatarsal bone of the fore-toe. Its tendon is inserted into the inside of the tendinous expansion covering the back part of the toes. The second is placed, in a similar way, between the metatarsal bones of the fore and middle toes, and is inserted into the outside of the tendinous expansion on the back part of the fore-toe. The third and fourth are placed between the two next metatarsal bones, and are inserted into the outside of the middle and third toes. The first of these muscles draws the fore-toe inwards towards the great-toe. Each of the three others pulls the toe into which it is inserted, outwards. All assist in extending the toes.

INTERSPINA'LES COLLI, (from *inter*, between, and *spina*, the spine); the muscular portions situated between the spinous processes of the neck, and which draw these processes nearer to each other.

INTERSPINA'LES DORSI ET LUMBORUM; muscles, or rather small tendons, that connect the spinal and transverse processes.

INTERTRANSVERSA'LES LUMBORUM; four distinct bundles of muscular fibres, which fill up the spaces between the transverse processes of the vertebræ of the loins, and serve to draw them towards each other.

INTERTRI'GO, (from *inter*, between, and *tero*, to rub), a name for that sort of excoriation about the anus, groins, axilla, or other parts of the body, which is attended with inflammation and moisture. It is most commonly produced by hard riding, the irritation of the urine, or some acrimonious discharge in children. Dr. Cullen makes this a variety of *erythema.*

INTESTINE MOTION; that spontaneous movement, or change of place, which is observable among the corpuscles or component parts of a fluid. When the attracting corpuscles of any fluid are elastic, they must necessarily produce an intestine motion; and that, greater or less, according to the degrees of their elasticity and attractive force. For, two elastic particles, after meeting, will fly from each other with the same degree of velocity with which they met; abstracting from the resistance of the medium. But when, in leaping back from each other, they approach other particles, their velocity will be increased. A most important discovery has been made by Count Rumford, relative to the intestine motion produced in fluids, according as their particles become specifically heavier or lighter by the acquisition or deprivation of heat.

INTESTINES, (*intestina;* from *intus*, within): the convoluted membranous tube that extends from the stomach to the anus; receives the ingested food; retains it a certain time; mixes it with the bile and pancreatic juices; propels the chyle into the lacteals, and covers the fæces with mucus. This canal, thus folded and turned, forms a considerable bulk, which fills the greatest part of the cavity of the abdomen; and it is connected, through its whole extent, to membranous productions or continuations of the peritoneum, principally to those called the *mesentery* and *mesocolon* (see those articles). The incurvations of the intestinal canal form two arches; a small one, by which it is connected to the mesentery and mesocolon; and a great one on the opposite side, which lies loose. The whole canal is generally about six or seven times as long as the subject.

The intestinal canal is neither of an equal size nor thickness through its whole length; from whence anatomists have taken occasion to consider its different portions as so many particular intestines, and to divide them all into *small* and *large.* And as they still found some differences in each class taken altogether, they divided each into three portions, which they have distinguished by particular names. In the small intestines, the three portions are named *duodenum*, *jejunum*, and *ileum;* and in the great intestines, *coecum*, *colon*, and *rectum.* See those articles.

The intestines are composed of three coats, much in the same manner as the stomach. The first and outermost is a common one of the peritoneum, which Ruysch thought fit to distinguish by the name of *tunica cellulosa.*

The second is muscular, and made up of two planes; one external, the other internal. The external plane is very thin, and its fibres longitudinal; the internal plane is thicker, and its fibres run transversely round the circumference of the intestinal cylinder. These fibres are neither spiral, nor are they formed of perfect circles or of rings; but they seem disposed much in the same manner as in the stomach, and entirely surround the intestinal canal. These two planes adhere closely together, and likewise to the common coat by the intervention of cellular substance, which is in greater quantities on the side next the mesentery than on the other.

The third coat is the villous, resembling that of the stomach; the villi being formed of the fine terminations of arteries and nerves, and the origins of lacteals and lymphatics. The intestines are connected to the body by the mysentery; the duodenum has also a peculiar connecting cellular substance, as has likewise the colon and rectum, by whose means the former is firmly accreted to the back, the colon to the kidneys, and the latter to the os coccygis, and, in women, to the vagina. The remaining portion of the tube is loose in the cavity of the abdomen. The arteries of this canal are branches of the *superior* and *inferior mesenteric*, and the *duodenal.* The veins empty their blood into the vena portæ. The nerves are branches of the eighth pair and intercostals. The *lacteal vessels*, which originate principally from the jejunum, proceed to the glands in the mesentery.

INTUMESCENTIA, (from *intumesco*, to swell); disorders attended with puffiness, or swelling of the whole body, or of a considerable part of it. It is the second order of the class *Cachexiœ* of Cullen's Genera Morborum, which he defines, "the whole or great part of the body swelled externally."

INTUS-SUSCEPTIO, (from *intus*, within, and *suscipio*, to receive), or INTRO-SUSCEPTIO; a disease of the intestinal tube, and most frequently of the small intestines. It consists in a portion of the gut passing, for some length, within another portion; by which there is formed an obstruction to the passage of fæces.

Intestinal intus-susceptions vary much in their extent, situation, and other circumstances. It has been ascertained by dissection: 1. That this accident may occur in one or more parts, without producing any symptoms, indicating obstruction or deranged action of the intestines; and it is probable, that slight intus-susceptions are frequently produced, and speedily redressed, by the peristaltic motion of the intestines, where no such circumstance is suspected. 2. That intus-susceptions of considerable extent may subsist for a considerable length of time, occasioning pain of the bowels and costiveness, &c. without any adhesions taking place betwixt the receiving and received parts. 3. That where intus-susceptions have continued for a great length of time, the parts have become very much confused and strongly adhering to each other, with the passage through them very much contracted. Where the intus-suscepted portion of intestine becomes strangulated or inflamed, the progress of the disease may be expected to be as rapid as that of ordinary cases of enteritis, or incarcerated hernia.

Dr. Hull says, there is no symptom, or concourse of symptoms, which will enable us to determine the presence of *volvulus*, much less the point of the intestinal canal in which this is situated, or the state of the intus-suscepted portion of intestine, except when it occurs in the inferior part of the rectum. It may descend so low as to be reached by the finger introduced into the anus, or it may even be protruded through the anus. The latter case may be properly considered as constituting a distinct and dangerous species of exania, to which the trivial name *intus-suscepta* may be given, to distinguish it from the common *prolapsus ani*, wherein the lower portion of the rectum only is inverted and rendered conspicuous. A case of this kind is related by Professor Monro, in his paper on *Procidentia Ani*, inserted in the Edin. Essays. In that instance, the inverted intestine stood out four inches from the anus, without being much swelled, or of a deep red colour, and the child seemed to have no other disease. The tumor was easily introduced within the anus, and in this situation the orifice of the inverted gut resembles the feel of the *os tincæ* of an impregnated uterus. As it could not be reduced to its natural situation by the finger, they injected a large quantity of milk and water forcibly by a syringe; and this operation being repeated several times in vain, a very long probe of whalebone was made, a sponge fastened round the probe, and moistened with oil. The probe was introduced into the orifice, resembling an os tincæ, the sides of which rested on the sponge; with this the intestine was pushed a great way up into the body in the direction of the rectum, but without success. Several attempts of the same kind failed, and the child, being attacked with severe vomiting and perpetual tenesmus, died in a few days. On opening the body, it was found, that the inversion began a little below the upper part of the sigmoid flexure of the colon, and that the mesocolon was torn away from the inverted part.

It has been said that the Baroness de Lundi was cured of an intus-susception by gastrotomy; but it can scarcely be conceived, that any practitioner would perform the operation with this view. Quicksilver, and other ponderous bodies, have been given to cure this complaint, but little if any advantage can be derived from their exhibition. See Colic. If the disease be seated in the large intestines, Dr. Hull thinks, the copious and forcible injection of air, or of simple liquids, seems to promise the most success. In whatever part of the intestinal canal the intus-susception occurs, upon some occasions antispasmodics and cathartics, upon others antiphlogistics, will be indicated.

I'NTYBUS, (from *in*, and *tuba*, a hollow instrument), a plant so named from the hollowness of its stalk. See Endivia.

I'NULA, (contracted or corrupted from *Helenium*, Ελενιον, fabled to have sprung from the tears of Helen); elecampane. See Enula campana.

I'NULA DYSENTE'RICA; the systematic name of the lesser inula. See Conyza media.

I'NULA HELE'NIUM; the systematic name of the elecampane. See Enula campana.

INUNCTION, (from *inungo*, to anoint); the rubbing in of any unctuous substance into a part, with a view to its being absorbed. We have a familiar instance of this in the mercurial frictions commonly employed in venereal cases.

INUNDA'TÆ, in botany, the name of the 15th order in Linnæus's Fragments of a Natural Method; consisting of plants which grow in the water.

INVO'LUCRUM, in botany, that sort of calyx which surrounds a number of flowers together, every one of which has, besides this general cup, its own peculiar perianthium. The involucrum consists of a multitude of little leaves, disposed in a radiated manner.

JOHN'S-WORT. See Hypericum.

JOINT, a term generally signifying the juncture of two or more things; with or without motion between their edges, sides, or extremities. When applied to the connection of bones, it is denominated *articulation*. The conjunctions of bones are of different kinds, according to their intended functions. Anatomists have contrived a great number of technical terms to express these; about the meaning, propriety, and classing of which, there has been a great variety of contending opinions not worthy of repetition here. Some of the terms that have been used, the moderns have deemed it necessary to retain, since they serve to express the various circumstances of the articulations with propriety.

Joints are now most commonly divided into three classes, viz.

1. *Symphisis*, which properly signifies the conception or growing together of parts. When used to express the articulations of bones, this does not seem to comprehend, under the meaning generally given to it, any thing relating to the form or motion of the conjoined bones; but by it most authors only denote the bones to be connected by some other substance; and as there are different substances which serve this purpose, therefore they divide it into *Synchondrosis*, *Syneurosis*, or *Syndesmosis*, and *Sysarcosis*. See those articles.

2. The *Synarthrosis*; is a general term by which the immoveable conjunction of bones is expressed. This is divided into three kinds; viz. *Suture*, *Gomphosis*, and *Schyndilesis*.

3. *Diarthrosis*, is the articulation where the bones are so loosely connected as to allow of extensive motion. This is subdivided into three kinds, viz. *Enarthrosis*, or the ball and socket; *Arthrodia*, when a round head is received into a superficial cavity; *Ginglimus*, or hinge, in which the extreme parts of the bones mutually receive and are received, and allow of motion two ways.

The moveable articulations, or cavities of joints, are subject to various morbid affections of the most serious tendency. They are liable to injury from bruises, wounds, &c. in which, if the consequent inflammation do not terminate by resolution, the most formidable operations in general become necessary, to preserve the patient's life. When the cavity of a joint, as that of the knee or elbow, is exposed by an accidental puncture, it becomes subject to what Mr. John Hunter has ingeniously called the stimulus of imperfection.—Inflammation, with all its aggravated consequences, take place; the constitution is harassed with a malady for which nature herself has no resource, and art can apply no medicine; and unless the part is removed by amputation, the patient falls a sacrifice to the disease. In cases that have terminated favourably, the cure has taken place by anchylosis; the joint becoming immoveable; but an unsuccessful event is rather to be expected in most of these accidents; unless a union of the wound by the first intention, and that under favourable circumstances, can be effected. In the horse this is sometimes brought about by the actual cautery, applied to the edges of the wound, but the more delicate structure of the human frame will hardly allow us to profit by this seeming analogy.

Watery effusions, commonly called *dropsical swellings* of the joints, arise chiefly in consequence of severe rheumatic complaints; and when the tumor is not very large, the fluctuation of the fluid may be felt on pressure. When a large effusion appears immediately after a violent bruise, it is probable that it consists chiefly of blood: but when it succeeds a violent sprain, attended with great pain, inflammation, and swelling, terminating in an effusion, there is some reason to suspect, that the contained fluid consists of pus mixed with synovia.

Swellings of the joints are most apt to be confounded with collections in the bursæ mucosæ, or with matter effused in the adjacent cellular substance. From the first of these they are generally distinguished, by the contained fluid passing readily from one side of the joint to the other, and from its being diffused over the whole of it; whereas, when it is contained in the bursæ, the tumor is confined to a particular part, and is seldom attended with much pain.

When such collections can safely be allowed to remain, the capsular ligament ought never to be opened, as they can often be removed by discutients. Even considerable collections arising from rheumatism may commonly be discussed by friction, fomenting the parts with warm vapour, keeping them constantly moist with astringent solutions, covering them properly with flannel, and applying blisters. When these fail, supporting the part with a laced stocking, or with a roller, has frequently been of service. But whether a rheumatic tumor can be discussed or not, it ought not to be opened; for the inconvenience attending it is more intolerable than the pain and inflammation which may ensue. Indeed when the matter would do mischief by lodging, it should be discharged. Effused blood, and matter which succeed high degrees of inflammation, are of this kind. Blood is frequently extravasated among soft parts, without much detriment; but when in contact with cartilage or bone, it hurts them materially.

When the matter is *to be discharged* we should contrive to prevent the admission of air into the cavity of the joint. For this purpose the opening should be made with a trocar; and the skin, previously drawn tight to the upper part of the tumor, should be pulled down immediately on withdrawing the canula, by which a valve will be formed of the integuments. A piece of adhesive plaster should be directly laid over the opening, and the whole joint should be firmly supported by a flannel roller, properly applied. If the patient be plethoric, he should be blooded to such an extent as his strength will bear; he should be put upon a strict antiphlogistic regimen, and in every respect should be managed with caution; for inflammation being very apt to ensue, we cannot too carefully guard against it.

Joints are sometimes rendered painful and stiff by the formation of different *substances within the capsular ligaments.* These are sometimes loose, and as firm as cartilage; and sometimes of a soft membranous nature, similar to those arising in the bursæ mucosæ. In some cases these substances, especially the last species, retain nearly the same situation, without being much affected either by pressure or by the motion of the joint: in that case the pain is constant, but seldom severe. The first species, however, is commonly very moveable; and, on being touched, they slip with such facility that it is difficult to fix them even with the fingers. These are exceedingly painful in particular situations that interfere with the motion of the limb. A more particular account of these concretions, and of the treatment they require, will be found under the article KNEE.

The joints are likewise subject to scrofulous affections, particularly that known by the name of a white-swelling. See WHITE-SWELLING.

JO′NTHI, (of the Gr. *ιονθος*, or *vari*); small red, hard, and indolent tubercles that appear about the face, in young persons, before or about the time of puberty.

JOY, one of the most powerful mental emotions, accompanied with an extraordinary degree of animation and pleasure. The effect of this sensation, if not too violent, invigorates the whole animal frame, and facilitates the cure of diseases. Sudden joy, however, is often as injurious as the operation of either grief or terror; and many instances are recorded, in which the precipitate communication of unexpected news has proved immediately fatal. In order to prevent so dreadful a misfortune, such information ought not to be imparted, till the person to whom it relates, has been cautiously apprised, and thus prepared to undergo the various emotions and sensations that necessarily arise in an organized system. Hence we should fortify the mind equally, for encountering the most agreeable as well as the most disastrous tidings; and this frequently becomes the duty of the physician.

IPECACUA′NHA, a root, of which there are principally two kinds, distinguished by their colour, and brought from different places; but both possessing the same virtues, though in a different degree. The one is ash-coloured or grey, and brought from Peru; the other is brown, and is brought from the Brasils: and these are indifferently sent into Europe under the general name of *ipecacuanha.* These two sorts have been by some supposed to be the roots of two different plants; the *psychotria emetica*, and the *viola ipecacuanha.* But, according to others, this is a mistake; the only difference being, that one grows in a different place, and in a richer and moister soil, and is better supplied with juices than the other. However, the plant they belong to is now ascertained to be the *callicocca ipecacuanha.*

The ash-coloured ipecacuan is a small wrinkled root, bent and contorted into a great variety of figures, brought over in short pieces full of wrinkles, and deep circular fissures, quite down to a small white woody fibre that runs in the middle of each piece. The cortical part is compact, brittle, looks smooth and resinous upon breaking. It has very little smell; the taste is bitterish and subacrid, covering the tongue as it were with a kind of mucilage. The brown sort is small, and somewhat more wrinkled than the foregoing; of a brown or blackish colour without, and white within. The first sort, the ash-coloured or grey ipecacuan, is that usually preferred for medicinal use. The brown has been sometimes observed, even in a small dose, to produce violent effects. A third sort, called the *white* from its colour, has also been distinguished. It is woody, has no wrinkles, and no perceptible bitterness in taste. This, though taken in a large dose, has scarcely any effect at all, and is supposed to be the species named *viola*, which Geoffroy calls *bastard ipecacuan.* Geoffroy, Neumann, Dale, and Sir Hans Sloane, inform us, that the roots of a kind of *apocynum* or dog's-bane, are too frequently brought over instead of it; and instances are given of ill consequences following from the use of it. But if the marks above described, particularly the ash-colour, brittleness, deep wrinkles, and bitterish taste, be carefully attended to, all mistakes of this kind may be prevented.

Ipecacuan was first brought into Europe about the middle of the 17th century, and an account of it published about the same time by Piso; but it did not come into general use till about the year 1686, when Helvetius, under the patronage of Louis XIV. introduced it into practice. This root is one of the mildest and safest emetics with which we are acquainted; and has this peculiar advantage, that if it should not operate by vomit, it passes off by the other emunctories. It was first introduced among us with the character of an almost infallible remedy in dysenteries, and other inveterate fluxes, as menorrhagia and leucorrhœa; and also in disorders proceeding from obstructions of long standing: nor has it lost much of its reputation by time. In dysenteries, it almost always produces happy effects, and often performs a cure in a very short space of time. In other fluxes of the belly, in beginning dysenteries, and such as are of a malignant kind, or where the patient breathes a tainted air, it has not been found equally successful: in these cases it is necessary to continue the use of this medicine for several days, and to join with it opiates, diaphoretics, and the like. This root, given in substance, is as effectual, if not more so, than any of the preparations of it: the pure resin acts as a strong irritating emetic, but is of little service in dysenteries; while an extract prepared with water is almost of equal service in these cases with the root itself, though it has little effect as an emetic. Geoffroy concludes from hence, that the chief virtue of ipecacuan in dysenteries depends upon its gummy substance, which lining the intestines with a soft mucilage, when their own mucus has been abraded, occasions their exulcerations to heal, and defends them from the acrimony of the juices: and that the resinous part, in which the emetic quality resides, is required where the morbific matter is lodged in the glands of the stomach and intestines. But if the virtues of this root were entirely owing to its mucilaginous or gummy part, pure gum, or mucilages, might be employed to equal advantage. Water, assisted by a boiling heat, takes up from all vegetables a considerable portion of resinous along with the gummy matter: if the ipecacuan remaining after the action of water be digested with pure spirit, it will not yield half so much resin as at first; so that the aqueous extract differs from the crude root only in degree, being proportionably less resinous, and having less effect, both as an emetic, and in the cure of dysenteries. The virtues of ipecacuan, in this disorder, depend upon its promoting perspiration, the freedom of which is here of the utmost importance, and an increase of which, even in healthful persons, is generally observed to suppress the evacuation by stool. In dysenteries the skin is for the most part dry and tense, and perspiration obstructed: the common diaphoretics pass off without effect through the intestinal canal: but ipecacuan, if the patient, after a puke or two, be covered up warm, brings on a plentiful sweat. After the removal of the dysentery, it is necessary to continue the use of the medicine for some time longer, in order to prevent a relapse; for this purpose, a few grains divided into several doses, so as not to occasion any sensible evacuation, may be exhibited every day: by this means the cure is effectually established. And indeed small doses, given even from the beginning, have been often found to have better effects in the cure of this disease than larger ones. Geoffroy informs us from his own experience, that he has observed ten grains of the powder to act as effectually as a scruple or two; and therefore confines the dose betwixt six and ten grains: it has lately been found, that even smaller doses prove sufficiently emetic. The only officinal preparation of this root is a tincture made in wine, which accordingly has now the appellation of *vinum ipecacuanhœ* in each of the Pharmacopœias.

Many ingenious experiments were made with ipecacuanha by Dr. Irving, for which he obtained the prize medal of the Harveian Society at Edinburgh for 1784. He ascertained, that while this root contains a gummy resinous matter, yet that the gummy exists in a much greater proportion than the resinous part; that the gummy part is much more powerfully emetic than the resinous; that although the cortical part of the root be more active than the ligneous, yet that even the pure ligneous part possesses a considerable emetic power; and that the whole of the root possesses considerable influence, both as an antiseptic and astringent. To determine whether the emetic power of ipecacuan was of a volatile or fixed nature, Dr. Irving subjected it to distillation. The water obtained by distillation was found to have very little influence; but the decoction which remained in the still, not only operated violently as an emetic, but produced rigors, cold sweats, and other alarming symptoms. By long continued boiling, the activity of the root itself is almost totally destroyed; but Dr. Irving found, that the emetic property of ipecacuan was most effectually counteracted by means of the acetous acid, insomuch that thirty grains of the powder taken in two ounces of vinegar produced only some loose stools.

Ipecacuan, particularly in the state of powder, is now advantageously employed in almost every disease in which full vomiting is indicated; and when combined with opium under the form of the pulvis opii comp. it furnishes us with the most useful and active sweating medicine which we possess. It is also often given with advantage in very small doses, so as neither to operate by vomiting, purging, nor sweating. The full dose of the powder is a scruple or half a drachm, and double that in form of watery infusion. The full dose is recommended in the paroxysm of spasmodic asthma, and a dose of three or four grains every morning in habitual asthmatic indisposition. A dose of one third or half a grain, rubbed with sugar, and given every four hours or oftener, is recommended in uterine hemorrhagy, cough, pleurisy, hæmoptoë, &c. and has often been found highly serviceable.

As ipecacuanha is known to check the narcotic qualities of opium, Dr. A. Duncan suggests its use as an antidote to that drug when taken as a poison.

The officinal preparations of it are:—*Vin. ipecac.* Edin. Lond. Dubl. *Pulv. ipecac. et op.* Edin. *Pulv. ipecac. comp* Lond. Dubl.

IQUETA'IA, a name by which the inhabitants of the Brazils call the *Scrophularia aquatica*, which is there celebrated as a corrector of the nauseous flavour of senna.

I'RIS, (of *iris*, a rainbow; so called because of the variety of its colours), the anterior portion of the choroid membrane of the eye, which is perforated in the middle by the pupil. This it is which gives to the eye its various colours. The posterior surface of the iris is termed the *uvea*. See Eye.

I'RIS FLORENTI'NA, the Florentine iris, or orrice; the root of the *Iris Florentina*, Linn. *Iris corollis barbatis, caule foliis altiore sub-bifloro, floribus sessilibus.* Class, *Triandria.* Order, *Monogynia.* This plant, which is indigenous to Italy, in its recent state is extremely acrid, and when chewed excites a lasting pungency in the mouth: yet on being dried, this acrimony is almost wholly dissipated; the taste becomes slightly bitter, and the smell agreeable, and approaching to that of violets. The fresh root is cathartic, and for this purpose it was formerly employed in dropsies; but it is now chiefly used in its dried state, as a pectoral and expectorant. Hence it has a place in the *trochissi amyli* of the London Pharmacopœia, but its properties are trifling.

IRIS, FLORENTINE. See Iris florentina.

I'RIS GERMA'NICA; the systematic name of the flower-de-luce. See Iris nostras.

I'RIS NOSTRAS, the common iris, orris, or orrice; flower-de-luce. It is the *Iris Germanica; corollis barbatis, caule foliis altiori multifloro, floribus inferioribus pedunculatis*, Linn. The roots when fresh have a strong disagreeable smell, and an acrid nauseous taste. They are powerfully cathartic, and have been given in dropsical diseases, but they are little used in the present practice.

I'RIS PALUSTRIS, also named *Gladiolus luteus*, and *Acorus vulgaris;* the yellow water-flag, an indigenous plant. It is the *Iris pseudacorus imberbis, foliis ensiformibus, petalis alternis, stigmatibus minoribus* of Thunberg. Class, *Triandria.* Order, *Monogynia.* We commonly see it in marshes, and on the banks of rivers. It formerly had a place in the London Pharmacopœia under the name of *gladiolus luteus*, but it has since been discarded. The root is without smell, but it has an acrid styptic taste, and its juice, on being snuffed up the nostrils, produces a copious discharge; and hence is recommended both as an errhine and sialogogue. Given internally, when perfectly dry, it acts as an astringent in the cure of diarrhœas. The expressed juice is likewise said to be a useful application to serpiginous eruptions and scrofulous tumors.

I'RIS PSEUDA'CORUS; the systematic name of the yellow water-flag. See Iris palustris.

IRISH SLATE. See Lapis hibernicus.

IRON, *ferrum;* an imperfect metal of a pale white colour, inclining to a grey, and internally composed of small facets. It is very abundant in nature, being found in almost all coloured stones, bitumens, and in almost all metallic ores. The utility of iron in the practice of medicine is very considerable; and it is the basis of many medicines, that are employed with the happiest success. It is almost the only metal which is not in some degree noxious, and whose operation is not to be feared. The effects of iron upon the animal economy are various. It gives energy to the nerves and muscles, increases the secretions in general, especially the menstrual discharge, and excites the action of the heart and arteries. Nor is its action less effectual on the fluids: it is readily carried into the blood, combines with it, renders it of a darker colour, and imparts to it a more healthy consistence. It is therefore a tonic and alterative, and unites in its operation the properties of a great number of other medicines. Like astringents, it increases the motion of the parts, and has the advantage of being more constant and durable in its effects than many other remedies which possess the same virtue, because it combines with the organs themselves, by means of the fluids which serve for their nutrition. It appears, therefore, that in every case wherein the muscular and nervous fibres are feeble in their action, in debilities of the stomach and intestines, and diseases dependent thereon, in short, in every case wherein the blood has not a sufficient quantity of cruor, or has not its healthy degree of consistency, preparations of iron may be administered with success. As its mechanical division is extremely difficult, it is directed to be kept in the shops in the state of filings or wire, and the scales of black oxid, which are found around the smith's anvil. Soft maleable iron is the only kind fit for internal use, as steel and cast-iron always contain impurities, and sometimes arsenic.

The officinal preparations in the pharmacopœias are very numerous: the principal will be found under Ferrum. They are thus enumerated in Dr. A. Duncan's Edin. New Disp.—*Ferri limaturi purificata*, Edin. *Carbonas ferri*, Edin. Lond. Dubl. *Aqua ferri aerati*, Dubl. *Sulphas ferri*, Edin. Lond. Dubl. *Tinctura ferri muriati*, Dubl. *Ferrum ammoniacale*, Lond. *Ferrum tartarisatum*, Lond. *Vinum ferri*, Lond. Dubl.

IRRITABILITY, (*irritabilitas*, from *irrito*, to provoke), the *vis insita* of Haller, the *vis vitalis* of Goerter, *oscillation* of Boerhaave, *tonic power* of Stahl, and *inherent power* of Cullen: the contractility of muscular fibres, or a property peculiar to muscles, by which they contract upon the application of certain stimuli, without a conciousness of action. Haller calls that part of the human body *irritable*, which becomes shorter by being touched; *very irritable*, if it contracts upon a slight touch; and the contrary, if by a violent touch it contracts but little. He calls that a sensible part of the human body, which upon being touched transmits the impression of it to the mind: and in brutes, he calls those parts sensible, the irritation of which occasions evident signs of pain and disquiet in the animal. On the contrary, he calls that insensible, which, being burnt, torn, pricked, or cut till it is quite destroyed, occasions no sign of pain or convulsion, nor any sort of change in the situation of the body. From the result of many cruel experiments he concludes, that the epidermis is insensible; that the skin is sensible in a greater degree than any other part of the body; that the fat and cellular membrane are insensible; and the muscular flesh sensible, the sensibility of which he ascribes rather to the nerves than the flesh itself. The tendons, he says, having no nerves distributed to them, are insensible. The ligaments and capsulæ of the articulations are also concluded to be insensible; whence Haller infers, that the sharp pains of the gout are not seated in the capsulæ of the joint, but in the skin, and in the nerves which creep upon its external surface. The bones are all insensible, says Haller, except the teeth; and likewise the marrow. Under his experiments the periosteum and pericranium, the dura and pia mater, appeared insensible; and he infers, that the sensibility of the nerves is owing to the medulla, and not to the membranes. The arteries and veins are held susceptible of little or no sensation, except the carotid, the lingual, temporal, pharyngeal, labial, thyroideal, and the aorta near the heart; the sensibility of which is ascribed to the nerves that accompany them. Sensibility is allowed to the internal membranes of the stomach, intestines, bladder, ureters, vagina, and womb, on account of their being of the same nature with the skin: the heart is also admitted to be sensible; but the lungs, liver, spleen, and kidneys, are possessed of a very imperfect, if any, sensation. The glands, having few nerves, are endowed with only an obtuse sensation. Some sensibility is allowed to the tunica choroides and the iris, though in a less degree than the retina; but none to the cornea. Haller concludes, in general, that the nerves alone are sensible of themselves; and that, in proportion to the number of nerves apparently distributed to particular parts, such parts possess a greater or less degree of sensibility.

Irritability, he says, is so different from sensibility, that the most irritable parts are not at all sensible, and *vice versa*. He alleges facts to prove this position, and also to demonstrate, that irritability does not depend upon the nerves, which are not irritable, but upon the original formation of the parts which are susceptible of it. Irritability, he says, is not proportioned to sensibility; in proof of which, he observes that the intestines, though rather less sensible than the stomach, are more irritable; and that the heart is very irritable, though it has but a small degree of sensation.

Irritability, according to Haller, is the distinguishing characteristic between the muscular and cellular fibres; whence he determines the ligaments, periosteum, meninges of the brain, and all the membranes composed of the cellular substance, to be void of irritability. The tendons are inirritable; and though he does not absolutely deny irritability to the arteries, yet his experiments on the aorta produced no contradiction. The veins and excretory ducts are in a small degree irritable, and the gall bladder, the ductus choledochus, the ureters and urethra, are only affected by very acrid corrosives; but the lacteal vessels are considerably irritable. The glands and mucous sinuses, the uterus in quadrupeds, the human matrix, and the genitals, are all irritable; as are also the muscles, particularly the diaphragm. The œsophagus, stomach, and intestines, are irritable; but of all the animal organs the heart is endued with the greatest irritability. In general, there is nothing irritable in the animal body but the muscular fibres; and the vital parts are the most irritable. This power of motion, arising from irritations, is supposed to be different from all other properties of bodies, and probably resides in the glutinous mucus of the muscular fibres, altogether independent of the influence of the soul. The irritability of the muscles is said to be destroyed by drying of the fibres, congealing of the fat, and more especially by the use of opium in living animals. The physiological system, of which this is an abstract, was adopted by Castell and Zimmermann, and also by Dr. Brocklesby, who suggests, that irritability, as distinguished from sensibilty, may depend upon a series of nerves different from such as serve either for voluntary motion or sensation. This doctrine, however, has been controverted by M. le Cat, by Dr. Whytt in his Physiological Essays, and more recently by the adherents to Dr. Brown's system. See Brunonianism.

The laws of irritablity, according to Dr. Crichton, are: 1. After every action in an irritable part, a state of rest, or cessation from motion, must take place before the irritable part can be again incited to action. If by an act of volition we throw any of our muscles into action, that action can only be continued for a certain space of time; the muscle becomes relaxed, notwithstanding all our endeavours to the contrary, and remains a certain time in that relaxed state, before it can be again thrown into action. 2. Each irritable part has a certain portion or quantity of the principle of irritability which is natural to it, part of which it loses during action, or from the application of stimuli. 3. By a process wholly unknown to us, it regains this lost quantity, during its repose or state of rest. In order to express the different quantities of irritability in any part, we say that it is either more or less redundant, or more or less defective. It becomes redundant in a part when the stimuli which are calculated to act on that part are withdrawn, or withheld for a certain length of time, because then no action can take place: while on the other hand, the application of stimuli causes it to be exhausted, or to be deficient, not only by exciting action, but by some secret influence, the nature of which has not yet been detected; for it is a circumstance extremely deserving of attention, that an irritable part or body may be suddenly deprived of its irritability by powerful stimuli, and yet no apparent cause of muscular or vascular action takes place at the time. Thus a certain quantity of spirits taken at once into the stomach, kills almost as instantaneously as lightning does: the same thing may be observed of some poisons, as opium, laurel-water, the juice of some poisonous vegetables, &c. 4. Each irritable part has stimuli which are peculiar to it; and which are intended to support its natural action: thus, blood, which is the stimulus proper to the heart and arteries, if by any accident it gets into the stomach, produces sickness or vomiting. If the gall, which is the natural stimulus to the gall-bladder, duct, and duodenum, is by any accident effused into the cavity of the peritoneum, it excites too great action of the vessels of that part, and induces inflammation. The urine does not irritate the tender texture of the kidneys, ureters, or bladder, except in such a degree as to preserve their healthy action; but if it be effused into the cellular membrane, it brings on such a violent action of the vessels of these parts as to produce gangrene. Such stimuli are called *habitual* stimuli of parts. 5. Each irritable part differs from the rest in regard to the quantity of irritability which it possesses. This law explains to us the reason of the great diversity which we observe in the action of various irritable parts: thus the muscles of voluntary motion can remain a long time in a state of action, and if it be continued as long as possible, another considerable portion of time is required before they regain the irritability they lost; but the heart and arteries have a more short and sudden action, and their state of rest is equally so. The circular muscles of the intestines have also a quick action and short rest. The urinary bladder does not fully regain the irritability it loses during its contraction, for a considerable space of time; the vessels which separate and throw out the menstrual discharge, act, in general, for three or four days, and do not regain the irritability they lose for a lunar month. 6. All stimuli produce action in proportion to their irritating powers. As a person approaches his hand to the fire, the action of all the vessels in the skin is increased, and it glows with heat; if the hand be approached still nearer, the action is increased to such an unusual degree as to occasion redness and pain; and if it be continued too long, real inflammation takes place; but if this heat be continued, the part at last loses its irritability, and a sphacelus or gangrene ensues. 7. The action of every stimulus is in an inverse ratio to the frequency of its application. A small quantity of spirits taken into the stomach, increases the action of its muscular coat, and also of its various vessels, so that digestion is thereby facilitated. If the same quantity, however, be taken frequently, it loses its effect. In order to produce the same effect as at first, a larger quantity is necessary: and hence the origin of dram-drinking. 8. The more the irritability of a part is accumulated, the more that part is disposed to be acted upon. It is on this account that the activity of all animals, while in perfect health, is much livelier in the morning than at any other time of the day; for during the night the irritability of the whole frame, and especially that of the muscles destined for labour, viz. the muscles of voluntary action, is re-accumulated. The same law explains why digestion goes on more rapidly the first hour after food is swallowed than at any other time; and it also accounts for the great danger that accrues to a famished person upon first taking in food. 9. If the stimuli which keep up the action of any irritable body be withdrawn for too great a length of time, that process on which the formation of the principle depends, is gradually diminished, and at last entirely destroyed. When the irritability of the system is too quickly exhausted by heat, as is the case in certain warm climates, the application of cold invigorates the frame, because cold is a mere diminution of the overplus of that stimulus which was causing the rapid consumption of the principle. Under such or similar circumstances, therefore, cold is a tonic remedy; but if in a climate naturally cold, a person were to go into a cold bath, and not soon return into a warmer atmosphere, it would destroy life just in the same manner as many poor people who have no comfortable dwellings are often destroyed from being too long exposed to the cold in winter. Upon the first application of cold the irritability is accumulated, and the vascular system therefore is disposed to great action: but after a certain time all action is so much diminished, that the process, whatever it be, on which the formation of the irritable principle depends, is entirely lost. For further information on this subject, see Dr. Crichton's Treatise on Mental Derangement.

IRRITA'TIO, irritation; or that action which is produced by a stimulus. See IRRITABILITY.

I'SCHIAS, (*ιςχιας*; from *ισχιον*, *the hip)*; or *Sciatica*; a rheumatic affection of the hip joint. This is one of the terminations of acute rheumatism. See RHEUMATISM.

ISCHIATOCE'LE, (*ισχιατοκηλη*; from *ισχιον*, *the hip*, and *κηλη*, *a rupture)*; or *Ischiocele*; an intestinal rupture through the sciatic ligaments. This is a rare disease; though instances of it are upon record.

ISCHIO-CAVERNO'SUS. See ERECTOR PENIS.

ISCHIOCE'LE, (of the Gr. *ιςχιοκηλη*). See ISCHIATOCELE.

I'SCHIUM, (*ιςχιον*; from *ισχις*, *the loin*, so named because it is situated near the loins), one of the bones composing the pelvis in the fœtus. See INNOMINATUM OS. It is called the hip-bone, and is the lowest of the three portions of the os innominatum. It is of a very irregular figure, and divided by anatomists into its body, tuberosity, and ramus. The body, externally, forms the inferior portion of the acetabulum, and sends a sharp-pointed process backwards, called the spine of the ischium. This is the process to which is attached the ligament described in speaking of the ilium, as forming a great foramen for the passage of the sciatic nerve. The tuberosity is large and irregular, and is placed at the inferior part of the bone, giving origin to several muscles. In the recent subject it seems covered with cartilage; but this appearance, as in the spine of the ilium, is owing only to the tendinous fibres of the muscles that are inserted into it. This tuberosity, which is the lowest portion of the trunk, supports the body in a sitting posture. Between the spine and the tuberosity is observed a sinuosity, defended by a cartilaginous crust, which serves as a pully, on which the obturator muscle plays. From the tuberosity, the bone becoming narrower and thinner, forms the ramus, which passes forwards and upwards, and makes, with the ramus of the os pubis, a large hole of an oval shape, called the *foramen magnum ischii.* This, through its whole circumference, affords attachment to different muscles. See Pubis, Os.

ISCHU′RIA, (ισχυρια; from ισχω, *to restrain*, and ȣρον, *the urine)*; a suppression of urine. This is a genus of disease in the class *locales* and order *epischeses* of Cullen. There are four species: 1. *Ischuria renalis*, occuring after a disease of the kidneys, with a troublesome sense of weight in that part. 2. *Ischuria ureterica*, after a disease of the kidneys, a sense of pain or uneasiness in the course of the ureters. 3. *Ischuria vesicalis*, a frequent desire to make water, with a swelling of the hypogastrium, and pain at the neck of the bladder. 4. *Ischuria urethralis*, a frequent desire to make water, with a swelling of the hypogastrium, and pain of some part of the urethra. Any obstruction or irritation of one or other of the kidneys or ureters, by a stone, gravel, mucus, blood, inflammations, spasm, suppuration, scirrhus, swellings of the neighbouring parts, &c. may either prevent the urine from being secreted, or may give rise to a scanty or depraved secretion, or finally may obstruct its passage into the bladder after it is secreted.

The urine also, after it has entered the bladder, is there frequently suppressed, by reason of various disorders to which that organ is liable, as an irritation or inflammation, spasm, acrid substances injected, or sympathy with the neighbouring parts; or by reason of the texture of the bladder itself being destroyed, or a palsy, scirrhus, ulcer, &c. in the bladder. Or, lastly, the urine may be retained in the bladder from a general stupor, as from a disease of the brain, which happens in some fevers, when the patient is neither sensible of the usual stimulus, nor even of one much greater, so that the fibres can scarcely be excited to contraction by any means whatever. This, in fevers, is always a bad sign, and sometimes even proves fatal.

A suppression of urine for any length of time produces an immense distention of the bladder, oppression, uneasiness, and pain, not only of the part itself, but of the surrounding ones, and even of the whole body; a spasm, or insuperable constriction of the sphincter; an inflammation, gangrene, or laceration of the bladder itself; a violent irritation of the whole habit; then a nausea, vomiting, vertigo, general stupor, and an impregnation of the whole mass of blood with a humour of an urinous nature, which at last being poured out into various cavities of the body, especially of the head, soon brings on deep sleep, convulsions, and death.

Among the causes of this disease, we may reckon the production of calculi, which frequently bring on the most excruciating and dangerous diseases. The urine, besides the water and salts, contains no small share of the glutinous part of the blood already somewhat putrescent, and still inclined to farther corruption. Hence the urine even of the most healthy people deposits a sediment after it has stood for some time; and though none of this sediment be formed in a healthy body, yet if the smallest particle of foreign matter be introduced into the bladder, a crust soon gathers round it, and it is sure to become the basis of a stone, which by degrees grows to a very great size. It is not unlikely, also, that some unknown fault of the fluids may contribute to the production of those calculi, as the stone is well known to be an hereditary disease, and to be born with the patient. Calculous patients also are commonly subject to stomach complaints, more especially to acidity; and many have accordingly been benefited by the use of alkaline remedies. From the same causes may calculi be formed in the kidneys, producing a train of symptoms of the most deplorable kind. See Nephritis.

The treatment of ischuria must of course be adapted to the cause producing it. The palliative means are such generally as are enjoined under the article Dysuria. Other means are also suggested under Stricture, Calculus, Bougie, Urine, &c.

ISLA′NDICUS MUSCUS. See Lichen islandicus.

ISINGLASS. See Ichthyocolla.

ISSUE, a kind of artificial ulcer formed in the skin with a view to procure a discharge of purulent matter, which is frequently of advantage in different disorders. Practitioners were formerly of opinion, that *issues* served as drains to carry off the noxious humours from the blood, and therefore they placed them as near to the affected part as possible. But as it is now known that they prove useful merely by the quantity of matter which they produce, they are generally placed where they will occasion the least inconvenience. The most proper parts for them are, the nape of the neck; the middle, outer, and fore part of the humerus; the hollow above the inner side of the knee; or on either side the spine of the back; or between two of the ribs; or wherever there is a sufficiency of cellular substance for the protection of the parts beneath. But they ought never to be placed over the belly of a muscle; nor over a tendon, or thinly covered bone; nor near any large blood-vessel.

The issues commonly used are, the blister-issue, the pea-issue, and the seton or cord. The latter, however, is seldom called by any other than its specific name; and what is here called a blister-issue, is more commonly named a *perpetual blister.*

When a *blister-issue* is to be used, after the blister is removed, a discharge of matter may be kept up by dressing the part daily with an ointment mixed with the powder of cantharides. If the discharge be too little, more of the powder may be used; if too great, or if the part be much inflamed, the issue ointment may be laid aside, and the part dressed with ung. resin. or with common cerate, till the discharge be diminished and the inflammation abated. It is most proper sometimes to use the issue ointment and a mild one alternately.

A *pea-issue* is formed either by making an incision, with a lancet, or by caustic, large enough to admit one or more peas; though sometimes, instead of peas, kidney-beans, Gentian root, or orange-peas, are used. When the opening is made by an incision, the skin should be pinched up and cut through, of a size sufficient to receive the substance to be put into it. But when it is to be done by caustic, the common caustic, or lime and kali of the shops, answers best: it ought to be reduced to a paste with a little water or soft soap, to prevent it from spreading; an adhesive plaster, with a small hole cut in the centre of it, should be previously placed, and the caustic paste spread upon the hole in the centre. Over the whole, an adhesive plaster should be placed to prevent any caustic from escaping. In ten or twelve hours the whole may be removed, and in three or four days the eschar will separate when the opening may be filled with peas, or any of the other substances already mentioned.

The *seton* is used where a large quantity of matter is wanted, and especially where it is wished for from deep-seated parts. It is frequently used in the back of the neck for diseases of the head or eyes, or between two of the ribs in affections of the breast. The mode of introducing it is described under Seton.

I'STHMUS VIEUSSENII, a name for the ridge which surrounds the oval fossa or remains of the foramen ovale, in the right auricle of the human heart.

ITCH. See Psora.

ITCHING, an uneasy sensation, with a desire of scratching the place affected, is often very troublesome, although it seems to be more a-kin to pleasure than to pain. As pain proceeds from too great an irritation, either chemical or mechanical, so does itching proceed from a slight one. Titillation, or friction of a woollen shirt, for instance, upon the skin of a person unaccustomed to it, and of a delicate constitution, excites itching; as do also many acrid fossil, vegetable, and animal substances. Hence an itching is the first sensation after the application of cantharides, although the same, when augmented, becomes painful. The same effect is produced by any thing acrid thrown out upon the skin; as in exanthematic fevers, the disease called the *itch*, &c. Lice, worms, especially ascarides, irritating either the skin or the intestines, excite a troublesome itching. Certain species of internal itching excites people to many necessary actions both in a diseased and healthy state; such as the excretion of fæces and urine, coughing, sneezing and the like.

JU'BA, in botany, a panicle, so called from its resemblance to a horse's mane.

JUGA'LE OS, (from *jugum*, a yoke, from its resemblance, or because it is articulated to the bone of the upper jaw, like a yoke), also called *os malæ*, or *zygomaticum*. The ossa malarum are the prominent bones which form the upper part of the cheeks. These are situated close under the eyes, making part of the orbits. Each of them has three surfaces. 1. An exterior and somewhat convex one. 2. A superior and concave, serving to form the lower and lateral parts of the orbit. 3. One that is posterior, very unequal and concave, for the lodgment of the lower part of the temporal muscle. Each of these bones are described as having four processes, formed by their four angles. Two of these are called *orbitar* processes; the superior one being connected with the orbitar process of the os frontis; and the inferior one with the malar process of the maxillary bone. The third process is connected with the temporal process of the sphenoid bone: and the fourth forms a bony arch, by its connection with the zygomatic process of the temporal bone. Adults have these bones entire and completely ossified.

JU'GLANS, *(quasi Jovis glans*, the royal fruit, from its magnitude), the walnut; the fruit of the *Juglans regia*, Linn. *Juglans foliolis ovalibus glabris subserratis subæqualibus.* Class, *Monœcia.* Order, *Polyandria.* The walnut-tree is a native of Persia, but cultivated in Britain. The husk of the unripe fruit, which has an astringent bitterish taste, is directed for medicinal use by the London college, on account of its antiscorbutic, alterative, and anthelmintic virtues. An extract of the green fruit is the most convenient preparation, as it may be kept for a sufficient length of time, and made agreeable to the stomach of the patient, by mixing it with cinnamon or pimento water.

JU'GLANS RE'GIA, the systematic name of the walnut-tree. See Juglans.

JUGULAR VEINS, *(jugulares*, from *jugulum*, the throat); the veins which pass from the head down the sides of the neck. These are divided, from their situation, into external and internal: the *external* or *superficial jugular vein* receives the blood from the frontal, angular, temporal, auricular, sublingual, and the occipital veins, whilst the *internal* or *deep-seated* receives the blood from the lateral sinusses of the dura mater, and from the laryngeal and pharyngeal veins. Both the jugular veins unite, and form, with the subclavian vein, the vena cava superior, which terminates in the superior part of the right auricle of the heart.

JU'JUBES. See Jujubœ.

JU'JUBŒ, (from the *Arab.*), jujubes; a half-dried fruit of the plum kind, about the size and shape of an olive. It is the produce of the *Rhamnus zizyphus*, Linn. This fruit, when in perfection, has an agreeable sweet taste, and in the southern parts of Europe, where jujubes are common, they make an article of food in their recent state, and of medicine when partially dried.

JU'LAP, (from *Juleb*, Pers. which signifies a sweet potion), or Julep; an extemporaneous form of medicine, composed of simple and compound waters, sweetened. It served principally for a vehicle to other forms not so convenient to take alone, but modern practice disowns these refinements.

JULY-FLOWERS. See Caryophyllus ruber.

JU'NCUS ODORA'TUS, *Fœnum camelorum*, or *Juncus aromaticus;* camel's hay, or sweet rush, the *Andropogon schœnanthus*, Linn. It is imported into this country from Turkey and Arabia. It has an agreeable smell, and a warm, bitterish, and not unpleasant taste. It was formerly employed as a stomachic and deobstruent remedy, but it is now disused.

JUNIPER. See Juniperus.

JUNIPER, GUM. See Sandarack.

JUNI'PERUS, (from *juvenis*, young, and *pario*, to bring forth; so called because it produces its young berries while the old ones are ripening), common juniper; the *Juniperus communis*, Linn. *Juniperus foliis ternis patentibus mucronatis, baccis longioribus.* Class, *Dioecia.* Order, *Monadelphia.* The tops and berries of this plant are directed in the different pharmacopœias. The berries are usually preferred, and these are brought chiefly from Holland and Italy. Of their efficacy as a stomachic, carminative, diaphoretic, and diuretic, there are several relations by physicians of great authority; and medical writers have also spoken of the utility of the juniper in nephritic cases, uterine obstructions, scorbutic affections, and some cutaneous diseases. Dr. Cullen, however, is backward even in acknowledging their diuretic quality, and deprecates their exhibition in the form of spirit, so frequent with the common people. The British pharmacopœias direct the essential oil, and a spirituous distillation of the berries.

JUNI'PERUS COMMUNIS; the systematic name of the juniper tree. See Juniperus.

JUNI'PERUS LICIA: the systematic name of the plant that affords frankincense. See Olibanum.

JUNI'PERUS SABINÆ; the systematic name of the savine tree. See Sabina.

IVY. See Hedera arborea.

IVY, GROUND. See Hedera terrestris.

IVY, GUM. See Gummi hederæ.

IXINE. See Carlina gummifera.

K

KA'JEPUT OLEUM. See Cajeput oil.

KA'LI, (from *kali*, Arab.) The medicine so called in the British pharmacopœias is the vegetable alkali, potass or pot-ash. See Alkali, Barilla, Natron, Pot-ash, &c.

KA'LI ACETA'TUM, or *Sal diureticus;* a useful diuretic, deobstruent, and eccoprotic preparation of potass, prepared by adding, to one pound of kali, four or five, or as much as will perfectly neutralize it, of distilled vinegar. The salt is afterwards obtained, by evaporating the liquid; and kept from the air in a glass vessel well stopped. In the new chemical nomenclature it is called *acetis potassæ.* Externally, dissolved in common vinegar, it is applied to inflammatory swellings of the testicles, and as a discutient to indolent tumors. Internally, it is exhibited in physconia abdominalis, pituitous affections of the primæ viæ, rheumatisms, dropsies, icterus, intermittent fevers, hæmorrhoids, and dysuria.

KA'LI CITRA'TUM, a name given by some to the saline liquor that is made by saturating prepared kali with lemon juice. It is exhibited in most febrile diseases.

KA'LI PURUM; pure kali or caustic vegetable alkali, the *potassa* of the Edinburgh college. This preparation of kali is violently caustic, and destroys the living animal fibre with great activity. See Alkali caustic. The water of pure kali, which is made by adding four pounds of prepared kali and six of lime, to four gallons of distilled water, is evaporated to dryness, and the residue afterwards melted by heat, and cast into moulds of a proper size and shape. This is sufficiently pure for medical use, but is not fit for chemical experiments. We can, however, obtain it perfectly pure by the following process of Lowitz: Evaporate a solution of potass till a thick pellicle form on its surface; allow it to cool; separate all the crystals formed, as they consist of foreign salts: renew the evaporation in an iron or silver bason; and remove the pellicles which form on the surface with an iron skimmer, as long as any appear. When the ebullition ceases, remove the vessel from the fire, and agitate the fused salt with an iron spatula while it cools. Dissolve the saline mass in twice its weight of water, and evaporate in a silver bason till it begins to crystallize. The crystals are pure potass. The fluid which swims over them has a dark-brown colour, and must be poured off; but if kept in a close-stopt phial, it will deposit its colouring matter, and, by evaporation, will furnish more crystals of potass.

KA'LI PRÆPARA'TUM, formerly named *Sal absynthii*, *Sal tartari*, and *Alkali vegetabile fixum:* in modern chemistry, *Carbonas potassæ purissimus;* the *alkali vegetabile mite* of the Dublin college. This preparation of potass is a mere purification of the salt by the common process of solution and evaporation to dryness. It is in general use to form the kali citratum for the saline draughts given in febrile affections. It is also exhibited with advantage in spasms of the intestines arising from acidity, in calculous complaints, leucorrhœa, scrophula, and aphthous affections.

KA'LI SULPHURA'TUM. See Hepar sulphuris.

KA'LI TARTARISA'TUM, formerly named *Tartarum solubile*, *Sal vegetabilis*, and *Alkali vegetabile tartarisatum.* This is made by dissolving one pound of prepared kali in one gallon of distilled water; throwing in afterwards three pounds of crystals of tartar, and procuring the salt, by evaporation and chrystallization in a cool place. Diuretic, deobstruent, and eccoprotic virtues are attributed to this preparation, which is a *tartrite of potass*, and so named in the Edinburgh pharmacopœia. In doses of a scruple, half a drachm, or a drachm, this salt is a mild cooling aperient: two or three drachms commonly loosen the belly; and an ounce proves pretty strongly purgative. It has been particularly recommended as a purgative for maniacal and melancholic patients. It is an useful addition to the purgatives of the resinous kind, as it promotes their operation, and at the same time tends to correct their griping quality.

KA'LI VITRIOLA'TUM, called also *Alkali vegetabile vitriolatus*, *Sal polychrestus*, and *Nitrum vitriolatum*. This preparation of potass is called *sulphas potassæ* in the new chemical nomenclature, and by the Edinburgh college. Its virtues are cathartic, diuretic, and deobstruent; with which intentions it is administered in a great variety of diseases, as constipation, suppression of the lochia, fevers, jaundice, dropsies, &c. It is made by burning out the superfluous acid of the salt which remains after the distillation of nitrous acid: after dissolving this in distilled water, in which it should be boiled a little while, it is strained, and the liquor set by to crystallize. The Dublin college call this preparation by the name of *Alkali vegetabile vitriolatum*. As the residuum of the distillation of nitrous acid may not always be at hand, the Edinburgh college have given a receipt for making this salt, by directly combining its constituents. It would be more economical to use a solution of sulphate of iron, in place of sulphuric acid, by which means not only an equally pure sulphate of potass may be procured at less expence, but also a very pure carbonate of iron.

Sulphate of potass forms small transparent very hard crystals, generally aggregated in crusts, and permanent in the air. It has a bitter taste, is slowly soluble in water, requiring 16 parts at 60°, and 4 at 212°. It is insoluble in alcohol, decrepitates on live coals, and melts in a red heat. It consists of 45.2 of acid, and 54.8 of potass. It is decomposed by the barytic salts; by the nitrates and muriates of lime and of strontia; by the tartrites partially; and by the salts of mercury, silver, and lead.

KAMSIN, the name of a hot southerly wind common in Egypt. M. Volney says, these winds are known in Egypt by the general name of *winds of fifty days;* not that they last so long without intermission, but because they prevail more frequently in the 50 days preceding and following the equinox. Travellers have mentioned them under the denomination of *poisonous winds*, or, more correctly, *hot winds of the desert.* Such, in fact, is their quality; and their heat is sometimes so excessive, that it is difficult to form any idea of its violence, without having experienced it; but it may be compared to the heat of a large oven, at the moment of drawing out the bread. When these winds begin to blow, the atmosphere assumes an alarming aspect. The sky, at other times so clear in this climate, becomes dark and heavy; the sun loses his splendour, and appears of a violet colour; the air is not cloudy, but grey and thick, and is, in fact, filled with an extremely subtile dust, which penetrates every where. This wind, always light and rapid, is not at first remarkably hot, but it increases in heat in proportion as it continues. All animated bodies soon discover it by the change it produces in them. The lungs, which a too rarefied air no longer expands, are contracted, and become painful. Respiration is short and difficult; the skin parched and dry, and the body consumed by an internal heat. In vain is recourse had to large draughts of water; nothing can restore perspiration. In vain is coolness sought for; all bodies in which it is usual to find it, deceive the hand that touches them. Marble, iron, water, notwithstanding the sun no longer appears, are hot. The streets are deserted, and the dead silence of night reigns every where. The inhabitants of towns and villages shut themselves up in their houses, and those of the desert in their tents or in wells dug in the earth, where they wait the termination of this destructive heat. It usually lasts three days, but if it exceeds that time it becomes insupportable. Woe to the traveller whom this wind surprises remote from shelter! He must suffer all its horrible effects, which sometimes are mortal. The danger is most imminent when it blows in squalls; for then the rapidity of the wind increases the heat to such a degree as to cause sudden death. This death is a real suffocation; the lungs being empty are convulsed, the circulation is disordered, and the whole mass of blood driven by the heart towards the head and breast; whence the hæmorrhage at the nose and mouth, which happens after death. This wind is especially destructive to persons of a plethoric habit, and those in whom fatigue has destroyed the tone of the muscles and the vessels. The corpse remains a long time warm, swells, turns blue, and soon becomes putrid. These accidents are to be avoided by stopping the nose and mouth with handkerchiefs; an efficacious method likewise is that practised by the camels. On this occasion these animals bury their noses in the sand, and keep them there till the squall is over. Another quality of this wind is, its extreme aridity; which is such, that water sprinkled on the floor evaporates in a few minutes. By this extreme dryness it withers and strips all the plants; and by exhaling too suddenly the emanations from animal bodies, crisps the skin, closes the pores, and causes that feverish heat which is the constant effect of suppressed perspiration.

KA'OLIN, the name of an earth which is used as one of the two ingredients in oriental porcelain. Some of this earth was brought from China, and examined by Mr. Reaumeur. He found that it was perfectly infusible by fire, and believed that it is a talcky earth; but Mr. Macquer observes, that it is more probably of an argillaceous nature, from its forming a tenacious paste, with the other ingredient called *petunse*, which has no tenacity. Mr. Bomaire says, that by analysing some Chinese kaolin, he found it was a compound earth consisting of clay, to which it owed its tenacity; of calcareous earth, which gave it a mealy appearance; of sparkling crystals of mica; and of small gravel, or particles of quartz-crystals. He says, that he has found a similar earth upon a stratum of granite, and conjectures that it may be a decomposed granite. This conjecture is the more probable, as kaolins are frequently found in the neighbourhood of granites.

KEILL (James), an eminent physician and anatomist; brother to John Keill, the celebrated astronomer and mathematician. He was born in Scotland, about the year 1673; and, having travelled abroad, read lectures of anatomy with great applause in the universities of Oxford and Cambridge, by the latter of which he had the degree of doctor of physic conferred upon him. In 1700 he settled in Northampton, where he had considerable practice as a physician; and died there of a cancer in the mouth, in 1719. He published, 1. An English translation of Lemery's Chemistry. 2. An Account of Animal Secretion, the Quantity of Blood in the Human Body, and Muscular Motion. 3. A Treatise on Anatomy. 4. Several Pieces in the Philosophical Transactions.

KEIRI. See CHEIRI.

KELP, the mineral alkali which is obtained, in this and other countries, by burning marine plants. See BARILLA.

KE'RMES, (from *chermah*, Arab.), called also *Granum tinctorium*, and *Coccus baphica;* the round reddish coloured grains, about the size of peas, found in Spain, Italy, and the south of France, adhering to the branches of the scarlet oak. These are the nidus of a minute red animalcule, the *Coccus quercus ilicis*, Linn. The remedy formerly called *confectio alkermes*, was prepared with these, and supposed to possess great corroborant and astringent virtues, but it has long been disused.

K'ERMES MINERALIS. See ANTIMONIUM, and HYDROSULPHURETUM STIBII RUBRUM.

KERNEL-WORT. See SCROPHULARIA VULGARIS.

KEYSER'S PILLS, a once celebrated mercurial medicine, the method of preparing which was purchased by the French government, and has since been published by M. Richard. 1. According to Mr. Keyser, the most essential operation, consists in separating the mercury very exactly from all heterogenous matter, by reducing it to an æthiops. This he effected by means of an hydraulic machine consisting of a number of buckets, in which mercury was triturated with water, till the water acquired a black colour. This water, upon standing, deposited a sediment, which, being dried by a proper heat, is the æthiops required. 2. The second process consists in revivifying the mercury by distillation, in freeing it from all oily matters by means of quicklime, in detaching this quicklime by repeated washings, and afterwards in drying it by means of a sand heat. 3. The third operation consists in the reduction of the mercury, purified by this process, to a red calx, by means of heat. In conducting this operation, Mr. Keyser advises that the mercury be put into glass matrasses, a small quantity only in each. For the proper degree of heat, he directs those who would practise the operation, to consult Lemery and other chemists. 4. The fourth operation is, the dissolution of the calcined mercury, obtained by the former process, in distilled vinegar, by means of triture. A pound of this mercury may be dissolved in eight pints of vinegar, by rubbing it for an hour or two in a mortar, which should be kept solely for that purpose. Care must also be taken that the vinegar be not distilled in a metallic but in a glass vessel. 5. The fifth process consists in the intimate mixture of this vinegar, impregnated with mercury, with manna. Each pound of the vinegar, containing about two ounces of mercury, will require two pounds of manna. They must be rubbed together, upon marble stones, till they acquire a uniform consistence; which will be liquid to such a degree as to pass through a hair-cloth, for separating the impurities of the manna. After being managed in this manner, it must be spread upon a marble slab, and left to dry there, without the assistance of fire, till it acquires such a consistence as not to run off upon the table being turned to one side. It must then be placed before the fire, and at the same time moved from one part of the stone to another, by means of a knife, furnished with a large pliant blade. By this means, it is perfectly prepared for forming the pills. 6. The last process consists in the formation of the mass thus prepared into pills. These Mr. Keyser made to weigh either three grains or a grain and a half; the first for robust, the last for delicate constitutions.

To this account Mr. Keyser has added some reflections by way of supplement. He observes, that, by the purification of the mercury from distillation, a great quantity of heterogeneous matter is separated from it. This, however, by no means frees it completely from all foreign matter. And, as mercury purified, upon being calcined and dissolved in vegetable acid, is a much more powerful medicine than mercury calcined without purification, he concludes, that repeated purifications would render it still more active. He makes another remark respecting the dissolution of the mercurius calcinatus in the distilled vinegar. He observes, that the mercury thus dissolved, may be made to unite with running mercury, and to form a very singular product. He formerly mentioned, that a pound of this mercurius calcinatus was to be dissolved in eight pints of vinegar. If to this be added two pounds of running mercury, and the agitation continued, a substance will arise to the surface in the form of cream. This being removed by the assistance of a wooden spoon, more will continue to rise as long as the agitation is continued. The cream being dried and incorporated with manna, in the proportion of one part of the cream to eight of manna, forms a very useful preparation, and is said to be an effectual remedy against recent venereal complaints, particularly against chancres.

M. Richard concludes his account of Keyser's pills with observing, that he considers it to be, without exception, the most effectual remedy for the venereal disease hitherto discovered. But further trials of this remedy do not justify the sanguine accounts of its properties, though it may succeed when some of the other mercurial preparations have failed. The hydrargyrus acetatus is considered as an adequate substitute for the more elaborate form directed above. See HYDRARGYRUS ACETATUS.

KIBES, a name for chilblains. See CHILBLAINS. They affect the hands or feet, but especially the heels, and are attended with inflammation, heat, pain, tumefaction, and itching. They sometimes suppurate, but often go away of themselves without breaking, if the part be defended from the external cold.

KIDNEYS, *renes;* two solid glandular bodies, situated in the posterior part of the cavity of the abdomen, on each side of the lumbar vertebræ, between the last false ribs and os ilium. The right kidney lies under the great lobe of the liver, and is consequently lower than the rest, which lies under the spleen.

1. The *figure* of the kidneys resembles that of a large bean, their circumference being convex on one side, and concave on the other. The concave side is turned to the vertebræ, and the convex side the opposite way. Their length answers to the distance between the last false rib and os ilium; they are about half as broad as they are long, and half as thick as they are broad. In each kidney we observe an anterior and a posterior side, a superior and an inferior extremity, a great and small curvature, and a convexity and concavity. The posterior portion is broader than the anterior or foreside; and the upper extremity is a little broader and more incurvated than the lower. The depression in the small curvature is oblong and uneven, resembling a sinus, surrounded by several tubercles; and, as it is turned a little toward the foreside, this side is something narrower than the other.

2. The descending aorta and inferior vena cava lie between the kidneys, close to the bodies of the vertebræ and to each other; the artery being on the left side, and the vein on the right. The renal artery commonly comes from the side of the aorta under the superior mesenteric artery: that of the left side has its origin a little higher and further back than that of the right side; and both having passed over almost at right angles, enter the sinus of the kidney, and divide into many branches, which subdivide into many others still smaller. The renal veins have less variety than the arteries. It is seldom we find more than one on each. From each kidney several branches proceed, which soon unite to form a trunk, which ends in the vena cava. These vessels were, by the ancients, termed the *emulgent arteries and veins*, and they frequently go under those names at present.

The artery and vein are not of an equal length, and the difference depends on the situation of the aorta and vena cava; for the left renal artery is shorter than the right, because the aorta lies nearest the left kidney; and the left renal vein is longer than the right, because the vena cava lies furthest from the left kidney. These vessels are likewise disposed in such a manner, as that the veins lie more anteriorly than the arteries; because the aorta lies close to the spina dorsi: whereas the vena cava, which perforates the diaphragm at some distance from the vertebræ, does not join them till after it has given off the renal veins.

3. Each artery is surrounded by a *nervous* network called *plexus renalis;* which furnishes a great number of filaments to the kidneys, that come partly from the semilunar ganglions of the two great sympathetic nerves, and partly from the plexus hepaticus and splenicus. This renal plexus sends likewise some filaments round the renal veins.

4. The kidneys are surrounded by the *membrana adiposa*, a very loose membranous and cellular covering, which was, for a long time, improperly taken for a duplicature of the peritonæum. This last, however, covers only the foreside of the kidneys, and consequently they lie without the peritonæum, because the portion of that membrane which covers them cannot be considered as an entire coat. The only common coat they have, therefore, is the cellular substance, which likewise invests the renal arteries and veins.

The proper membrane of the kidneys is strong and dense, and adheres very closely to their surface; for it penetrates every where by numerous elongations into their substance, from which it cannot be separated without tearing. The external surface of this lamina is very smooth, polished, and shining; and it renders the whole surface of the kidney very even and uniform in adults. In children, this convex surface is in a degree divided into several lobes and tubercles; and in grown persons we sometimes observe the same inequalities.

The blood-vessels having entered the kidneys, are ramified every way; and these ramifications send out other capillary branches, which penetrate all the way to the surface, where they appear like irregular stars and furnish the proper membrane of the kidneys. Sometimes these two ramifications extend to the membrana adiposa, and communicate there with the arteriæ and venæ adiposæ. The adipose coat, which likewise invests the great vessels till their entry into the kidneys, does not seem to accompany them any further, but terminates at the sinus, in the interstices between the ramifications.

5. With regard to the *structure of the kidneys*, we may distinguish in them three kinds of substance: an exterior one, which is the cortical; a middle substance, which is medullary and radiated; and an inner substance, which is only a continuation of the second, and terminates on the inside by papillæ, for which reason it goes under the name of *papillaris*. These three substances may be seen distinctly in a kidney cut into two equal parts, through the great curvature.

Inflammation, and our fine injections, discover an infinity of small capillary vessels, which run in various directions between and round the different portions of the cortical substance; and, by the help of a microscope, we see likewise great numbers of small red corpuscles more or less round, and disposed almost like bunches of currants. The other two, viz. the medullary or striated, and the papillary substances, are really but one and the same mass, of a more red colour; the convex side of which rises in several places into narrow tubercles, lodged in the same number of cavities or depressions. The radiated striæ are afterwards continued to the papillary portion; and the papillæ form, in some measure, so many centres of these radii, opposite to the tubercles. The medullary substance is likewise distinguished from the cortical, by the arterial and venal arches, which send capillary ramifications on all hands; and its colour is more or less red.

The papillæ, which are a continuation of the medullary substance, as has been said, are often a little paler than that substance. They are ten or twelve in number, very distinct from each other, resembling the same number of cones, with very broad bases and obtuse apices. At the point of each papilla we see, in a slight depression, several very small holes, through which little drops may be perceived to run when the papillæ are compressed. These are little drops of urine, which, being filtered, partly in the cortical, partly in the medullary or tubular substance, afterwards pass through the substance of the papillæ, and are discharged by these orifices.

6. Each papilla lies in a kind of membranous calyx or infundibulum, which opens into a common cavity, called the *pelvis*. This pelvis is membranous, being of the same structure with the calices, of which it is a continuation; and its cavity in man is not uniform, but distinguished into three portions, each of which contains a certain number of infundibula or calices, together with the papillæ which lie therein; and sometimes we find two or three papillæ in the same infundibulum.

At the place where these infundibula surround the bases of the papillæ, they send productions into the medullary or radiated substance of the kidney, which accompany the blood-vessels, and serve for capsules or vaginæ to all the vascular arches, both arterial and venal, and to their different ramifications, quite through the cortical substance, and as far as the surface of the kidney.

After the infundibula have contracted, in a conical form, round the apices of the papillæ, each of them forms a small short tube or gullet, which uniting at different distances along the bottom of the sinus of the kidney, form three large tubes that go out from the sinus, in an oblique direction from above downwards, and immediately afterwards unite into one trunk, which is called the ureter. See URETERS.

The kidneys are subject to various diseases, but particularly to inflammation and calculi. See the articles CALCULUS and NEPHRITIS.

KIKEKUNEMALO; a pure resin, very similar to copal, but of a more beautiful whiteness and transparency. It is brought from America, where it is said to be used medicinally in the cure of hysterics, tetanus, &c. It forms the most beautiful of all varnishes.

KI'NA KI'NA. See CINCHONA.

KI'NO, (*kino*, Ind.); also called *Gummi Gambiense*, and *Gummi rubrum astringens Gambiense*. The tree from which this resin is obtained, though not botanically ascertained, is known to grow on the banks of the river Gambia, in Africa. On wounding its bark, the fluid kino immediately issues drop by drop; and by the heat of the sun, is formed into hard masses. It is very like the resin called *sanguis draconis;* and is much redder, more firm, resinous, and astringent than catechu. Dr. A. Duncan says he has found in commerce three kinds of kino, easily distinguished by their external characters. 1. In very small black fragments, perfectly opaque, without smell, crackling under the teeth when chewed, not colouring the saliva, after some time imparting only a slight astringent taste, not fusible, and difficultly reduced to powder; the powder a dark chocolate brown. This, although longest known in commerce, does not seem to be that described by Fothergill as the produce of the Pau de Sangue. 2. A species imported in large fragments, on some of which the impression of the vessel into which it had been received while fluid, and in which it had hardened, is evident. The colour of this is very dark brown, its fracture resinous, and appearance homogeneous, with small air bubbles; in very thin splinters, transparent, and of a ruby red colour, crackling under the teeth when chewed. The taste is at first somewhat acid, but afterwards becomes considerably bitter and astringent, succeeded by a peculiar sweetness, infusible and friable; the powder a reddish brown. This is said to be the extract of the *Coccoloba uvifera*, and indeed exactly resembles specimens certainly known to be such. 3. A sort in dark brown masses of various sizes, either smooth or rounded on the surface, or in fragments often covered with a reddish brown powder; its fracture resinous and very unequal, appearance sometimes homogeneous, but more commonly heterogeneous, mixed with bits of twigs, leaves, &c. splinters transparent, ruby red, no smell, scarcely crackling under the teeth, but sometimes gritty from the accidental mixture of sand, taste simply astringent, succeeded by sweetness, and, when long chewed, a portion adheres to the teeth: infusible and friable; powdered, a reddish brown. This, Dr. Duncan says, is certainly obtained from the *Eucalyptus resinifera*, or brown gum tree of New South Wales. Kino is now in common use, and is the most efficacious vegetable astringent, or styptic, in the materia medica.

KIRSTENIUS (Peter), professor of physic at Upsal, and physician-extraordinary to the queen of Sweden, was born at Breslaw in 1577. Besides the dead languages, he applied himself to the study of Arabic; and not only read Avicenna, but also Mesue, Rhasis, Avenzoar, Albukasis, and Averrhoes. He visited Spain, Italy, England, and did not return home from his travels till after seven years, when he was chosen by the magistrates of Breslaw to have the direction of their college and schools, but through sickness, as well as disgust, was obliged to resign them. He then applied himself chiefly to the practice of physic, and went with his family into Prussia, where he obtained the friendship and esteem of the chancellor Oxenstiern, whom he accompanied into Sweden, and was there made professor of physic in the university of Upsal, and physician to the queen. He died in 1640. It is said in his epitaph, that he understood 26 languages. He wrote many works; among which are, 1. *Liber secundus Canonis Avicennæ, typis Arabicis, ex MSS. editus, et ad verbum in Latinum translatus*, in folio. 2. *De vero usu et abusu Medicinæ*. 3. *Grammatica Arabica*, folio. 4. *Vitæ quatuor Evangelistarum, ex antiquissimo codice MS. Arabico erutæ*. in folio. 5. *Notæ in Evangelium S. Matthæi, ex collatione textuum Arabicorum, Syriacorum, Ægyptiacorum, Græcorum, & Latinorum*, in folio, &c. This celebrated man should not be confounded with *George Kerstenius*, another learned physician and naturalist, who was born at Stettin, and died in 1660.

KNEE, (*genu*, from γονυ, παρα το εις γην νευειν; because by it the body is bowed towards the earth); the articulation of the thigh with the leg bone. The joint of the knee being a ginglymus joint, admits, consequently, of only flexion and extension, except when it is bent, and then it will allow of a small rotation by the ligaments being relaxed. This joint is made up of the femur, patella, and tibia; the fibula does not reach the joint, and therefore has no part in its composition. The patella in extension is drawn up, in flexion it is pulled down. Under the ligament of the patella is a sacculus mucosus; secreting a fluid very like the synovia. The strength of this, as of all joints of the ginglymus kind, is on each side. The capsular ligament is large, and admits of the collection of a fluid within the joint; in which case the swelling appears above and on each side the patella, but chiefly above, on account of the ligaments being thinner there. What is called the synovial gland, Dr. Hunter concludes is not one: because, in general, he thinks that there are no such glands; and that this, like all the rest called synovial, is mere fat: and that what is called synovia, is secreted here, and in all the other joints, by the vessels of that vascular membrane covering the cartilages, and this fatty substance under the internal lamen of the capsular ligament of each joint. Besides the capsular ligament, there are *two others* covering the posterior parts of the condyles of the femur, and fixed into the head of the tibia, between its two cavities. These ligaments are stretched when the leg is extended, and relaxed when the leg is bent; at which time they allow a little lateral motion of the joint by their being relaxed. Between the tibia and femur are two semilunar cartilages: these are thick on their external edges, and thin in their centre. They are tied to the tubercle by their horns; and alter their figure according to the situation of the bones, to make the shape of one correspond to that of the other.

It sometimes happens, that pieces of cartilage, or of bone covered by cartilage, are found loose in the cavity of the joint of the knee. These are of different sizes: some of them are as large as common garden beans. They are generally flat, or oblong, having their edges rounded. It is seldom that there are more than one of these loose cartilages in a joint; but sometimes there are two. Some surgeons have formerly considered them as belonging to the patella; and that, like the ossa triquetra in the skull, they owed their origin to distinct points of ossification. Mr. Cruikshank found one entirely cartilaginous, and another, which, though bone covered by cartilage, was formed on the lower end of the femur, this convinced him of his mistake. In the last-mentioned case, there was a cavity in the lower end of the femur, corresponding to the loose bone, showing that they had been connected with one another; though, as both surfaces were nearly smooth, the manner of their connection was not evident. He supposes that, during their growing, these cartilages and bones are connected to the neighbouring parts by vessels; and that, when either their determined growth is finished, or their size is too large for the easy motion of the joint, they become loose. When they are detached, the synovia, from the irritation they induce, is secreted in greater quantity; the capsular ligament becomes distended, the knee appears swelled, a degree of stiffness takes place in the motion of the joint, with more or less of external inflammation. There is also the distinct feel of a fluid underneath; and the loose bit of cartilage gets frequently above the condyles of the femur, on the out or inside of the knee, and may be laid hold of with the thumb and finger through the integuments. When the patient has walked much, the synovia is sensibly increased, and, on remaining more quiet for two or three days, is as sensibly diminished. The symptoms are sometimes so mild as not to need an operation, but at other times it is the only expedient for relief.

Much seems to depend on the surgeon, whether this operation shall be a dangerous one or not. Mr. John Hunter recommends the removing them by incision; but thinks the particular spot where the operation is to be performed, as well as the manner of operating, deserve the greatest attention. There is a part within the cavity of the joint of the knee, which receives the basis of the patella during the extension of the leg. It partakes more of the nature of cellular membrane than capsular ligament, and lies under the lower extremities of the vasti and cruræus muscles, before they are inserted into the patella. Mr. Hunter proposes to lay hold of the cartilage or bone, and cut down upon them at this place; the incision, he thinks, should be no larger than just to allow of their being easily thrust out. A stitch or two is then to be passed through the divided integuments, and the lips of the wound, by these means, are to be brought together. These stitches, however, must not pass into the cavity of the joint: instead of uniting the parts in this case, they would act as setons, and produce inflammation in place of preventing it. To be convinced of this last position, he refers to the introduction of a seton into the tunica vaginalis testis, for the radical cure of the hydrocele. The aim of the surgeon then is, if possible, to heal the wound by the first intention. A piece of sticking plaster, with proper bandage and position of the joint, may even make stitches in the integuments unnecessary. Mr. Hunter has noticed six or seven cases in which these cartilages were removed by excision, though not just in the manner recommended: all of them, except one, did well. The operation in this one was attended with great inflammation, and followed by an anchylosis of the joint. Other instances of failure we have heard of; but, it must be observed, that there are constitutions where any wound, much more a penetrating wound into the cavity of the joint of the knee, will be attended with danger. The circumstances which the operator has most to avoid, Mr. Hunter asserts, are the exposing the cavity of the joint too much; lacerating or bruising of the capsular ligament; not properly closing the orifice in the integuments; or employing a blunt or dirty instrument in the dividing them. All or any of these circumstances, he thinks, will produce inflammation in the joint, and render the operation exceedingly dangerous. But in tolerably sound constitutions, the operation now recommended, performed with the necessary precautions, he is convinced, is as safe a one as most operations in surgery. When the cavity of the joint has inflamed, the danger, he owns, is very great. Ligament and cartilage, the substances composing joints, have fewer vessels than any other parts perhaps of an animal body; they inflame, suppurate, or go through the usual processes of parts under irritation, with greater difficulty; and, when they have gone through them, the consequences are generally destructive of the ordinary intentions of these processes; the joint anchyloses, and is destroyed instead of being recovered. The irritation, meanwhile, attending such fruitless processes, generally proves fatal in consequence of hectic. See Hectic.

KNEE-HOLLY. See Ruscus.

KUNCKEL (John), a celebrated Saxon chemist, born in the duchy of Sleswick, in 1630. He became chemist to the elector of Saxony, the elector of Brandenburgh, and Charles II. king of Sweden, who gave him the title of *Counsellor in metals*, and letters of nobility, with the surname of *Louwensteing*. He employed 50 years in chemistry; in which, by the help of the furnace of a glass-house which he had under his care, he made several discoveries, particularly of the phosphorus of urine. He died in Sweden in 1702; and left many works, some in German, and others in Latin; among which, that intitled *Observationes Chemicæ*, and the "Art of making Glass," printed at Paris in 1752, are the most esteemed.

L

LA'BIA, the lips; all the loose parts of the face before the gums. The red part is called *prolabium.* When the cuticle is taken off, there is a villous surface, as in the glans penis.

LA'BIA PUDENDI; the exterior female privities. They are situated on the fore part of the pubis; extending downwards under the edge of the ossa pubis, whose symphisis is exactly intermediate. They are prominent, thicker at their superior part, and unite below at the perineum. They are composed of cellular membrane, and fat. They have a red mucous surface within, like that of the mouth; and outwardly are covered with hair at the age of puberty.

LABIA'LES ARTERIÆ. See Maxillaris Arteria.

LABIA'TUS, in botany, *labiate*, or lip-shaped, a term applied to a flower. It is a monopetalous corolla, with a narrow tubular basis, expanding at the top in one entire, or in two lips. Linnæus uses the term *ringens;* including under it both *labiate* and *personate* flowers. This creates confusion, which Martin says would be avoided, if we might put labiate for an irregular monopetalous corolla with two lips; appropriating the term ringens to such as have the lips gaping and open, and personate to such as have them closed. Sometimes the upper lip is wanting, and then the style and chives supply its place, as in the ground-pine, bugulæ, &c. Some botanists call this an *unilabiate flower*. In some species, the upper lip is turned upwards, as in the ground-ivy; but most commonly the upper lip is convex above, or turns the hollow part down to the under lip; in this way representing a helmet, whence they have been called *galeate*, *cucullate*, and *galericulate* flowers.

LABORATORY, or Elaboratory, the workhouse of the chemists, or the place where they perform their operations; where their furnaces are built, their vessels kept, &c. But in general the term *laboratory* is applied to any other place where experiments in the arts are performed.

LABOUR, the act of parturition, or child-birth. In the science of Midwifery, labours are divided into three classes; *natural*, *laborious*, and *preternatural.* In whatever manner the head of the child presents, where the delivery at full time is performed by nature, the labour is, with great propriety, called *natural;* when the birth is protracted beyond the usual time, or cannot be accomplished without extraordinary assistance, it is deemed *laborious;* and *preternatural*, when any other part but the head presents.

By whatever power the uterus is enlarged, when any further increase is prevented, a stimulus to contraction must ensue; by this means an uneasy sensation is excited, which must, in the woman, produce an effort to procure relief; and thus arise the true labour pains, which at first are light and of short duration, a considerable remission intervening. The periods of recurrence soon become more frequent: the pains acquire an increased force, producing more and more change on the os uteri; which, yielding to the impelling cause, gradually opens and expands; till at length it becomes completely dilated, the membranes protruded and ruptured, and the child, by the expulsive force of the uterus, assisted by that of the diaphragm and abdominal muscles, is thus pushed along and delivered.

The symptoms of approaching labour are, the subsiding of the abdominal tumor: hence, a discharge of mucus from the vagina, sometimes tinged with blood; incontinency, or suppression of the urine; tenesmus; pains of the belly, loins, and about the region of the pubes; restlessness, hot and cold fits, &c. *Spurious pains* are to be carefully distinguished from those of genuine labour. The former arise from the stretching of the uterus, and its pressure on the neighbouring parts, or from costiveness. They are to be distinguished from the latter by the following symptoms: They are most troublesome towards the evening, increase in the night, and abate through the day; they are more trifling and irregular than true uterine pains; the uterine orifice is not affected; and there is no increased flow of mucus from the parts. *True pains* begin about the region of the kidneys, strike forward towards the pubes, and down the thighs: they return at regular periods; there is a copious discharge of mucus from the vagina; the os uteri gradually opens, and can be felt to dilate in time of pain; while the membranous bag, in a tense state, forcibly pushes against the finger.

The event, in labour, is so precarious, that no certain judgment can be formed from almost any symptoms, till the labour itself be considerably advanced. A prognosis in general is chiefly to be formed from the age, state of health, and temperament of the patient; from the force, duration, and recurrence of the pains; and from their effect on the uterine orifice: from the time of the rupture of the membranes; from the general make and form of the woman, but, in particular, of that of the pelvis; from the bulk and position of the child, &c.

With regard to the method of delivery, and position of the woman, this has been different in different ages, and in different countries. The chief thing, however, is to guard against cold and fatigue, observing that the woman be placed in the most favourable posture for supporting the back, for the action of the abdominal muscles, &c. and most convenient for the necessary assistance. Till the labour is considerably advanced, she may be indulged in whatever posture is most agreeable; after which the bed or couch is the most proper.

With regard to assistance in natural parturition, the accoucheur for the most part has little to do, till the membranes are ruptured, and the head in perinæo. In time of labour, the woman should be kept very cool, and every means of being overheated should be avoided. She should be put to bed in proper time, placed on her side or back, with her head and shoulders a little raised, a cloth tied to the bed-post, or held by an assistant, to support her hands in time of pain, and her feet resting against a foot-board: her knees should be drawn up towards the belly, and a folded pillow put between them. All efforts to press or strain, except what nature excites, are improper, hurtful, and should be avoided: the membranes, if possible, ought not to be ruptured till they almost protrude at the os externum; the perinæum must be lubricated when formed into a tumor, and carefully supported while overstretched; for this purpose, a cloth, smoothly folded, should be applied over the part, to enable the accoucheur to have a firmer hold. This is an important part of his office, and must be attended to with the strictest care. From the time this protrusion begins to form till the head of the child be completely delivered, the perinæum must be carefully preserved by the palm of the hand firmly applied against it, which should be carried backwards in a direction towards the anus, and kept so during every pain. Thus the miserable consequences will be prevented to which the neglect of this pressure exposes; for by this support the overstretching of the perinæum will be greatly lessened, the part will dilate gently and gradually, the vertex will easily slip from under the pubes, and the forehead will rise from under the perinæum in a safe, slow, and gentle manner. The perinæum must now be released, by cautiously sliding it over the face and chin of the child; and this ought to be made further sure of, by passing a finger under it round and round. After the head has thus mechanically advanced through the pelvis and vagina, a pain or two must be waited for, when in like manner the body will follow; nothing more being necessary than to support the child while it is gradually pushed forwards by the expulsive force of the natural pains.

When the child has cried, and the change in the circulation freely taken place, the funis umbilicalis must be tied and divided, the infant must be wrapped in a warm receiver, and given to the nurse to be washed and dressed. The parts of the woman must now be gently wiped, a warm soft cloth must be applied, and a proper time waited for the separation of the placenta.

This last is also the work of nature, and seldom requires more force to bring it along than if it lay entirely loose within the cavity of the uterus. Thus, in pulling, no greater force should be employed than is just sufficient to put the funis on the stretch: for if it is already separated, no violence is necessary to extract it; and if the adhesion is very firm, all violent efforts are improper, and often followed with most dangerous consequences. Its advancing is known by the contraction of the uterus, and shifting of the abdominal tumor, and by the lengthening of the cord. By the spontaneous contraction of the uterus, this separation is effected. The expulsion will be slower or more expeditious, according to the state and condition of the woman, according to the number of children she has borne, and according to the duration or violence of the labour. It is easier and sooner separated in a first birth, when the woman is in good health, and when the labour has been properly managed. In most cases, this separation is accomplished within half an hour after the delivery of the child. It adheres most firmly after premature births, when the woman has been sickly during pregnancy, where the labour has been tedious and difficult, or when hasty attempts have been made to extract it. A finger, or a finger and thumb, guided by the funis, and introduced within the vagina, to bring down the edge, will remove any difficulty occasioned by the centre or bulky part passing the uterine or vaginal orifice.

When it becomes necessary to employ force in extracting the placenta, which is seldom requisite but in cases of flooding, when the woman has been in bad health during pregnancy, when she has suffered much in time of labour, or when the string has been torn from it (though the first of these cases is perhaps the only one wherein the practice is absolutely proper), the method of doing it is as follows: In ordinary cases, the woman should be laid on her back or side; but when the belly is pendulous, or when the placenta is attached to the fundus uteri, she must be placed on her knees, which is the most convenient posture.

The accoucheur, though with a certain degree of courage, yet with the utmost possible tenderness, must then pass his hand, well lubricated, through the vagina into the uterus, and feel for the convex body of the after-birth; if the chord be entire, this will direct him; if not, he must feel for the loose membranes at the edge of the cake, and must not be deceived by coagula of blood that lie in the way; if the uterus be constricted in the middle, like a sand-glass, a circumstance that sometimes, though rarely, occurs, this must be overcome by a gradual dilation, with one finger after another, till the whole hand in a conical manner can safely be passed. He must not content himself with feeling a part; he should be able to move his fingers round the whole body of the cake: the adhesion must be separated very gradually, in a direction from the sides round and round. The placenta is distinguished from the uterus, as well by its softness as by its convex puckered feel. This convexity increases in the same proportion as the uterus contracts: hence the middle part or centre of the placenta is first detached; and if the edges are carefully separated, by gently passing the fingers behind, the whole body becomes loose and disengaged, which must now be brought along with great caution, that no part be left behind, and that no injury be done to the woman in making the extraction.

Though bad consequences sometimes follow from the retention of the placenta, yet it is much to be questioned, if these are not less to be dreaded than the dangerous floodings, convulsions, deliquia, inflammation of the uterus, fever, &c. that may be induced from the too prevalent practice of passing the hand to make the extraction: would it not then, in general, be better to confine the practice of introducing the hand, to cases of uterine hæmorrhage, or convulsions, only? Where the adhesion is so firm as to require force, or where its place of attachment is out of the reach of the finger, by which, for the most part, the edge may be brought down, is it not by far the safest and most rational practice more frequent to trust to nature? Should the mouth or body of the uterus even become constricted before the separation is effected; even then little is to be dreaded: it will afterwards kindly dilate; and the separation and expulsion will spontaneously be accomplished as safely as in other animals, where no force is ever used. For one instance where the retention of the placenta has been attended with dangerous consequences, its precipitate extraction has probably been fatal to hundreds. See PLACENTA.

After the delivery of child and placenta, the woman must be allowed to rest for a few minutes; her strength and spirits may also be recruited by some light nourishing cordial; the wet cloths, &c. must then be removed; the bed must be properly shifted and adjusted, and a gentle compression must be made on the abdomen.

During lying-in, the woman should avoid company and noise; her dress and bed-linen should be often changed; she should avoid every means of being overheated; and with regard to her diet, it should, for the first week at least, be very light, and of easy digestion. The caudle commonly administered, as containing spices, wine, and sometimes even brandy, should be banished the chamber of child-bed women. Smooth, well-boiled gruel, made from *grits*, which are the seeds of the oat, having only the husk taken off, is the best diet on such occasions.

In Pl. XII. Fig. 1. exhibits a front view of the pregnant uterus in the beginning of labour: the parietes and anterior portion of the uterus being removed, but the membranes being entire, form a large bag containing the waters and fœtus. *a*, The substance of the uterus. *b*, *b*, *c*, *c*, *d*, *d*, The bones of the pelvis. *e*, The coccyx. *f*, The inferior part of the rectum. *g*, The vagina. *h*, The mouth of the womb, largely stretched in time of a pain; with the membranes and waters, marked *i*. *k*, The chorion. *l*, The same, dissected off at the inferior part of the uterus, in order to show the head of the fœtus through the amnios. *m*, The placenta, the external convex surface of which, divided into a number of lobes, is here represented; its concave internal part being covered by the chorion.

Fig. 2. An internal view of the fœtus in utero, in the beginning of labour. *a*, Shows the uterus, with the waters, and containing the fœtus entangled in the funis, the head presenting at the upper part of the pelvis. *b*, *b*, The os ilium. *c*, *c*, The acetabula. *d*, *d*, The remaining posterior parts of the ossa ischium. *e*, The coccyx. *f*, The interior part of the rectum. *g*, *g*, *g*, The vagina stretched on each side. *h*, The os uteri, the lips of which appear large and soft; the neck of the womb being likewise stretched to its full extent, or entirely obliterated. *i*, *i*, Part of the vesica urinaria. *k*, The placenta, at the superior and posterior part of the uterus. *l*, The membranes. *m*, The funis umbilicalis.

Fig. 3. Exhibits a front view of the female pelvis, the breech of the fœtus presenting and dilating the os internum, the membranes being too soon broken. The fore-parts of the child are to the posterior part of the uterus; and the funis, having a knot upon it, surrounds the neck, arm, and body. The description of the parts of Fig. 4. apply equally to this.

Fig. 4. Is a front view of twins in utero, in the beginning of labour. *a*, The uterus, as stretched with the membranes and waters. *b*, The superior parts of the ossa ilium. *c*, *c*, The acetabula. *d*, *d*, The ossa ischium. *e*, The coccyx. *f*, The lower part of the rectum. *g*, *g*, The vagina. *h*, The os internum, stretched open about a finger's breadth, with the membranes and waters, in time of labour-pains. *i*, *i*, The inferior part of the uterus, distended with the waters, which are below the head of the child that presents. *k*, *k*, The two placentas adhering to the posterior part of the uterus, the two fœtuses lying before them, one with its head in a proper position, at the inferior part of the uterus, and the other situated preternaturally with the head to the fundus. The bodies of each are here entangled in their proper funises, which frequently happens in the natural as well as preternatural positions. *l*, *l*, *l*, The membranes belonging to each placenta.

Fig. 5. Shows the forehead of the fœtus in close contact with the os sacrum of the mother, and the occiput below the pubis; in which state the narrow part of the head is adapted to the narrow part of the pelvis, viz. between the inferior parts of the ossa ischium. The uterus is here contracted closely on the body of the child, and the os externum is beginning to dilate.

Fig. 6. A view of the parts of the woman externally, to show the tumor formed by the perineum and other soft parts, by the protrusion of the head, as described in the last figure.

Fig. 7. Shows in what manner the head of the fœtus is helped along with the forceps, when their application is necessary for the safety of either mother or child, as in difficult labours. *a*, *a*, *b*, *c*, The vertebræ of the loins, os sacrum, and coccyx. *d*, The os pubis of the left side. *e*, The remaining part of the bladder. *f*, *f*, The rectum. *g*, *g*, *g*, The uterus. *h*, The mons veneris. *i*, The clitoris, with the left nympha. *x*, The corpus cavernosum clitoridis. *v*, The meatus urinarius. *k*, The left labium pudendi. *l*, The anus. *n*, The perineum. *q*, *p*, The hip and thigh. *r*, The skin and muscular parts of the loins.

Fig. 8. Shows the head of the fœtus, by strong labour-pains, squeezed into an oblong form, with a tumor on the vertex, from long compression of the head in the pelvis. *k*, The tumor on the vertex. *l*, The forceps. *m*, The bladder, much distended with urine, from the long pressure of the head against the urethra. *n*, The under part of the uterus. *o*, *o*, The os uteri.

Fig. 9. In a lateral view, the face of the child presenting and forced down into the lower part of the pelvis, the chin being below the pubes, and the vertex in the concavity of the os sacrum: the water being likewise all discharged, the uterus appears closely pressing the body of the child.

Fig. 10. A lateral internal view of a distorted pelvis, divided longitudinally, with the head of a fœtus of the seventh month passing on. *a*, *b*, *c*, The os sacrum and coccyx. *d*, The os pubis of the left side. *e*, The tuberosity of the os ischium of the same side.

LABOUR, DIFFICULT, or Laborious. A labour is so called when the birth is protracted beyond its ordinary time, or when the child's head, though naturally presenting, cannot be brought forward without assistance. Though the causes of this are various and complicated, they may, in general, be considered as depending: *First*, On the mother. *Secondly*, On the child. *Thirdly*, On the secundines.

1. *The birth may be protracted*, by debility in the mother, arising either from disease, or from local impediments. The diseases that impede parturition are flooding; epileptic fits; cramps or spasms; lowness and faintness; inflammatory diathesis; colic; nausea, sickness, or vomiting; or, lastly, a hectic or consumptive habit.

Debility may also arise from passions of the mind, or from mismanagement in time of labour.

(1.) Local complaints in the bones, occasioning narrowness and distortion, are a frequent cause of difficulty; as are also the following affections of the soft parts: viz. a dryness and constriction of the vagina; thickness and rigidity of the os tincæ; scirrhous or polypous tumors; accumulated fæces in the intestines; a stone in the urethra; a prolapsus of the uterus, vagina, and rectum; and, lastly, an obliquity of the uterus.

(2.) Difficulties also arise on the part of the child; viz. from the bulk and ossification of the head; the situation from which the head presents; large broad shoulders, or their transverse descent through the pelvis.

(3.) The secundines may occasion difficulty, either by the rigidity of the membranes, and the contrary; by too great a quantity of water; by the funis umbilicalis being too long or too short; by a prolapsus of the funis before the child's head; and, lastly, by the attachment of the placenta towards the cervix or os uteri.

The treatment of laborious births requires a nice and careful attention to the condition of the patient, and other circumstances, from whence only we can judge when assistance becomes requisite, and how it may be applied to the best advantage. Pain is the inseparable attendant of child-bearing, though dealt out in different proportions to different subjects; nor is even the easiest labour altogether exempt from it. The delivery, however, promises to be safe and easy, when the woman is of proper age, in good health, the child presenting right, and the pelvis well proportioned; but the force of the natural pains may be interrupted, and of consequence labour be retarded, from the causes enumerated above, the principal of which is, debility in the mother, arising from flooding.

A flooding is at all times very alarming, even when along with labour pains; though it is less so in that case than when at a distance from full time; because, as the labour pains increase, the hemorrhagy very generally abates: or if not, breaking the membranes when the aperture of the os uteri is sufficient to admit the hand, seldom fails to produce that effect. The woman, in this case, must be kept cool. Opiates must be administered; she must be comforted with the best assurances of a happy delivery; and the natural pains must be waited for.

But if the hæmorrhagy proceeds from a separation of the placenta, attached towards the cervix or orificium uteri; in this unhappy case, the whole body of the cake may be completely separated before the aperture of the uterus be sufficient for allowing the head to pass, and the deluge may be so sudden and impetuous, that the woman will sink immediately under it. Breaking the membranes, and making the delivery, either by turning the child, or extracting with the forceps or crotchet, according to circumstances, with as much expedition as is consistent with the mother's safety, is the only expedient by which the threatening catastrophe may be prevented.

No general rules, with regard to the management of slow labour, can be recommended within our present limits. The mode of treatment, where so many circumstances may occur, must be suited to the condition of the patient, as every particular case will, in some measure, require a different management. Much depends on the prudence and judgment of the attentive practitioner. For instance, when the woman is nervous, low-spirited, or weakly, from whatever cause, in general her strength must be supported: she must not be put on labour too early; she must avoid heat, fatigue, and every means of exhausting her strength or spirits. When she is restless, or the pains trifling and unprofitable, opiates are particularly indicated; they remove spurious or grinding pains, recruit the spirits, procure rest, and put on time. Little else, for the most part, is to be done. If the uterus once begins to dilate, though the dilatation goes on slowly, it is by much the best and safest practice to do nothing but regulate the management as above. The pains at last will become strong and forcing; and the delivery, even where the patient has been very weakly, will often have a safe and happy termination. In these tedious labours, if the strength of the woman be properly supported, every thing almost is to be expected from nature. Forcible means should be the last resource.

Where the progress of labour is in danger of interruption, from the *passions of the mind*, any piece of news in which the patient, her family, or relations, are interested, should be carefully concealed, as well as every thing that tends in general to agitate the feelings. Labour may not only be interrupted from this cause, but the most dangerous symptoms, as floodings, convulsions, deliquia, and even fatal syncope, may be induced.

From *mismanagement in time of labour* debility often arises; in which case the patient's strength is exhausted, the pains at length entirely cease, and the head of the child remains locked in the pelvis, merely from want of force or pain to push it forwards. In all cases where the labour has the appearance of being tedious, the woman's patience must, as much as possible, be supported. During the grinding pains, she must be kept cool and quiet: opiates may be exhibited to pass the time, till forcing throes ensue, when she will acquire resolution, the parts will dilate kindly, and the labour end happily; whereas, if she considers herself in labour from the earliest appearance of grinding pains, she is frightened at the length of time, and her patience is gone. Slow lingering labours happen chiefly to elderly women, having a rigidity in the parts, to nervous subjects, and to such as have been weakly during pregnancy. It is of great consequence, and the advice cannot be too much inculcated, to avoid exhausting the woman's strength too much at first.

Of the *local complaints in the parts*, or their neighbourhood, which interrupt labour, the narrowness or distortion of the bones of the pelvis is the principal. See Pelvis. Where there is any material defect in this cavity, a superficial examination of the form and structure of the parts will enable us to judge. We can never be absolutely certain, however, of a distortion of the pelvis (except when the distortion is confined to the inferior aperture) till the uterine orifice is considerably dilated. After this time, if the pains are strong and forcible, and the head of the child makes no advance, a narrow pelvis or large head is to be suspected. The pelvis may be faulty at the brim, bottom, or in the cavity or capacity. The first of these, which most frequently occurs, is the most difficult to be discovered; the second can be readily perceived by the touch.

In the first case, we can only know the distortion by the symptoms; for we should not attempt to introduce the hand till the mouth of the womb be dilated. This is afterwards necessary; for we know that the pelvis is too small, or the head too large, by its not advancing in proportion to the pains, and by feeling a sharp ridge, like a sow's back, on the top of the child's head, which is occasioned by the bones rising over each other, in consequence of the pressure.

How long nature, in such circumstances, can support the conflict, it is difficult to say. If the patient's strength declines; if the head, from being locked in the bones of the pelvis, begins to swell, and the parts of the woman to be affected with tumefaction and inflammation; nature, in this case, seems insufficient, and it will be dangerous longer to delay the proper means of making the delivery. We must not, however, allow ourselves to be imposed on, either by the impatience of the distressed mother, or by the clamours of the officious persons about her. In affording that assistance we are able to give, we are only to be directed by the symptoms of the case: we must remember, that the gentlest assistance our hands or instruments in laborious births can afford, is always attended with hazard; that if instruments be applied too early, nature will be thus interrupted in her work, and the most fatal consequences may ensue; and that, if assistance be delayed too long, the mother may die undelivered: we ought, however, to be aware, that the former practice of having too early recourse to forcible means, where, in time, nature unassisted might do her business, has proved by far more fatal than the latter. We ought, therefore, carefully to consider the particular circumstances of the case, that we may hit the proper time of making the delivery. See the article Forceps.

2. The protraction of labour *may depend on the child*, and may arise from the bulk or ossification of the head; from its unfavourable position; or, lastly, from the breadth of the shoulders, or their transverse descent. The first admits of an obvious remedy, that of opening the head; and the last is a rare occurrence; but the position of the head demands our particular attention.

In some cases, the head gets squeezed into the pelvis, in such a manner as not to admit of that compression which is necessary for its passing. This cause of difficulty, however, more seldom occurs than many have imagined. The rash application of instruments has, in such cases, been much disapproved of; for, though the labour may prove painful and tedious, yet nature in general, unassisted, will accomplish her own work with more safety, both to mother and child, than by the intrusion of officious hands. Turning here is always difficult, often dangerous: the same observation will hold of instruments, which should never be employed but when alarming symptoms occur. Yet, in some cases, where the woman is weak and exhausted, and the pains trifling; if the head of the child be large, the bones firm, and the sutures closely connected; or if there be any degree of narrowness in the pelvis, the life of both mother and child depend on a well-timed and skilful application of the surgeon's hands. See VECTIS.

The unfavourable position of the head may be referred to two kinds, which include a considerable variety. 1. When the fontanella, or open of the head, presents instead of the vertex. 2. Face-cases. If no other obstacle appears but the presenting of the fontanella, the labour will, by proper management, generally end well; and much injury may be done by the intrusion of officious hands. On the other hand, face-cases are the most difficult and laborious of all kinds of births; and our success in these will chiefly depend upon a prudent management, by carefully supporting the strength of the woman. The varieties of face-cases are known by the direction of the chin; for the face may present, (1.) With the chin to the pubes; (2.) To the sacrum; (3.) To either side. The rule in all these cases is to allow the labour to go on till the face be protruded as far down as possible. It is often as difficult and hazardous to push back the child, and to bring down the crown or vertex, as to turn the child and deliver it by the feet. Sometimes a skilful man may succeed in his attempt to alter the position, when he has the management of the delivery from the beginning; or, in those cases where the face is considerably advanced in the pelvis, may be able to give assistance by passing a finger or two in the child's mouth, and pulling down the jaw; which lessens the bulk of the head; or, by pressing on the chin, to bring it under the arch of the pubes; when the crown getting into the hollow of the os sacrum, the head will afterwards pass easily.

The breadth of the shoulders, or their transverse descent through the pelvis, rarely proves the cause of protracted labour. The head is always pretty far advanced before any obstruction can arise from this cause; and if the head has already passed, in a pain or two the shoulder will follow. The same reasoning will also apply with regard to the aperture of the uterus itself, if the head passes freely, in like manner will the shoulders; the os uteri rarely, if ever, is capable of contracting upon the neck of the child, and thus preventing the advance of the shoulders; and should this prove the case, what can we do but wait with patience? After the delivery of the head, if the woman falls into deliquia, or if, after several pains, the shoulders do not follow, and the child's life be in danger from delay, we should naturally be induced to help it forward in the gentlest manner we are able, by passing a finger on each side as far as the axilla, and thus gradually pulling it along.

3. *From the secundines*, difficulty and even danger are sometimes found to arise. These may exist in an unnatural rigidity and laxity of the membranes. From the first, the birth is sometimes rendered tedious; but the same effect is much oftener produced by the latter; and the consequences are more troublesome and dangerous. We should, therefore, be exceedingly cautious of breaking the membranes, which ought never to be done till we are certain the difficulty depends upon this cause; and, even then, the head of the child should be well advanced, and the membranes protruded almost as far as the os externum. By a premature evacuation of the waters, the parts become dry and rigid, a constriction of the os uteri for a time ensues, the pains often remit or become less strong and forcing, though not less painful and fatiguing; the dilatation goes on so slow, and the labour becomes so severe, that the woman's strength and spirits. by the unprofitable labour, are quite overcome and exhausted; so that the head remains confined in the passage, merely from want of force of pain to push it forwards. The woman, in the beginning of labour, should therefore be treated with the utmost delicacy and gentleness. The work of nature is too often spoiled by officious hands. She should be seldom touched while the membranes are whole, lest they should be ruptured; and, even when touching is necessary, this should only be done when the pains begin to remit, and the tense membranous bag to relax.

Too great a quantity of water may prevent the uterus from contracting, and thus weaken the force of the pains. Though this may, however, occasion a delay, it will never be attended with more dangerous consequences; and the advice we have already given will hold equally good in this case, that the membranes should never be broken till the soft parts be completely dilated, and there is a certainty that the difficulty or delay proceeds only from this cause.

The *funis umbilicalis* may be faulty from its too great length, or the contrary: thus the extraordinary length, by forming circumvolutions round the child's neck or body, sometimes causes a protracted labour. But as this can only happen when the chord is of an uncommon length, there is generally enough left to admit of the exit of the child with safety; and it is time enough, in general, after the child is born, to slip the noose over the shoulders or head. There is seldom occasion to divide the chord in the birth; a practice that may be both troublesome and hazardous. Whereas, when the funis is knotty, or thickened by disease, a part of the placenta may be separated as the child advances through the pelvis, and thus a flooding will ensue; or the funis may be actually ruptured, and occasion the death of the child, if the birth does not quickly follow. Such cases, however, rarely happen.

In a *prolapsus of the funis* before the head, the chord, if possible, should be pushed up above the presenting part; for, if the labour-pains are slow, and the funis becomes cold, or the pulsation in it begins to grow languid, the circulation will be interrupted, and the child destroyed. If the head is far advanced in the pelvis, and the child's life in danger, the delivery may be performed with the forceps. See FORCEPS. But to push up the head, and turn the child, with a view to preserve its life, as many authors recommend, is a practice by no means advisable: we should seldom, in this position, be enabled to save the child; and turning, under such circumstances, can never be done but at the immediate hazard of the mother's life.

If the *placenta be attached towards the cervix* or os uteri, the case is truly melancholy: for, if the delivery is not speedily accomplished, the effusion from the uterine vessels will be so copious and profuse, that the woman must, in a very short time, perish. On this occasion, the delivery must be conducted in the best manner the judgment and skill of the operator can direct, and with as much expedition as the safety of the mother will admit.

Thus, in most laborious cases, provided the woman's strength be supported, the management properly regulated, the natural moisture of the parts when deficient supplied, manual assistance very seldom becomes requisite: but as cases do occur, wherein nature, with all advantages, will fail, and the common methods of relief prove unsuccessful, recourse must be had to more powerful means, while the woman is able to support the conflict. In all such cases, the condition of the patient, the structure and state of the parts, and position of the presenting part of the child, must be very carefully ascertained.

LABOUR, PRETERNATURAL. In whatever manner the child presents, when the body is delivered before the head, the birth is accounted preternatural.

Preternatural labours may be referred to one of the four following classes:

1. When one or both feet, knees, or the breech, present.

2. When the child lies across, in a rounded or oval form, with the arm, shoulder, side, back, or belly, presenting.

3. When one or both of the upper extremities present, the child lying in the form of a sheath, the feet towards the fundus uteri, the waters evacuated, and the uterus strongly contracted round the body of the child.

4. Lastly, premature or flooding cases, or others in which it may be necessary to force the delivery, either previous to the rupture of the membranes, or quickly after it.

The causes of cross-labours most commonly assigned by authors are these: obliquity of the uterus; circumvolutions of the funis umbilicalis round the child's body; the shortness of the funis, or attachment of the placenta towards the fundus uteri; shocks affecting the mother when pregnant, &c. The position of the fœtus may also be influenced by its own motion in the womb, by the particular form and bulk of its body, by the manner of stretching of the uterus, by the quantity of liquor amnii, and by many other circumstances.

The symptoms that indicate an unfavourable position of the child, before it can be discovered by the touch, are very uncertain and fallacious: a cross-birth may, however, be suspected: (1.) If the pains be more slack and trifling than ordinary. (2.) If the membranes be protruded in a long form, like a gut, or the finger of a glove. (3.) If no part of the child can be discovered when the uterine orifice is considerably opened. (4.) If the presenting part through the membranes be smaller, feels lighter, and gives less resistance than the bulky ponderous head. (5.) When, after the rupture of the membranes, the meconium of the child be passed along with the waters, it is a sign that the breech presents, or that the child is dead.

Preternatural labours are difficult or hazardous, according to, (1.) The form of the pelvis, and general health and constitution of the woman. (2.) The bulk of the child, and its manner of presenting. (3.) The time the waters have been evacuated, and the uterus contracted round the body of the child. (4.) When complicated with plurality of children; the prolapsus of the funis umbilicalis; the limbs of the child entangled in the chord; profuse and violent floodings, from the attachment of the placenta towards the cervix uteri, &c.

Turning is often laborious, and always dangerous in proportion to the force used in searching for and bringing down the feet; though, in general, the difficulty and hazard are not so great, as in many cases strictly called laborious, when the head presents; the treatment of preternatural labours being better known, and, for the most part, easier put in practice.

Each class of the general division of cross-labours includes a variety of different cases, far too extensive for us to particularize. We shall, however, describe the treatment in *footling* labour, since this is sometimes artificially produced, to facilitate delivery, in labours which do not fall into this class. Of all preternatural cases, indeed, it is the simplest and easiest when the child presents with the feet, which is called the *Agrippan posture*. The foot is to be distinguished from the hand, first, by the weight and resistance it gives to the touch; secondly, by the shortness of the toes; thirdly, by the projecting heel.

When the feet present in the passage, the labour should be allowed to go on as if natural. If the child be of an ordinary size, the woman in health, the parts well proportioned, in the way of assistance nothing further seems necessary, but the application of a warm cloth round the body of the child, which must be properly supported till it advances as far as the pains are able to force it. If the size be ordinary, or rather small, it will sometimes make the mechanical turns, and be entirely pushed along by the force of the natural pains, but it generally stops at the shoulders, after the breech protrudes without the os externum, where the resistance is so great that the accoucheur's assistance becomes requisite.

In this case the patient must be placed on her back, properly supported; the hand of the accoucheur must be cautiously introduced: the parts of the woman must be gently dilated; the feet of the child must be laid hold of, and brought as low in the vagina as possible; a soft warm cloth must be wrapped round them, and the extraction must be performed in a slow cautious manner, making large motions in a circular or lateral direction, resting from time to time, if the pains are gone; and if not, always waiting for the natural efforts. When advanced as far as the breech, the body, if not already in a proper direction, must be pushed up, and gently turned with the face towards the mother's back: and to make sure that the face turns with the body, or to prevent the chin, vertex, or shoulders from catching on the pubes, or angle of the sacrum, an extraordinary quarter-turn more must be made: this must be reversed previous to the extraction; and the difficulty arising from the obstruction of the shoulders, must be removed in the following manner: While the breast and legs of the child are supported over the palm and fore-arm of the one hand of the accoucheur, which he draws towards one side, he must introduce two fingers of the other hand at the opposite side into the vagina, over the back-part of the shoulder, as far as the elbow, and endeavour, in the most gentle manner, to bring down the arm; always remembering, in his movements, to humour the natural motions of the joints: he must then shift hands, when the other arm is to be relieved in the same manner: both arms being brought down, the woman must now rest a little, when a pain or two generally follows, and the head is also forced along. But should the woman be much exhausted, and if the head does not quickly advance, the child may be lost from delay. The extraction of the head in preternatural labours, is often the most difficult and the most dangerous part of the delivery; the cause of resistance, when it does not advance, is chiefly owing to its confinement between the angle of the sacrum and pubes, when the bulky part of the head is detained at the brim. Whether the resistance be here or towards the inferior aperture of the pelvis, if the head does not advance in a pain or two, the extraction must be made in this manner: While the right hand of the accoucheur supports the body of the child below, with two fingers pressing on either shoulder, the left hand and fingers must, in the same manner, be placed over the back of the neck, and pulling gently in the direction from pubes to sacrum, he must thus endeavour to bring it along: but, should the pelvis be narrow, or the child's head of a large size, or the face be laterally or anteriorly placed in the pelvis, or, what rarely happens, the os uteri contracted round the neck of the child; in either of these cases, the accoucheur will sometimes meet with the utmost difficulty. When the above method therefore fails, he must introduce two fingers of the right hand into the child's mouth, while those of the left hand are expanded over the shoulders, as already directed; and in this way he must endeavour to relieve it, pulling from pubes to sacrum, alternately raising and depressing the head, till it advances low down, so that the face descends from the hollow of the sacrum, when the accoucheur must rise from his seat, and bring the hind-head from the pubes with a half-round turn, imitating that of a natural labour.

If the position be unfavourable, the face, if possible, should be turned to the sacrum, by pushing up the head, or by pushing back the chin. If the contraction of the uterus is the cause of resistance, which rarely occurs, it must be gently dilated with the fingers. Or if the difficulty arises from circumvolution of the chord round the legs, thighs, body, or neck of the child, these must be disengaged in the easiest manner possible: it is rarely necessary to divide the funis on this account.

Should every method fail of bringing down the head, the delivery must be effected by means of the forceps cautiously passed over the ears, with the handles under the child's body, in a direction downwards towards the perinæum. If the pelvis be very narrow, or the head of a large size, it must be opened by pushing the scissars through the occipital bone, so that the contents of the cranium may be evacuated, and the extraction made by means of the forceps, blunt-hook, or crotchet. But if the head, by the efforts to extract it, be actually severed from the body, and left behind in the uterus, an accident which sometimes occurs, it must be delivered by inclosing it in the forceps, while secured from rolling by pressing externally on the abdomen. If the forceps cannot be applied, the cranium must be opened, the texture of the brain destroyed, and the extraction performed by the fingers of the accoucheur, by the blunt-hook, or by the crotchet. If the under-jaw remains, the head may be effectually secured till locked in the forceps, or till its bulk be diminished, by introducing a finger into the mouth, thrusting it through the jaw under the chin, drawing it down, and passing a ligature through the perforation.

In cases where the child has been long dead, should the belly or thorax be distended with air or water, and prove the cause of obstruction, the contents must be evacuated by opening with the scissars, or tearing with the crotchet; and, in general, where difficulties occur, the delivery must be accomplished in that manner the circumstances of the case will best admit of.

Of the difficulties attending other cases of preternatural labour, some idea may be formed by referring to Pl. XII. fig. 11 and 12, which show two cases of unnatural presentation of the child, and of which the following are the descriptions:

Fig. 11. Represents, in a front view of the pelvis, the fœtus compressed, by the contraction of the uterus, into a round form, the fore parts of the former being towards the inferior part of the latter, and one foot and hand fallen down into the vagina. In this figure, the anterior part of the pelvis is removed, by a longitudinal section through the middle of the foramen magnum. *a*, *a*, The superior parts of the ossa ilium. *b*, *b*, The uterus. *c*, The mouth of the womb stretched and appearing in *o*, *o*, *o*, *o*, the vagina. *d*, The inferior and posterior part of the os externum. *e*, *e*, *e*, *e*, The remaining part of the ossa pubis and ischium. *f*, *f*, *f*, *f*, The membrana adiposa.

Fig. 12. Represents, also in a front view, the fœtus in a contrary position; the breech and fore parts being towards the fundus uteri, the right arm in the vagina, and the fore-arm without the os externum, the shoulder being likewise forced into the os uteri. These last are the most dangerous and difficult cases of preternatural labour.

LABYRINTH; that part of the internal ear which is behind the cavity of the tympanum. The labyrinth is constituted by the cochlea, vestibulum, and semicircular canals. It is situated in the pars petrosa of the temporal bone, which runs forward and inward.

The *vestibulum* (in which is the *stape)*, is situated in the middle; the *cochlea* is the anterior, and lies forward and inward; and the *semicircular canals*, which compose the posterior part, lie backward and outward. The three parts of the labyrinth are lined by a fine periosteum, which spreads over and shuts the two fenestræ of the tympanum.

LAC, *(Lacca*, Arab.), or GUM LAC. See LACCA.

LAC AMMONI'ACI, a very useful attenuant, expectorant, and antispasmodic preparation of ammoniacum. See AMMONIACUM.

LAC AMY'GDALÆ; a very palatable, demulcent drink, calculated to alleviate ardor urinæ, and relieve the strangury. It forms a pleasant remedy in coughs, hoarsenesses, and catarrhs. See AMYGDALÆ.

LAC SU'LPHURIS. See SULPHUR PRÆCIPITATUM.

LAC; milk. See MILK.

LA'CCA, (from *lakah*, Arab.), or *Gummi Laccæ;* stick-lac, seed-lac, or shell-lac. The name of *gum-lac* is given improperly to a concrete brittle substance, of a dark red colour, which is brought from the East Indies. It is found incrustated on the twigs of the *Croton lacciferum ; foliis ovatis tomentosis serrulatis petiolatis, calycibus tomentosis* of Linnæus, where it is said to be deposited by the *coccus*, a small insect, at present not very certainly known. When the resinous matter is broken off the wood, into small pieces or grains, it is termed *seed-lac*, and when melted and formed into flat plates, *shell-lac.* This substance is chiefly employed for making sealing-wax. A tincture of it is recommended as an antiscorbutic to wash the gums. In Germany, they boil it in water, with the addition of a little alum, which promotes its solution. A tincture of it was formerly made with alcohol, and exhibited internally in fluor albus, and some other complaints, requiring the use of astringents.

LACCIC ACID, a peculiar acid which was discovered by Dr. Pearson, of London, in a wax-like substance called *white lac;* the produce of certain insects of the coccus tribe. By exposing this substance to such a degree of heat as was just sufficient to liquify it, a fluid was obtained to which the name of laccic acid is given. The laccic acid naturally exists in a fluid state. Its specific gravity Dr. Pearson found to be 1,025, at 60°. It strongly reddens paper stained with litmus. It has a saline bitter taste. When heated it smells precisely like newly-baked hot bread. On suffering it to be exposed to the atmosphere it becomes turbid.

LA'CERUM, FORA'MEN; one of the inner holes in the basis of the cranium, through which the third, fourth, first branch of the fifth, and the sixth pair of nerves, pass.

LA'CHRYMA ABIEGNAS. See TEREBINTHINA ARGENTAROTENSIS.

LA'CHRYMÆ, the tears; a limpid fluid secreted by the lachrymal gland, and flowing on the surface of the eye, to wash away dust, or any other extraneous matters.

LACHRYMAL DUCTS, the excretory ducts of the lachrymal gland. These, in number about six or eight, open upon the internal surface of the upper eyelid, over which they diffuse the secretions of the gland.

LACHRYMAL GLAND, *glandula lachrymalis;* a gland of the glomerate kind, situated above the external angle of the orbit, in a peculiar depression of the frontal bone. Its office is to secrete the tears, which are conveyed to the eye by its excretory ducts. See LACHRYMAL DUCTS.

LACHRYMA'LIS, FI'STULA; a sinuous ulcer of the lachrymal sac, or duct, with callous edges. Every obstruction, however, of this passage is commonly called *fistula lachrymalis.* The first and most simple state of the disease is that termed a *dropsy*, or, according to French writers, a *hernia, of the lachrymal sac.* The symptoms are, a tumor between the inner cornea of the eye and the side of the nose, which disappears upon pressure; the tears, mixed with mucus, passing partly into the nose, but chiefly back upon the eye and over the cheek.

This disease is frequently met with in children who have been ricketty, or are subject to glandular obstructions; and in this state it sometimes remains for several years, subject to little alterations, as the health or habit shall happen to vary, the sacculus being sometimes more, sometimes less full and troublesome. The contents which are pressed out are sometimes more, sometimes less cloudy; and now and then the disease is attended with a slight ophthalmia, or an inflammation of the eyelids, but which, by common care, is easily removed. If the sacculus be not much dilated, the discharge small, and produced only by pressure, the chief inconveniences are the weeping eye, and the gumming together of the lids after sleeping: but these, by being attended to, may be kept from being very troublesome; and if the disease makes no further progress, may be so regulated, as to render any more painful process long unnecessary. If the dilatation be considerable, the swelling is more visible, and the quantity of fluid is larger; it is also in this state more frequently mixed and cloudy, and more troublesome, from the more frequent necessity of emptying the bag: but if the patient be an adult, it may, even in this dilated state of it, be kept from being very inconvenient.

If an inflammation comes on, the tumor is thereby considerably increased; the discharge is larger, as well during sleep as upon pressure; the skin covering it loses its natural whiteness and softness, becomes hard, and acquires an inflamed redness; and with the tears a mixture of something, which in colour resembles matter, is discharged, especially if the pressure be made with any force, or continued for any time.

When the parts are in this state, the contents of the bag have so much the appearance of purulent matter, that they are now generally considered as such, though Mr. Pott, Mr. Warner, and several others, have been of a different opinion, considering the fluid as merely mucus under a different form; allowing, however, that pus is sometimes discharged. If the puncta lachrymalia be naturally large and open, and the immanation confined to the surface of the sac, its contents will pass off pretty freely, and the skin will remain entire.

But when the skin covering the lachrymal bag has been for some time inflamed, or subject to frequently returning inflammations, it most commonly happens that the puncta lachrymalia are affected by it, and the fluid, not having an opportunity of passing off through them, distends the inflamed skin; so that at last it becomes sloughy, bursts externally, and forms an opening in the most prominent part of the tumor, at which the tears and matter contained in it are discharged. When the opening thus formed is small, it commonly heals again in a few days, but it bursts as soon as a considerable quantity of this fluid is collected; and it continues thus to collect and burst alternately, till the opening becomes sufficiently large to prevent any further collection. This state of the disorder exhibits exactly the appearance of a sinuous ulcer, with callous, and sometimes with retorted edges; and this stage forms properly the real fistula lachrymalis. Tears, mucus, and purulent matter, are now abundantly discharged from the sore. When the bone beneath is sound, this discharge is seldom either acrid or offensive as to smell, for the opening being in general in the under part of the tumor, the matter is readily evacuated: but when any of the contiguous parts are carious, they are not only found to be so by the introduction of a probe, but by the appearance, smell, and effects of the matter upon the neighbouring parts. In this case it is thin, fetid, and commonly so acrid as to fret and corrode the integuments most contiguous to the ulcer; and when the disorder is connected with scrophula or with lues venerea, which is by no means an unfrequent occurrence, the discharge and appearance of the sore will vary according as it happens to be combined with one or other of these diseases.

From what has been said, we may divide this disease into four general heads or states, under which all its more minute distinctions may be comprehended. 1. The first consists in a simple dilatation of the sacculus and obstruction of the nasal duct, discharging, upon pressure, a fluid either quite clear or a little cloudy; the skin covering the bag being entire and perfectly free from inflammation. 2. In the second, the tumor is somewhat larger; the skin which covers it is in an inflamed state, but entire, and the discharge made through the puncta lachrymalia is of a pale yellow or purulent colour. 3. In the third, the skin covering the sac is become sloughy, and bursts, by which means the swelling is in some measure lessened: but the matter which, while the skin was entire, used to be pressed out through the puncta lachrymalia, now discharges itself through the new aperture. The ductus ad nares, both in this and the preceding state, are not otherwise diseased than by the thickening of its lining. 4. In the last stage, the passage from the lachrymal sac into the nose is totally obliterated, the inside of the former being ulcerated or filled up with a fungus, and attended sometimes with a caries of the bone underneath.

In the first and most simple state of the disease, viz. that of mere obstruction without inflammation, much pains have been taken to restore the parts to their natural state and use, without making any wound or division at all. The introduction of a probe, the injection of astringent fluids, and a constant compression made on the outside of the sacculus in the corner of the eye, are the principal means by which this has been attempted.

Several years ago, M. Anel made a probe (Pl. XI. fig. 11) of so small a size as to be capable of passing from the eyelid into the nose, being introduced at one of the puncta lachrymalia, and passing through the sacculus and duct; with which probe he proposed to break through any small obstruction which might be found in its passage. He also invented a syringe (fig. 1), the pipe of which is small enough to enter one of the puncta, and thus furnishes an opportunity of injecting a liquor into the sacculus and duct; and with these two instruments he pretended to be able to cure the disease whenever it consisted in obstruction merely, and the discharge was not much discoloured. The first of these, viz. the passage of a small probe through the puncta, has a plausible appearance; but will, upon trial, be found very unequal to the task assigned it: the very small size of it, its necessary flexibility, and the very little resistance it is capable of making, are manifest deficiencies in this instrument; the quick sensation in the lining of the sac and duct, and its diseased state, are great objections on the side of the parts, supposing it were capable of answering any valuable end, which it most certainly is not.

That the passing a fine probe from one of the small puncta lachrymalia into the nose is very practicable, we know from experience; but the pain it gives, and the inflammation it often excites, are much greater than any benefit which does or can arise from it. It is said that the principal use of this probe is to clear the little ducts leading from the puncta into the sacculus, and the obstruction of these ducts is often mentioned as a part of the disease. Hence one would be led to suppose that it was a circumstance which frequently occurred; whereas it is seldom, if ever, met with. Nor, even if it did happen, could it ever produce the disease in question; the principal characteristic of which is a discharge into the inner corner of the eye upon pressure made in the angle.

The syringe, if used judiciously while the disease is recent, the sac very little dilated, and the mucus perfectly clear, will sometimes be found serviceable; it gives no pain: and a few trials render the use of it by no means troublesome. There is very little occasion, however, to take much trouble, or to put the patient to so much uneasiness; for if the sac be emptied by compression, if the liquor which was to have been injected be applied to the puncta, they will absorb it as readily as the fluid which naturally passes through them.

Fabricius ab Aquapendente invented an instrument, which was so contrived, as by a screw fixed to a bandage, to make pressure externally on the lachrymal bag; from the use of which, he says, his patients received much benefit. This instrument has been considerably improved by later practitioners, and is still recommended as very useful. All the good that can be obtained by compress and bandage, this screw is capable of procuring; but it is also subject to all the same inconveniences, arising from the impossibility of determining exactly the due degree of pressure: for if it be so great as to bring the sides of the upper part of the sac into contact, all communication between it and the puncta, will thereby be stopped; if it be but slight, the accumulation will not be prevented; nor does it in either case contribute to the removal of the obstruction in the nasal duct, the primary and original cause of the disease. If the curative intention were to procure an union of the sides of the sacculus, as in the case of parts separated from each other by the formation of matter or sloughs, and the pressure could be made uniformly and constantly, possibly it might be so managed as to answer a valuable purpose; but as that is not the intention, the pressure, whether made by an instrument or by a common roller and compress, contributes little or nothing towards a cure.

When the disease is only *beginning to form*, if the lachrymal sac be frequently pressed with the finger, the contents of it will be discharged before they become acrid, and the complaint, though seldom to be cured in this manner, may be sometimes endured without any other assistance. But when the disease has advanced so far as to be in a *state of inflammation*, considerable relief may be obtained from such remedies as are found to be useful in inflammatory affections of other parts of the body, as blood-letting, laxatives, and low diet, together with saturnine applications to the parts affected. But when these fail, and it is found that the passage of the tears to the nose is completely obstructed; as the matter, if it does not burst outwardly, may be in danger of corroding the bone underneath, a different practice is to be followed.

In this state an *opening* in the upper part of the sacculus becomes in general absolutely necessary: and as a wound made by a knife leaves a much less disagreeable scar than that which necessarily follows the bursting of the skin, one being a mere simple division, the other a loss of substance; it will always be found best to anticipate the accident of bursting, by making the opening as soon as the integuments are in such a state as to threaten it.

For *making this incision*, authors have been very particular in their directions with regard to its place, manner, and form. But all that the surgeon need observe is, to take care to keep the knife at a proper distance from the juncture of the palpebræ, to begin the incision a very little above a line drawn from that juncture towards the nose, and to continue it downward so as to lay the sac completely open; and the best instrument to make it with, is a scalpel of the common form, but of a small size. If the sacculus be already burst, the place of opening is determined; and the orifice may be enlarged with a knife, or dilated.

The incision being made, the contents of the tumor should be moderately pressed out; after which, some practitioners advise, that the nasal duct should be searched for by means of a probe: and if found, that a piece of catgut, bougie, or lead, should be introduced, and kept there, its edge being bent a little downwards till the sides of the duct are skinned over and healed. In the mean time, the sore is to be dressed with simple pledgets of wax and oil, which are to be retained by means of adhesive plaster. As soon as the passage of the tears into the nose is sufficiently secured, the substance which has been left in it is to be withdrawn, and the wound healed.

The *last stage* of this disorder is that in which the natural passage from the sacculus to the nose is so diseased as to be quite obliterated, or in which the bones are sometimes found to be carious. The methods hitherto described have all been calculated to preserve the natural passage, and to drive the lachrymal fluid again through it. In this attempt they are sometimes successful; but when every trial for discovering the nasal duct has been unsuccessful, recourse must be had to an artificial opening for the tears. In performing this part of the operation, the patient should be seated opposite to a window, with his head supported by an assistant. The surgeon is to place himself immediately before him, either in a sitting or standing posture. The canula of a small-sized trocar is now to be introduced to the under and back part of the lachrymal sac, and held with one hand, while the stilette is to be passed into it with the other, in a direction obliquely downwards and inwards, between the two spongy bones, till it reach the cavity of the nose, which will be known by some bloody mucus passing out at the nostril. As soon as the instrument has penetrated the nose, the opening should be made sufficiently large; then the stilette should be withdrawn, and a bit of catgut or bougie, or what is more cleanly and convenient, a leaden probe, is to be introduced, and the canula removed. One end of the probe ought to remain in the nose, and the other bent in such a way as to hang over the edge of the wound, and at the same time be in no danger of coming out. The sore is now to be covered with a pledget of lint spread with emollient ointment, and the whole retained with adhesive plaster. The probe must be removed every day or two, so as to allow it and the passage to be cleaned; and at each dressing some astringent injection should be thrown in, when the parts are to be dressed as at first. Several weeks will commonly be necessary for rendering the passage perfectly callous. An instrument for cutting out a *circular piece* of the bone, is shown at fig. 13. and is often preferred.

After the passage is become sufficiently firm, the dressings and probe are to be withdrawn, and the parts cleared from any mucus with which they may be stuffed. The sides of the wound, now already sufficiently contracted, are to be laid together, and covered with some adhesive plaster. If this be ineffectual, the wound is to be touched with caustic, when the cure will generally be quickly completed. To give tone to the parts, moderate pressure should frequently be made upon the sac, either by the patient's finger or by the machine already mentioned, and this should be continued for a considerable time. Sometimes the disease returns after a cure has been made, owing to diseases of the constitution, carious bone contiguous to the sore, or sometimes to too small an opening having been formed. In this case, a canula of gold, silver, or lead, is sometimes introduced into the artificial passage, and the skin brought over it:

by which means the passage has afterwards remained completely open, and no disease of the constitution ever affected it. We shall describe Mr. Ware's method of performing this operation, as he has made some improvements which have a claim to our attention.

When the operation is determined on, the following is the mode in which Mr. Ware recommends it to be performed:—" If the disease has not occasioned an aperture in the lachrymal sac, or if this aperture be not situated in a right line with the longitudinal direction of the nasal duct, a puncture should be made into the sac, at a small distance from the internal juncture of the palpebræ, and nearly in a line drawn horizontally from this juncture towards the nose, with a common spear-pointed lancet. The blunt end of a silver probe, of a size rather smaller than the probes that are commonly used by surgeons, should then be introduced through the wound, and gently, but steadily, pushed on in the direction of the nasal duct, with a force sufficient to overcome the obstruction in this canal, and until there is reason to believe that it has freely entered into the cavity of the nose. The position of the probe, when thus introduced, will be nearly perpendicular; its side will touch the upper edge of the orbit: and the space between its bulbous end in the nose and the wound in the skin will usually be found, in a full-grown person, to be about an inch and a quarter, or an inch and three eighths. The probe is then to be withdrawn, and a silver style of a size nearly similar to that of the probe, but rather smaller, about an inch and three-eighths in length, with a flat head like that of a nail, but placed obliquely, that it may fit close on the skin (see front and side views of this instrument, fig. 16, 17, and 18) is to be introduced through the duct, in place of the probe, and to be left constantly in it. For the first day or two after the style has been introduced, it is sometimes advisable to wash the eye with a weak saturnine lotion. The style should be withdrawn once every day for about a week, and afterwards every second or third day. Some warm water should each time be injected through the duct into the nose, and the instrument afterwards replaced in the same manner as before." For the sake of appearances, Mr. Ware blackens the flat head of the style with sealing-wax, so that it merely looks like a small patch. The watering of the eye almost wholly ceases as soon as the style is introduced; and in proportion as the patient mends in this respect, his sight also becomes more strong and useful. The style, therefore, seems to act in a twofold capacity: first, it dilates the obstructed passage; and then, by an attraction, somewhat similar to that of a capillary tube, it guides the tears through the duct into the nose. It is not easy, Mr. Ware says, to ascertain the exact length of time that the style should be continued in the duct. Some have worn it many years, and, not finding any inconvenience from the instrument, are still afraid and unwilling to part from it. Others, on the contrary, have disused it at the end of about a month or six weeks, and have not had the smallest return of the obstruction afterwards.

LACI'NIÆ, a term in botany, signifying the incisions, or jags, on the borders of leaves or flowers: whence they are said to be *laciniati*, laciniated.

LACTA'TIO, lactation; or the *suckling* of a child by its mother or nurse. It is a practice which has very properly prevailed of late years, to put the infant to the mother's breast at a very early period after delivery. Even before there is any material secretion of milk, some advantage is to be derived from the efforts of the child to take the nipple; but the breast should by no means be withheld any longer than the secretion is insufficient even for the attempt. The late Dr. Buchan calculated, from the annual registers of the dead, that about one half of the children born in Great Britain die under twelve years of age; and this very great mortality he attributes, in part, to mothers not suckling their own children, which is an unpardonable neglect of duty both to themselves and their offspring, where the omission is wilful. It is sometimes impossible, however, for them to do it; but where it can be done, it ought never to be omitted; and this, if general, would prevent the unnatural custom of mothers leaving their own children to suckle those of other women; a practice which deserves the most severe censure, for its inhumanity. Dr. Buchan says, he is sure he speaks within bounds, when he says *not one in a hundred* of these deserted children survive. For this reason, no mother should be allowed to suckle another's child till her own is fit to be weaned. A regulation of this kind would preserve many lives among the poorer sort, and would do no harm to the rich; as most women who make good nurses are able to suckle two children, in succession, upon the same milk.

In some cases, a new-born infant, instead of being allowed to suck the mother's milk almost as soon as it comes into the world, is fed with pap which contains some wine, or even some spirituous liquor. Whereas, if the mother or nurse has a sufficient quantity of milk, the child will need little or no other food before the third or fourth month.

To this it may reasonably be objected, on the other hand, not only that the nursing would be very severe on the mother; but if the child be thus left long without food, it will not relish it again for some time, and the stomach of an infant is apt to be easily hurt by a slight change of diet after it has been long accustomed to one thing. Neither can it be shown, that the strongest and most healthy infants are those which get no other food but the mother's milk during the first months of their life. In fact, children are evidently of a weak and lax habit of body, so that many of their diseases must arise from that cause; all directions, therefore, which indiscriminately advise an antiphlogistic regimen for infants as soon as they come into the world, must of necessity be wrong. Many instances in fact might be brought to show, that by the preposterous method of starving infants, and at the same time treating them with vomits and purges, they are often hurried out of the world. Animal food is frequently agreeable to children, and they ought to be indulged with it in moderation; and this will prove a much better remedy for those acidities with which infants are often troubled, than magnesia, prepared chalk, or other absorbents, which have the most pernicious effects on the stomachs of these tender creatures, and pall the apetite to a surprising degree. The natural appetites of children are indeed the best rule by which we can judge of what is proper or improper for them. They must no doubt be regulated as to the quantity; but we may be assured that animal food, either roasted or boiled, will not hurt if taken in moderation. When children are sick, they refuse every thing but the breast; and if their disorder be very severe, they will refuse that also; and in this case they ought not to be pressed to take food of any kind; but when their sickness goes off, their appetite will also return, and they will require the usual quantity of food.

As most young children, if in health, naturally sleep much, and pretty soundly, we may always be apt to suspect that something is amiss when they begin to be subject to watching and frights; symptoms which seldom or never occur but either in consequence of some present disorder not yet taken notice of, or as the certain forerunners of an approaching indisposition. We should immediately, therefore, endeavour to find out their cause, that we may use every possible means to remove or prevent it; otherwise the want of natural rest, which is so very prejudicial to persons of all ages, will soon reduce the infant to a low and emaciated state, which may be followed by an hectic fever, diarrhœa, and all the other consequences of weakness and debility. These symptoms being always the effect of irritation and pain, may proceed, in very young infants, from crudities or other affections of the *primæ viæ* producing flatulencies or gripes; about the sixth or seventh month, they may be owing to that uneasiness which commonly accompanies the breeding of teeth; and after a child is weaned, and begins to use a different kind of food, worms become frequently an additional cause of watchings and disturbed sleep. Hence, to give the necessary relief on these occasions, the original complaint must first be ascertained from the child's age, and other concomitant circumstances, and afterwards treated according to the nature of the case. Mothers and nurses are too apt to have recourse to opiates in the watchings of children, especially when their own rest happens to be much disturbed by their continual noise and clamour; this practice should be discouraged.

But however successful the office of lactation may be performed, as far as the infant is concerned, we are not to overlook the pernicious effects which it may sometimes have upon the weakly constitution of the mother. It too frequently happens that those who perform this maternal duty with the greatest solicitude, are sometimes brought into a consumptive disposition, which has been named the *atrophia lactantium*, or *tabes nutricum*. This disease most physicians are well acquainted with; but its more frequent occurrence of late, especially to the inferior classes of females, to whom it is particularly incident, seems forcibly to demand the attention of medical practitioners.

Dr. Walker, of Leeds, who has written upon the subject in the Mem. of the Med. Soc. of London, attributes this disease to debility, an impoverished state of the system, arising from a deficiency of proper and sufficiently nutritious aliment, at a time when the constitution particularly requires it, in consequence of the continual waste which the mother sustains from the suckling of her infant. These causes, he says, lay the foundation of consumption; and that the lungs are but secondarily, or symptomatically, affected.

The patient first complains of languor and general weakness; loss of appetite; fatigue after exercise, though it be of the gentlest kind; wearisome pains in the back and limbs. Soon afterwards, the symptoms of general atrophy come on; the face, in particular, grows thin, and is marked by a certain delicacy of complexion, and paleness about the nose; yet with a small degree of colour in the cheeks. In a short time, if the patient still continue to give suck, she is seized with transitory stitches in the sides, under the sternum, or in some other part of the thorax, accompanied with a short dry cough, and slight dyspnœa upon any muscular exertion; the pulse also becomes frequent, but seldom so hard as the inflammatory state of the genuine phthisis pulmonalis. Morning sweats next make their appearance; abscesses and ulcers are often formed in the lungs; pus, mixed with mucus, is expectorated; the general weakness increases; the emaciated patient is unable to support an erect posture; and at last dies exhausted.

Dr. Fothergill, in the Med. Observ. Vol. V. p. 318, made some excellent remarks on the use of the bark, &c. very applicable to the disease in question. Without losing sight of this remedy, Dr. Walker observes, 1. That it is always indispensably necessary, in such a case, for the mother to wean her child upon the earliest appearance of the symptoms of debility. 2. She should change her diet from tea, and the less nutritive vegetables (if such have been the articles used as food), to milk, and its various preparations; broths, and a small quantity of mild animal food, with no more than a proper proportion of bread, or of the esculent roots, particularly potatoes. Shell-fish, jellies, chocolate, sago, salep, and tapioca, would any of them be highly proper, did not poverty prevent the far greater number of these patients from procuring them in sufficient quantity.

The animal food allowed, should always be taken for an early dinner, and by no means late in the afternoon or evening. In this way, Dr. Walker observes, that so far from increasing the febrile symptoms in the first stage of the disease, when debility chiefly prevails, that for the most part it proves a powerful restorative, and the patients soon are found to gain additional strength; especially when assisted by tonics, such as the following mixture, which, with a small alteration, is the same that Dr. Griffith recommends in his Essay on Hectic Fever.

℞ Myrrhæ pulv. ʒj.
Tinct. cinchonæ ʒvj. tere simul et adde sensim,
Aquæ fontis ℥vj.

Ferri vitriolati gr. xij.
Syrupi balsamici ℥ss.
Fiat mistura, cujus capiat ægra cochl. duo, mane jejuna, hora undecima matutina, et quarta pomeridiana.

In some cases, when there appeared to be an exacerbation of fever in the afternoon, contraindicating this remedy, Dr. Walker gave it only in the forenoon, and directed a few spoonfuls of neutral julep to be taken in the afternoon, evening, and during the night, if necessary.

If, in the course of a week after the mixture has been regularly administered, the patient should remain free from pain, or sense of restriction in the thorax, difficulty in respiration, or any other symptoms indicating an inflammatory affection of the lungs, we may hope for a favourable termination of the disease, and should steadily persevere. Nor in this case should bleeding be used, even in the smallest quantity, as the patient's strength has already been too much reduced by inordinate lactation and improper diet. Decoctum cinchonæ, moderately acidulated with the vitriolic acid, is now proper, and greatly conduces to the patient's recovery, especially if she can be assisted by country air.

If, however, fixed pains in the thorax should come on, with oppressed breathing, and a frequent hard pulse, then a small bleeding, to the amount of two or three ounces only, Dr. Walker says, may be occasionally of use; and instead of prescribing the myrrh, bark, or vitriolic acid, he says, it will be advisable to take off the inflammatory determination to the lungs, by enjoining a milk and vegetable diet; keeping the bowels gently open with the mildest laxatives; moderating the fever by saline draughts; and palliating the cough by mucilaginous linctuses. The spasm, or constriction of the thorax, should, at the same time, be relieved by the application of blisters to the part, renewing them as they heal, rather than keeping them open: a practice which is not by far so efficacious, though it harasses the patient much more than repeating the blister.

Dr. Walker properly advises, if the disease be advancing still further, accompanied with morning sweats, purulent spitting, prostration of strength, and the utmost degree of debility, the latter of which always accompanies this disease in a more remarkable degree than the true phthisis, that we should support the patient's strength, by the restorative means he has already directed; allowing, as in the first stage, a small portion of animal food, at least once a-day; without which, he says, our endeavours would be frustrated, and, instead of affording relief, would serve only to accelerate the patient's dissolution.

Where circumstances render the weaning of the child indispensable, some hints on the subject may be found under the article Ablactatio.

LACTATS, *(lactas;* of *lac*, milk); salts formed by the union of the acid of sour milk, called lactic acid, with different bases. Thus we have the *aluminous lactat*, *ammoniacal lactat*, &c. in the new language of chemistry.

LACTIC ACID, (from *lac*, milk); an acid procured from the *whey* of milk. Lactic acid is capable of existing in the solid state; but it greatly attracts moisture, and becomes liquid. It has a sour taste; and strongly oxidates iron, zinc, copper, and various other metals. To obtain lactic acid, take a quantity of whey, evaporate it very slowly to one-eighth, filter it, and then add to it lime-water till no further turbidness appears. Filter the mixture again, and let fall into the fluid, diluted with water, a solution of oxalic acid, till it produces no further cloudiness. Then filter it and evaporate the fluid to the consistence of syrup, and mingle it with alcohol. Having done this, separate the fluid again by filtration, add to it a small quantity of water, put it into a retort, and distil off the spirit; the remaining water then contains the lactic acid in a pure state.

The combination of lactic acid, with different bases, forms salts called *lactats*; a class of substances which have not as yet been examined with accuracy.

LACTEALS, *lactea vasa;* the absorbents of the mesentery. They arise from imperceptible beginnings from the intestines, and ramify upon them as the arteries do. They run through the mesentery in long solitary trunks; and, in their way to the receptaculum chyli, through the lymphatic glands at the root of the mesentery, they unite with each other, and with the lymphatics, about the last dorsal, or first and second lumbar vertebræ, to form the receptaculum chyli; which see. The lacteals are furnished with many valves, and so is the thoracic duct; so that every lacteal pressure will force up the chyle, as that by inspiration, and the pulsation of the aorta. The lacteals are the absorbents of the bowels, beginning in their inner surface. The same kind of vessels are called absorbents or lymphatics, in other parts of the body, and take their rise from the surfaces of the respective parts; so that the lacteals, lymphatics, and absorbents, are all the same kind of vessels. Dr. Hunter considers the lacteals and lymphatics as the same vessels, only differing in their situation; and both, in fact, terminate in the same duct. See Lymphatics.

LACTI'FERI TU'BULI, *(lactiferi;* from *lac*, milk, and *fero*, to bring), the lactiferous ducts or tubes. The glandular body of the mamma contains a white mass, which is merely a collection of membranous ducts: these are narrow at their origin, broad in the middle, and contract again as they approach the papillæ, near which they form a kind of circle of communication. See Mammæ.

LACTIFEROUS, in botany, a term applied to such plants as abound with a milky juice. The term, however, is applicable to those which abound with other coloured juices, as *lactescentia* comprehends the different coloured fluids that flow copiously from particular plants on being wounded; and which is either white, red, or yellow. In *euphorbium*, *papaver*, *asclepias*, *campanula*, and many of the *syngenesia*, they are white; in *chelidonium*, *bocconia*, *sanguinaria*, and *gambogia*, yellow; and in *rumex sanguineus*, red.

LACTU'CA, (from *lac*, milk; so named from the milky juice which exudes from its being wounded), lettuce. The esculent garden lettuce is merely the

Lactuca sativa improved by cultivation. Lettuces are esteemed as wholesome aperient bitter anodynes, easy of digestion, but affording no nutriment. They appear to agree better with hot, bilious, melancholic temperaments, than with the phlegmatic. The seeds possess a quantity of oil, which, triturated with water, forms an emulsion employed by some in ardor urinæ, and other diseases of the urinary passages.

LACTU'CA GRAVEOLENS, stinking, or opium-scented lettuce; the *Lactuca virosa*, Linn. *Lactuca foliis horizontalibus carino aculeatis dentatis.* Class, *Syngenesia.* Order, *Polygamia æquales.* It is a very common plant in our hedges and ditches. It has a strong unpleasant taste, resembling that of opium, but more bitter or rather acrid. It abounds with a milky juice, in which its sensible qualities seem to reside, and which appears to have been noticed by Dioscorides, who describes the odour and taste of the juice as nearly agreeing with that of the white poppy. Its effects are also described, by Haller, to be powerfully narcotic. Dr. Collin, at Vienna, first brought this plant into medical notice, and its character induced the college of physicians at Edinburgh to insert it in the Catalogue of their Materia Medica. More than twenty-four cases of dropsy are said, by Collin, to have been successfully treated, by exhibiting an extract prepared from the expressed juice of this plant, which is stated not only to be powerfully diuretic, but also as promoting all the secretions. It is said thus to remove visceral obstructions. In the more simple cases, proceeding from debility, the extract, in doses of eighteen to thirty grains a day, accomplished a cure; but when the disease was inveterate, and accompanied by visceral obstructions, the quantity was increased to three drachms. Nor did larger doses, though they excited nausea, ever produce any other bad effect; and the patients continued so strong under the use of this remedy, that it was seldom necessary to employ tonic medicines. But, though Dr. Collin began his experiments with the lactuca at the Pazman hospital, at the time he was trying the arnica in 1771, yet very few physicians, even at Vienna, have since adopted the use of this plant. Plenciz, indeed, has published a solitary instance of its efficacy, while Quarin informs us, that he never experienced any good effects from its use; alleging, that those who are desirous of supporting its character, mixed with it a quantity of extractum scillæ. Under these circumstances, the recommendation of this medicine by Dr. Collin, will scarcely be thought sufficient to establish its use in Britain.

LACTU'CA SATI'VA; the systematic name of the lettuce. See LACTUCA.

LACTU'CA SYLVE'STRIS; the officinal name of the *Lactuca scariola*, Linn. This plant possesses a stronger degree of bitterness than the *Lactuca sativa.*

LACTU'CA VIRO'SA; the systematic name of the stinking, or opium-scented lettuce. See LACTUCA GRAVEOLENS.

LACU'NÆ, (from *lacus*, a channel); a name by which anatomists distinguish the mouths or openings of the excretory ducts of the muciparous glands of the urethra and other parts. The urethra is lined by a fine membrane, full of capillary blood-vessels; and its surface is perforated by a great number of oblong holes, of different sizes, which are the lacunæ. The largest of these are situated near the glans. These orifices, being the excretory ducts of the same number of small glands, are dispersed through the substance of the urethra; the ducts running for some way in the spongy substance along the convex side of the internal membrane of the urethra, and opening obliquely, from behind forward, into the great canal. The edges of the lacunæ are semilunar, or like a crescent, because of the obliquity of their openings.

LA'DANUM, (*λαδανον*; from *ladon*, Arab.), or LABDANUM; a resinous juice that exudes from the leaves of the *Cistus creticus*, Linn. *Cistus arborescens exstipulatus, foliis spatulato-ovatis petiolatis enerviis scabris, calycinis lanceolatis.* Class, *Polyandria.* Order, *Monogynia.* This tree grows in Canada, where the inhabitants procure the ladanum by slightly rubbing the leaves with leather thongs, and afterwards scraping it off and forming it into irregular masses for exportation. Three sorts of ladanum have been described by authors, but only two are to be met with in the shops. The best, which is very rare, is in dark-coloured masses, of the consistence of a soft plaster, and growing still softer on being handled; the other is in long rolls, coiled up, much harder than the preceding, and not so dark. The first has commonly a small, and the last a large admixture of fine sand, to the amount, according to the accounts of the French Academy, of three-fourths of the whole. Independently of frauds, the dust blown on the plant by winds from the loose sands among which it grows, is retained by the tenacious juice. The soft kind has an agreeable smell, and a lightly pungent bitterish taste: the hard is much weaker. That which Neumann examined, however, gave him 5400 alcoholic, and 480 watery, and inversely 960 watery, and 4960 alcoholic, extract from 7680 parts. In distillation water carries over a volatile oil, and alcohol distilled from it becomes milky, on the addition of water.

Ladanum was formerly much employed internally as a pectoral and astringent, in catarrhal affections, dysenteries, and several other diseases; at present, however, it is wholly confined to external use. It enters the *emplastrum picis Burgundicæ* and is also an ingredient in the stomachic plaster, *emplastrum ladani*, of the London Pharmacopœia.

LADIES' BEDSTRAW. See GALIUM LUTEUM.

LADIES' MANTLE. See ALCEMILLA.

LADIES' SMOCK. See CARDAMINE.

LAGOPHTHA'LMUS, (*λαγοφθαλμος*, from *λαγος*, *a hare*, and *οφθαλμος*, *an eye*, because it was believed that hares sleep with their eyes open), a want of power to close the eyelid. This may arise from spasm, palsy, atony or fissure of the muscles of the eyelids, and a variety of other causes. This disease is the *Bleupharoptosis lagophthalmia* of Sauvages.

LAKEWEED. See HYDROPIPER.

LAMBDOIDA'LIS SUTURA, (from Λ, and *ειδος*, *resemblance*, because it is shaped like the Greek letter Λ); the lambdoidal or occipital suture. It is that suture which unites the occipital bone to the two parietal bones. See Suture.

LAME'LLÆ; the same as laminæ. See Laminæ.

LA'MINÆ, the thin plates, scales, or tables whereof any thing consists. Hence we apply the epithet *laminated*, or plated, to those bodies whose contexture discovers such a disposition as that of plates lying over one another.

LA'MIUM ALBUM, (from *Lamium*, a mountain in Ionia, where this plant grew, or from *lama*, a ditch, because it usually grows about ditches and neglected places), called *Urtica mortua*, and *Galeopsis;* the dead-nettle, or white arch-angel nettle. For uterine hæmorrhages and fluor albus infusions of this plant were formerly given; but if we may judge of its powers from its sensible qualities, very little benefit can be expected from it in any case.

LA'MPSANA. See Lapsana.

LANA'RIA, (from *lana*, wool; because of the woolliness of its leaves); a name for the *lychnis sylvestris*, the *saponaria*, and *verbascum*.

LANA'TUS, (from *lana*, wool), a term botanically applied to leaves which are covered with a downy softness.

LANCET, a well-known chirurgical instrument, sharp-pointed and two-edged, chiefly used for opening veins in the operation of phlebotomy. A larger kind is also used for laying open abscesses, tumors, &c.

LANCISI (John Marca), an eminent Italian physician, was born at Rome in 1654. From his earliest years he had a turn for natural history; and studied botany, chemistry, anatomy, and medicine, with great ardour. In 1688, Pope Innocent XI. appointed him his physician and private chamberlain, notwithstanding his youth; and Cardinal Altieri Camerlinga made him his vicar for the installation of doctors in physic, which Pope Clement XI. gave him as long as he lived, as well as continued to him the appointments conferred on him by his predecessor. He died in 1710, after giving his fine library, of more than 20,000 volumes, to the hospital of the Holy Ghost, for the use of the public. This noble benefaction was opened, in 1716, in the presence of the pope and most of the cardinals. He wrote many works which were esteemed in his day: the principal of them were collected, and printed at Geneva in 1718, in two volumes quarto.

LA'NGUOR, (from λαγγαζω, *to pine)*, a debility both of body and mind. It is a symptom in many diseases.

LANI'GERUS, (from *lana*, wool, and *gero*, to bear), in botany, an epithet applied to such trees as bear a woolly or downy substance, as is commonly contained in the catkins of the willow.

LANUGINO'SUS, (from *lanugo*, down), in botany, *lanuginous*, or *downy*, as in the quince, peach, &c.

LANU'GO, (quasi *lanam ago*, bearing wool); in botany, down. The seeds of many plants have a downy substance attached to them, which serves as wings to transport them to a distance. These are termed *lanuginous*, and sometimes *pappous*.

LA'PATHUM, (*λαπαθον*; from *λαπαζω*, *to evacuate*, so named because it purges gently); the dock.

LA'PATHUM ACETO'SUM, common sorrel. See Acetosa.

LA'PATHUM ACU'TUM. See Oxylapathum.

LA'PATHUM AQUA'TICUM. See Hydrolapathum.

LA'PIDES CANCRO'RUM. See Cancer.

LA'PIS BE'ZOAR. See Bezoar.

LA'PIS CÆRU'LEUS. See Lapis lazuli.

LA'PIS CALAMINA'RIS. See Calamine.

LA'PIS CY'ANUS. See Lapis lazuli.

LA'PIS HÆMATI'TES. See Hæmatites.

LA'PIS HIBE'RNICUS, also named *Tegula Hybernica*, *Ardesia Hibernica*, *Hardesia*, &c. Irish slate; a kind of very hard stone, found in different parts of Ireland, in masses of a bluish black colour. It stains the hands, and, when dried and powdered, is pale, or of a whitish blue; but, by keeping, it grows black. In the fire it yields sulphuric acid, and acquires a pale red colour, with additional hardness. It is occasionally taken by the common people, in spruce beer, as a cure for inward bruises.

LA'PIS HY'STRICIS. See Bezoar.

LA'PIS INFERNA'LIS, a former name for the *kali purum*. See Kali.

LA'PIS LA'ZULI, or *Lapi scyanus*. See Lazuli.

LA'PIS MALACE'NCIS. See Bezoar.

LA'PIS PORCI'NUS. See Bezoar porcinum.

LA'PIS SI'MIÆ. See Bezoar.

LA'PPA MAJOR. See Bardana.

LAPSA'NA, dock-cresses, or nipple-wort; the *Lapsana communis*, Linn. This plant is a lactescent bitter, and nearly similar in virtues to the cichory, dandelion, and endive. It has been employed chiefly as an external remedy for wounds and superficial ulcerations; whence the name of nipple-wort, as having been applied to sore nipples.

LARCH; the name of the tree which affords the venice turpentine. See Terebenthina veneta.

LARD, the English name for hog's fat when melted down. Hog's-lard, *adeps suillæ*, forms the base of many unguents, and is often employed to keep poultices soft; though an abundance of it destroys their efficacy.

LARYNGOTO'MIA, (*λαρυγγοτομια*; from *λαρυγξ*, *the larynx*, and *τεμνω*, *to cut)*; laryngotomy. See Bronchotomy.

LA'RYNX, (of the Gr. *λαρυγξ*); a cartilaginous cavity, situated behind the tongue, in the anterior part of the fauces, and lined with an exquisitely sensible membrane. It is composed of the annular or cricoid cartilage, the scutiform or thyroid, the epiglottis, and two arytænoid cartilages. The superior opening of the larynx is called the *glottis*.

The larynx has two pair of common muscles, and five pair proper. The first of the common muscles is the sterno-thyroideus. It arises from the upper part of the inside of the sternum, and ascending on the sides of the trachea, it is inserted at the lower part of the sides of the cartilago scutiformis. When these muscles act, they pull this cartilage downward. The second is the hyo-thyroideus. It arises from the lower part of the os hyoides, and descending is inserted in the lower part of the scutiformis, near the former. They pull up the larynx. The first of the proper muscles is the crico-thyroideus. It arises from the fore-part of the *cartilago cricoides*, and running under the thyroides, it is inserted into the inside of that cartilage. The second is the *crico-arytænoideus lateralis.* It arises from the lateral part of the cricoides, and, ascending, is inserted into the lateral part of the arytænoides. This dilates the arytænoides. The third is the *crico-arytænoideus posticus.* It arises from the back part of the cartilago cricoides, and is inserted into the arytænoideus, near the former. The fourth is the *thyro-arytænoideus.* It arises from the internal and concave side of the scutiformis, and is inserted into the fore-parts of the arytænoideus. It contracts the rimula. The fifth muscle is the *arytænoideus.* It runs upon the upper part of the cartilago arytænoidea, and, with its fellow, forms a sphincter for contracting the rimula.

The *laryngeal arteries* are branches of the external carotids. The *laryngeal veins* evacuate their blood into the external jugulars. The nerves of the larynx are from the eighth pair. The functions of the larynx constitute the organ of the voice, and it serves also for respiration.

LASERPI′TIUM LATIFO′LIUM, (*laserpitium*, from *laser*, perhaps from *lazar*, Arab.), lasser-wort; the systematic name of the white gentian. See Gentiana alba. This was one of the remedies employed by Hippocrates. See Hippocrates.

LASERPI′TIUM SILER; the systematic name of the heart-wort. See Seseli.

LA′TA LIGAMENTA, the *broad ligaments* of the womb. They are properly only a duplicature of the peritonæum, reflected from the loins to the uterus. In women these are long enough to admit it to sink down into the vagina to a certain degree.

LA′TER, (from *latus*, broad); a brick Bricks, when heated, then quenched in boiling water, and applied to various parts of the body, form a powerful fomentation, for the removal of spasm, &c. Applied on cataplasms, they continue the heat; but for this purpose a tile is more convenient. An oil is made by quenching hot bricks in olive oil, until a quantity of it is imbibed, and then distilling them in a retort until all the oil is drawn off. This empyreumatic oil, named *oleum lateritium*, used to be employed as a remedy in many diseases, but it is now properly laid aside.

LATERAL SINUSSES. These are formed by the bifurcation and continuation of the longitudinal sinus of the dura mater. They commence about the middle of the tentorium; one passing along each horizontal crucial spine within the tentorium, and round to the foramen lacerum in basi cranii, where the internal jugular vein begins. Their use is to carry the blood from the brain into the internal jugulars. See Cerebrum.

LATERITIOUS SEDIMENT, (*lateritius;* from *later*, a brick), a term applied to the brick-like sediment deposited in the urine of patients afflicted with fever, twelve or fourteen hours after the urine is passed.

LATI′SSIMUS COLLI. See Platysma-myoides.

LATI′SSIMUS DORSI; a muscle of the humerus, situated on the posterior part of the trunk. It is a very broad, thin, and for the most part, fleshy muscle, which is placed immediately under the skin, except where it is covered by the lower extremity of the trapezius. It arises, by a broad thin tendon, from the posterior part of the spine of the os ilium, from all the spinous processes of the os sacrum and vertebræ of the loins, and from the seven inferior ones of the vertebræ of the back; also, tendinous and fleshy, from the extremities of the three or four inferior ribs, a little beyond their cartilages, by as many distinct slips. The inferior fibres ascend obliquely, and the superior run transversely, over the inferior angle of the scapula, towards the axilla, where they are all collected, twisted, and folded. This muscle is inserted, by a strong thin tendon, into the inner edge of the groove for lodging the tendon of the long head of the biceps. Its use is to pull the arm backwards and downwards, and to roll the os humeri. In dissection, the insertion of this muscle should not be prosecuted till the muscles of the os humeri, to which it belongs, have been examined.

LAU′DANUM, (from *laus*, praise; as being a praise-worthy medicine); a popular name for the tincture of opium. See Opium.

LAUREL, CHERRY. See Lauro-cerasus.

LAUREL, SPURGE. See Laureola.

LAURE′OLA, (dim. of *laurus*, the laurel; named from its resemblance to the laurel); the spurge laurel. The bark of this plant, *Daphne laureola*, Linn. is recommended to excite a discharge from the skin, in the same way as that of *thymelæa*. Steeped in vinegar, it has also been applied to issues to quicken the discharge from them.

LAURO-CE′RASUS, (from *laurus*, the laurel, and *cerasus*, the cherry-tree, so called because its leaves resemble the laurel), common or cherry-laurel; the *Prunus lauro-cerasus*, Linn. *Prunus, floribus racemosis foliis sempervirentibus dorso biglandulosis.* Class, *Icosandria.* Order, *Monogynia.* The leaves of this shrub have a bitter styptic taste, accompanied with a flavour resembling that of bitter almonds, or other kernels of the *drupacious* fruits: the flowers also manifest a similar flavour. The powdered leaves applied to the nostrils excite sneezing, though not so strongly as tobacco. The kernel-like flavour which these leaves impart being generally esteemed grateful, has sometimes caused them to be employed for culinary purposes, and especially in custards, puddings, blanc-mange, &c.; and as the proportion of this sapid matter of the leaf to the quantity of the milk is commonly inconsiderable, bad effects have rarely ensued.

Dr. Cullen observes, that the operation of this poison has been very various, according to the dose in which it has been employed, and to the size, perhaps the constitution, of the animal to which it has been administered; but in a certain dose it has universally proved a fatal poison. In many cases its operation has been immediate, and without any previous disorder; and if, in other instances, it has excited convulsions, tetanus, and palsy, and promoted several evacuations, it does not seem owing to any peculiar property of the poison, so much as to the moderate dose of it, which, during its gradual operation, allows a various reaction of the system. Thus Mr. Langrish tells us, that one ounce of laurel-water will occasion stronger convulsions than five or six ounces. For this he gives a theory which is not easy to understand; but Dr. Cullen thinks it needs no other, than that the larger dose proves more immediately fatal.

The tendency of the lauro-cerasus is plainly to destroy the mobility of the nervous power, and thereby the vital principle; and, when employed in a sufficient dose, it does this very suddenly in every animal, without exciting inflammation in the stomach, and without producing any sensible change on the fluids. If it seems to some persons to coagulate, and to others to render the fluids more thin, we have not taken any pains to ascertain either of these facts, because there is no proof of its acting directly upon the fluids; and therefore, any changes which happen to appear in these, Dr. Cullen rather would impute to a change in the action of the vessels themselves.

With respect to the sedative power of the lauro-cerasus, he remarks, that its operation upon the nervous system is different from that of opium and other narcotic drugs, which, in their first operation, commonly induce sleep, and which has not been observed of the lauro-cerasus. May it be supposed that the animal and vital functions depend so much upon a different condition of the nervous system, that one kind of poison may act upon one of these functions more readily than upon the other, while another kind of poison may act more directly upon that other set of functions and less upon the former? If this supposition be admissible, we might say that the narcotic poisons act first upon the animal functions, though their power may at length be extended also to the vital; and that the lauro-cerasus, and other analogous poisons, act more immediately upon the vital functions, without showing any intermediate affection of the animal. If such a speculation may be indulged, perhaps the poison of the mad dog may operate more immediately upon the natural functions than upon either the vital or animal.

The active matter of the lauro-cerasus lies in its most volatile parts, which it therefore readily yields to water or alcohol in distillation, and may be still rendered more active by cohobation, especially if, without any water, it be distilled in balneo mariæ. In distillation with water, however, it gives out an essential oil, which, either taken by itself, or diffused, as it may readily be, in the distilled water, contains the most active parts of the plant. But there are other operations for obtaining its volatile parts.

Ever since the lauro-cerasus has been discovered to be possessed of these poisonous qualities, trials have been made of it as a medicine, either by employing the volatile parts in small doses, or the substance of the whole plant in larger. That a matter of such power in changing the state of the animal economy should, in certain circumstances, prove a medicine, Dr. Cullen says, there can be no doubt; but we have not yet learned to what circumstances of disease it is peculiarly adapted. Its power of rendering the blood more fluid, he thinks, is not certainly or universally proved; and though it were, yet as the change that takes place appears more probably to depend on the state of the vessels than on any direct action of the medicine upon the fluids, Dr. Cullen thinks this state of the case too mysterious to admit of any application in medicine. He adds further, that all comparison of the blood drawn from the veins, with that of its state in the blood-vessels, is extremely fallacious, unless a nice and strict attention is given to the circumstances of the extravasation, which has not commonly been bestowed. It has indeed been said, in favour of a fluidity of the blood being induced by the lauro-cerasus, that in several cases it is found to have passed from the red vessels into the serous; but as this seems to have happened only after frequent and strong convulsions, it is with more probability imputed to an increased action in the arteries, which has often this effect of pushing red blood into the serous vessels, than to the increased fluidity of the mass: and it is in the same manner that Dr. Cullen would account for the fullness of the veins and the emptiness of the arteries, which have also been found to take place. Besides, when the lauro-cerasus is given in such a manner as *instantly to kill*, without occasioning almost any other disorder, there is not any sort of change in the state of the blood to be perceived; and upon that occasion, it cannot possibly be owing to an operation upon the blood itself. These observations should prevent any rash application of this deleterious vegetable, on the supposition of its producing *a fluidity of the blood:* and especially as there is no proof of its having been applied, upon that supposition, to any good purpose. For though some have supposed it was of use in phthisis pulmonalis, and even in resolving obstructions of the liver, Dr. Cullen thinks this conjecture has been founded upon too few and indecisive experiments.

But although the benefit of its internal use in resolving obstructions has not been well ascertained, Dr. Cullen is somewhat disposed to believe, that its external use may be effectual in resolving scirrhous tumors. Even this power, however, is not sufficiently proved as yet, though there certainly are some analogies that seem to support it. By another analogy also, the virtue ascribed to the lauro-cerasus of curing intermittents, is rendered very probable. Dr. Brown Langrish frequently employed it in this way; but he unhappily omits to state the dose, manner of its administration, and also the peculiar circumstances of the disease; but the experiments of Bergius with bitter almonds sufficiently confirm the general power of such remedies in the cure of intermittents. Dr. Cullen, on the whole, thinks the medicinal virtues of the lauro-cerasus, fairly to be inferred from its general power, and that they will hereafter, in the hands of a future *Storck*, be ascertained. To encourage such an inquiry, he remarks, that the lauro-cerasus has, hardly in any experiment, shown a tendency to produce topical inflammation; and in many that were made on brutes, though the employment of it has been carried so far as to produce various and violent disorders of the system, yet, upon withdrawing the exhibition of it, the animal has soon after recovered a seemingly entire state of health. These may give encouragement to some trials; but it is never to be forgot, *that a matter which has so strong a tendency to extinguish the vital principle, is to be employed with the utmost caution.*

The Abbe Fontana asserts, that the *oil* of the laurocerasus, “ whether given internally, or applied to the wounds of animals, is one of the most terrible and deadly poisons known.”

LAU'RUS, (from *laus*, praise, because it was usual to crown the heads of eminent men with branches of it), the sweet-bay: *Laurus nobilis; foliis venosis lanceolatis perennantibus, floribus quadrifidis*, Linn. Class, *Enneandria.* Order, *Monogynia.* This tree is a native of Italy, but commonly cultivated in gardens and shrubberies as an evergreen. The leaves and berries possess the same medicinal qualities, both having a sweet fragrant smell, and an aromatic astringent taste. The pharmaceutical uses of this plant are so limited in the practice of the present day, that it is rarely employed, except in the way of enema, or as an external application. In the London pharmacopœia, the leaves are directed in the *decoctum pro fomento*, and the berries in the *emplastrum cumini.*

LAU'RUS BENZOIN; the systematic name of the benjamin-tree. See BENZOINUM.

LAU'RUS CA'MPHORA; the systematic name of the camphor-tree. See CAMPHORA.

LAU'RUS CINNAMO'MUM; the systematic name of the cinnamon-tree. See CINNAMOMUM.

LAU'RUS CULILAWAN; the systematic name of the tree whose bark is called *cortex culilawan* in the shops.

LAU'RUS NO'BILIS; the systematic name of the sweet bay-tree. See LAURUS.

LAU'RUS SASSAFRAS; the systematic name of the sassafras-tree. See SASSAFRAS.

LAVENDER, FRENCH. See STÆCHAS.

LAVE'NDULA; (from *lavo*, to wash; so called because, on account of its fragrancy, it was used in baths), common lavender; the *Lavendula spica*, Linn. *Lavendula foliis sessilibus lanceolato-linearibus margine revolutis, spica interrupta nuda.* Class, *Didynamia.* Order, *Gymnospermia.* It is a native of the southern parts of Europe, but cultivated in our gardens on account of the smell of its flowers. Their taste is bitter, warm, and somewhat pungent: the leaves are weaker and less grateful. The essential oil is of a bright yellow colour, and of a very pungent taste. It possesses, if carefully distilled, the fragrance of the lavender in perfection. Lavender has been long recommended in nervous debilities, and various affections proceeding from a want of energy in the animal functions. Dr. Cullen asserts, that, whether applied externally or internally, it is a powerful stimulant of the nervous system, and that it will seldom go further than to excite the energy of the brain to a fuller impulse of the nervous power into the nerves of the animal functions, and seldom into those of the vital: hence lavender may be more safe in palsies than the warmer aromatics, especially if not given in a spirituous menstruum, or along with heating aromatics. The officinal preparations are *Ol. volat. lavend.* Edin. Lond. *Sp. lavend.* Edin. Lond. Dubl. *Pulv. asari comp.* Edin. Lond. Dubl.

LAVE'NDULA SPICA; the systematic name of the common lavender. See LAVENDULA.

LAVE'NDULA STŒCHAS; the systematic name of the French lavender. See STŒCHAS.

LAWSO'NIA INE'RMIS; the systematic name of the true alkanna. See ALKANNA VERA.

LAXA'TOR TYMPANI, (*laxator*, from *laxo*, to loosen); so called from its office to relax the drum of the ear. This is the *Externus mallei* of Albinus, *Anterior mallei* of Winslow, and *Obliquus auris* of Douglas. It is a muscle of the internal ear, that draws the malleus obliquely forwards towards its origin; consequently the membrana tympani is made less concave, or is relaxed by its action.

LAZARETTO, or LAZAR-HOUSE, or PEST-HOUSE; a public building, in the nature of a hospital, to receive persons affected with contagious distempers. In some places lazarettos are appointed for the quarantine imposed on vessels coming from places where the plague is known to exist. See PESTIS.

LA'ZULI, or LAPIS LAZULI, a species of zeolite belonging to the class of argillaceous earths. It is of a blue colour. That which is inclining to purple, has obtained the name of *Oriental.* It is frequently variegated with yellow, and white shining veins and speckles; which some take for gold and silver, though these are in truth nothing but marcasites. Lapis lazuli has the following properties: 1. It retains its blue colour for a long time in a calcining heat; but changes at last to a brown. 2. It melts easily in the fire to a white frothy slag; which puffs up greatly when exposed to the flame of a blow-pipe; but in a strong heat in a covered vessel, it becomes clear and solid, with blue clouds in it. 3. It does not ferment with acids; but, if boiled with oil of vitriol it slowly dissolves, and loses its blue colour. On adding a solution of fixed alkali, it precipitates a white earth, which, being scorified with borax, yields a silver-coloured regulus, varying in bigness according to the different specimens of the stone. 4. By scorification with lead, it yields silver, sometimes in the quantity of two ounces to a hundred weight of the stone. 5. The vitriolic acid discovers the presence of silver more certainly in lapis lazuli than spirit of nitre. 6. On adding spirit of sal ammoniac to any solution, either of crude or calcined lapis lazuli, no blue colour is produced; a certain proof that it does not depend on copper; which is further confirmed by the fixity of the blue colour in the fire, and the colour of the slag or glass. 7. It is somewhat harder than the other kinds of zeolite, but does not approach to the hardness of quartz or other siliceous stones in general; for the purest and finest lapis lazuli may be rubbed into a white powder by means of steel, though it takes a polish like marble. 8. When perfectly calcined, it is a little attracted by the loadstone; and, when scorified with lead, the slag becomes of a greenish colour, not like that produced by copper, but such as is always produced by iron mixed with a calcareous substance.

Mongez informs us, that some of the parts of lapis lazuli will strike fire with steel. According to Cronstedt, it is seldom found pure; but generally full of veins of quartz, lime-stone, and marcasite. Margraaf, agreeing in a great measure with Cronstedt, says, the lapis lazuli does not contain any copper: but he found in it a calcareous and gypseous substance, though he took care to pick out the very purest bits for the trial. Engestrom, however, is of opinion, that the calcareous substance is not essential to lapis lazuli; as Cronstedt says, that the lapis lazuli he tried did not ferment with acids. He farther mentions, that when dissolved in any of the mineral acids, it always turned them into a jelly. Some of his experiments also seem to indicate, that all kinds of lapis lazuli do not contain silver, though many of them do. Lapis lazuli is found in many parts of the world; but that of Asia and Africa is much superior to the Bohemian and German kinds.

LEAD, *plumbum;* the softest, least tenacious, least sonorous, and least elastic, of all the metals. It has a dark white colour, inclining to a blue. It tarnishes when exposed to the air; and is fused by a gentle heat. Lead is found in various states of ore.

If lead be kept for some time in fusion, it becomes covered with a grey oxid; which, when exposed to a more violent heat than is capable of keeping it ignited, assumes a deep yellow colour, in which state it is called *Massicot.* This may be converted into the red oxid, or *minium*, by the following process: Lead, on being converted into *massicot*, is thrown out and cooled by pouring water upon it; it is then carried to the mill, and ground into very fine powder, which is washed in water. The particles of lead which could not be pulverized in the mill, remain in the vessel where the washing is performed. This oxid of lead is then spread out upon the hearth of the furnace in which it is calcined. Lines are drawn on its surface; and it is stirred frequently, to prevent its clotting together, and the fire is afterwards kept up for forty-eight hours. When the minium is taken out of the furnace, it is put into large sieves of wood, and passed through very fine net-work, or cloth of iron-wire, placed over the casks which are destined to receive it.

Mr. Geoffroy supposed that, in order to form minium, no greater heat was required than one hundred and twenty degrees of Reaumeur's thermometer. This heat is not, however, suitable to works on a large scale; as in these the roof of the furnace is kept at a red heat. By calcination the lead increases in weight ten pounds in every hundred.

When urged by a strong heat, these oxids are converted into a yellow glass, so very fusible, that it penetrates and destroys the best crucibles. It is used in glass-houses, on account of its fusibility, not only to assist the fusion, but likewise to render the glass softer, more ponderous, of a more unctuous feel, and more susceptible of being cut and polished; and, on these accounts, it is made a part of the composition of flint and crystal glass.

If the oxids of lead be distilled without addition, they afford oxigen gas by a violent heat. Dr. Priestley even procured it from minium, part of which was converted into globules of metal. If these oxids be fused with coaly matter, the metal becomes revived. When the sulphuric acid is boiled upon lead, it affords much sulphureous gas; and an oxid is formed, which arises from a combination of the oxigen of the acid with the lead. But still a portion of the lead is dissolved; for if a sufficient quantity of water be poured on the residue, a very caustic salt is obtained by evaporation, in tetrahedral prisms, soluble in eighteen times their weight of water. This sulphate can be decomposed both by fire, lime, and alkalis. If very hot sulphureous acid be poured into a leaden vessel, it instantly corrodes and destroys it.

If the nitric acid be concentrated, it is readily decomposed upon lead, and converts it into a white oxid; but if the acid be weak, it dissolves the metal, and forms crystals of an opake white, in the form of segments of a three-sided prism. In the fire this salt decrepitates, and is fused with a yellowish flame upon ignited coals. The oxid of lead becomes yellow, and is reduced into globules of metal. The sulphuric acid takes lead from the nitric acid.

The muriatic acid, when assisted by heat, oxidates lead, and dissolves a portion of it. The salt produced in this case crystallizes in striated hexahedral prisms. It is slightly deliquescent, and both lime and the alkalis decompose it. If the same acid be poured on litharge it decomposes it instantly, and a considerable degree of heat is produced. The solution affords fine octahedral crystals, of an opake white colour, a styptic taste, and which are very heavy.

If thrown on coals, this salt decrepitates; and when the fire is increased, its water of crystallization is forced off, and it becomes converted into a mass of a beautiful yellow colour. Three parts of water, at sixty-six degrees of temperature, dissolve one part of this salt; and boiling water more than its own weight. The pure alkalis precipitate it in the form of a *magma.* The affinity of the muriatic acid with the oxid of lead is so strong, that it is capable of decomposing all its combinations. Both minium and litharge decompose the muriate of amonia, and, when triturated with marine salt, separate the soda. When the muriates of lead are calcined or fused, they afford a pigment which is of a beautiful yellow colour.

Lead is corroded by the acetous acid, and a white oxid is produced, which is known by the name of *cerusse*, or white lead. To prepare this, the metal is melted, and cast into plates about half a line in thickness, four or five inches wide, and two feet long. These are rolled up in a spiral form, in such a manner that the revolutions remain at the distance of half an inch from each other. They are then placed in pots, upon three points, which project from the inside about one-third of the height. Malt vinegar is poured into these pots to the height of the bottom of the lead, and they are buried in dung beneath sheds. A great number of these are deposited beside each other, and several strata are formed. Care is taken to cover each pot with a plate of lead and boards. At the expiration of a month or six weeks they are taken out, and the cerusse is separated. This white oxid is then ground in mills, and afterwards put into a vat, from which it is taken out to dry. The drying is performed in the shade, because the sun impairs the colour. For this purpose it is put into small conical earthen pots, and carefully dried and wrapped up for use.

All the oxids of lead are soluble in vinegar; and the solution of the acetate of lead, when duly concentrated, crystallizes in efflorescent tetrahedral prisms, and forms the *cerussa acetata* of the London Pharm. or, as it was formerly called, *sugar of lead.* The caustic alkalis also dissolve the oxids of lead, and the metal may be precipitated by the addition of acids. But if the alkaline solution be concentrated, the lead re-appears nearly in the metallic form, and the alkali is found to have acquired a faint peculiar taste.

Neither nickel, manganese, cobalt, nor zinc, can be made to combine with lead by fusion; but antimony forms with it a brittle mixture, with small brilliant facets, in colour or texture resembling iron or steel, according to the proportions in which the principles of the mixture are combined together: the specific gravity of this compound is greater than that of the two metallic substances when taken separately. Lead unites with bismuth, and forms by this combination a mixed metal of a fine close grain, and very brittle. Mercury dissolves lead with the greatest facility. This amalgam is formed by pouring hot mercury into melted lead. It is white and sparkling, and, after a certain length of time, becomes solid: when triturated with an amalgam of bismuth, it becomes as fluid as running mercury. It is deserving of notice, that this extraordinary phenomenon takes place in the union of three metallic substances which are very fusible, very ponderous, and more or less volatile. This metal combines readily with tin by fusion. Two parts of lead and one of tin, constitute a mixture more fusible than either of the two metals when separate, and form the solder used by plumbers; and eight parts of bismuth, five of lead, and three of tin, constitute a mixture which is so fusible, that the heat of boiling water is sufficient to melt it.

Lead, when reduced to the form of an oxid, enters into the composition of glasses, crystals, and enamels; and possesses the advantage of facilitating the fusion of the glass, giving it an unctuous feel, and a degree of softness, which renders it capable of being cut and polished. White lead is much used by painters; and this oxid possesses the singular advantage of not being perceptibly altered by its mixture with oil. Litharge is also employed in some manufactories to decompose sea-salt; and its use in various topical remedies is very considerable. See LITHARGYRUS.

LEAF, *folium;* in botany, a very essential and ornamental part of a plant, whose office is to transpire and absorb, like the lungs and absorbent surfaces in animals, and to afford shade. Leaves are considered in three respects, viz. 1. As *simple.* 2. *Compound.* 3. *Determinate.* Simple leaves are such as have only a single one on a petiole or stalk. They differ in respect to circumscription, angles, sinus, apices, margin, superficies, and substance. Leaves are said to be compounded when there are more than one upon a petiole or foot-stalk, and are also considered with respect to structure and degree. By the determination of leaves, is meant their character, expressed from some circumstance foreign to their own particular structure or configuration; as from their place, situation, insertion, or direction. See BOTANY.

LEAO, the name of a mineral substance approaching to the nature of the lapis lazuli, found in the East Indies, and of great use in the Chinese porcelain manufacture, as furnishing the finest blue they are possessed of. This stone is found in the strata of pit-coal, or in those of a yellowish or reddish earth in the neighbourhood of veins of coal. There are often found pieces of it lying on the surface of the ground, and these are a sure indication that more will be found on dipping. It is generally found in oblong pieces of the size of a finger, not round, but flat. Some of this is very fine, and some coarse and of a bad colour. The latter is very common; but the fine sort is very scarce.

LEAVEN, a piece of sour dough, used to ferment and render light, a much larger quantity of dough or paste. See BREAD.

LE'DUM PALU'STRE; the systematic name of the rosmarinus sylvestris. See ROSMARINUS SYLVESTRIS.

LEEUWENHOEK (Anthony de), a celebrated Dutch physician and naturalist, was born at Delft, in 1632, of an ancient family of that city; and acquired a very great reputation throughout all Europe, by his experiments and discoveries. He particularly excelled in making, and ingeniously applying, the microscope. He died in 1723. His letters to the Royal Society of London, of which he was a member, were printed at Leyden in 1722, in 4to.

LEGU'MEN, or POD, in botany; a species of seed-vessel which has two valves, or external openings, inclosing a number of seeds that are fastened along one suture only. In this last circumstance the seed-vessel in question differs from that termed by botanists *siliqua,* in which the enclosed seeds are fastened alternately to both the sutures or joinings of the pod. The seed-vessel of all the papilionaceous or butterfly-shaped flowers, the *diadelphia* of Linnæus, is of this pod kind. Such, for instance, is the seed-vessel of the pea, vetch, lupine, and broom.

LEGUMINOUS, an appellation given to all plants whose fruit is a legumen.

LEIPOTHY'MIA, (*λειποθυμια*; from *λειπω, to leave*, and *υμος, the mind).* See SYNCOPE.

LEIPY'RIA, (*λειπυριας*, from *λειπω, to leave*, and *πυρ, heat*, or *fire);* a dangerous species of ardent fever, in which the præcordia are scorched with heat, while the external parts are cold. It is a species of tertian fever. See TERTIAN.

LEMERY (Nicholas), a celebrated French chemist, born at Rouen, in 1645. After having made the tour of France, he applied himself to chemistry under M. Martyn, apothecary to Monsieur the Prince, and performed several courses of chemistry in the laboratory of this chemist, at the Hotel de Condé, which brought him to the knowledge and esteem of the prince.

He read public lectures in this science, in 1674; and his confluence of scholars was so great as scarcely to allow him room to perform his operations. The true principles of chemistry, in his time, were but ill understood. Lemery was the first who abolished the senseless jargon of barbarous terms, reduced the science to clear and simple ideas, and promised nothing that he did not perform. In 1681 he was disturbed on account of his religion, and came to England, where he was well received by Charles II. but affairs not promising him the same tranquillity, he returned to France, and sought for shelter under a doctor's degree; but the revocation of the edict of Nantz drove him into the Romish communion, to avoid persecution. He then became associate chemist and pensionary in the Royal Academy of Sciences, and died in 1715. He wrote, "A Course of Chemistry;" "An Universal Pharmacopœia;" "An Universal Treatise of Drugs;" and, "A Treatise on Antimony;" all of which were popular in their day.

LEMITHOCHO'RTON. See CORALLINA CORSICANA.

LEMNIAN EARTH, or earth of Lemnos; a substance similar to the Armenian bole. The yellowish brown sort is reckoned the best.

LEMNIUS (Lævinus), a celebrated physician, born at Ziric-Zee in Zealand, in 1505. He practised physic with applause; and, after his wife's death, being made a priest, became canon of Ziric-Zee, where he died, in 1560. He left several esteemed works, the principal of which is entitled *De Occultis Naturæ Miraculis.*

LEMON. See LIMON.

LEMON SCURVY-GRASS. See COCHLEARIA HORTENSIS.

LEMONADE, a liquor prepared of water, sugar, and lemon juice. It is very cooling and grateful in inflammatory and febrile affections. See LIMON.

LENS, a piece of glass, or of any other transparent substance, the surfaces of which are so formed, that the rays of light, by passing through, are made to change their direction; either tending to meet in a point beyond the lens, or made to become parallel after converging or diverging; or, lastly, proceeding as if they had issued from a point before they fell upon the lens. Some lenses are convex, or thickest in the middle; some concave, or thinner in the middle; some plano-convex, or plano-concave; that is, with one side flat, and the other convex or concave; and some are called *meniscuses*, or convex on one side and concave on the other.

LENS, the crystalline humour of the eye; so called from its performance of the office of a convex glass. See CRYSTALLINE LENS.

LE'NTA; the slow fever of Linnæus; and the Synochus of Cullen.

LENTICULAR, a surgical instrument; also called a RUGINE.

LE'NTICULARE OS, a name of the fourth bone in the first row in the human wrist. It is also called *Orbiculare* and *Pisiforme.* The bone in the ear called *Os lenticulare* or *orbiculare*, is a part of the incus.

LE'NTICULARES GLANDULÆ, (from *lenticula*, a lentil); the small glands of the intestines: so called on account of their resemblance in size.

LE'NTICULARES FEBRIS; so called, because of the many eruptions that appear on the skin, about the size of lentils. It is the same as *Petechialis Febris.*

LENTI'SCUS, the mastich-tree. It is a species of *Pistachia.*

LE'NTOR, a term used by some ancient writers, and adopted by Boerhaave and his followers in the humoral pathology. By it Bellini expresses that sizy, viscid state of the blood, which, in malignant fevers, was supposed to obstruct the capillary vessels, and to occasion the chief mischief which happened. See *Bellini de febribus*; particularly prop. 19. and 20. This doctrine is now disallowed.

LEO'NTODON, dandelion; a genus in Linnæus's botany. He enumerates ten species. See TARAXACUM.

LE'PIUM; a genus of fossils of the harder gypsum, composed of very small particles, and of a less glittering hue. There is only one species of this genus, being the least valuable and most impure of the class of gypsums.

LEPTODECORHO'MBES; a genus of fossils of the order of the *selenitæ;* consisting of ten planes, each so nearly equal to that opposite to it as very much to approach to a detached parallelopiped, though never truly or regularly so. Of this genus there are only five known species. 1. A thin, fine, pellucid, and slender-streaked one, with transverse striæ, found in considerable quantities in the strata of clay in most parts of England, particularly near Heddington in Oxfordshire. 2. A thin, dull-looking, opaque, and slender-streaked one, more scarce than the former, and found principally in Leicestershire and Staffordshire. 3. A thin fine-streaked one, with longitudinal striæ, found in the clay-pits at Richmond, and generally lying at great depths. This has often, on its top and bottom, a very elegant smaller romboide, described by four regular lines. 4. A rough kind, with thick transverse striæ, and a scabrous surface, very common in Leicestershire and Yorkshire. And, 5. A very short kind, with thick planes, common in the clay-pits of Northamptonshire and Yorkshire.

LEPORI'NA LA'BIA, (from *lepus*, a hare, and *labia*, a lip); the hare-lip. This is when the upper lip has a natural defect in the middle, like a slit towards the nose, resembling that of an hare, whence its name. See HARE-LIP.

LEPORI'NUM RO'STRUM, (from *lepus*, and *rostrum*, a beak); the name of the piece of flesh which is often seen between the divisions of the hare-lip.

LE'PRA, (from λεπις, *a scale;* named from its appearance), the leprosy; a disease in the class *cachexia*, and order *impetigines* of Dr. Cullen. It is characterized by the skin being rough and chapped, with white furfuraceous scales and crusts, under which is frequently a moisture, attended with itching.

LE'PRA ALBA. See LEPRA ALPHOS.

LE'PRA GRÆCO'RUM; the leprosy of the

Greeks. According to Dr. Willan, this disease is characterized by "scaly patches, of different sizes, but having always nearly a circular form." In this country, three varieties of the disease are observed, which he has minutely described under the trivial names of *Lepra vulgaris*, *Lepra alphos*, *Lepra nigricans*.

1. The *Lepra vulgaris* first appears in small distinct elevations of the cuticle, of a reddish colour, and shining, but never contains any fluid. These patches enlarge gradually, till they nearly equal the dimensions of a crown-piece; having always an orbicular, or oval form. They are covered with dry scales, and surrounded by a red border. The scales at length accumulate upon them, so as to form a thick prominent crust, which is quickly re-produced, whether it fall off spontaneously, or be forcibly detached. This species of lepra sometimes appears first at the elbow, or on the fore-arm; but more generally about the knee. In the latter case the primary patch forms immediately below the patella: within a few weeks, several other scaly circles appear along the fore part of the leg and thigh, increasing by degrees till they come nearly into contact. The disease is then often stationary for a considerable length of time. If it advance further, the progress is towards the hip and loins; afterwards to the sides, back, shoulders; and, about the same time, to the arms and hands. In the greater number of cases the hairy scalp is the part last affected: although the circles formed on it remain for some time distinct, yet they finally unite, and cover the whole surface on which the hair grows, with a white scaly incrustation. This appearance is attended, more especially in hot weather, with a troublesome itching, and with a watery discharge for several hours, when any portion of the crust is detached, which takes place from very slight impressions. The pubes in adults is sometimes affected in the same manner as the head; and if the subject be a female there is usually an internal *pruritus pudendi*. In some instances, the nails, both of the fingers and toes, are thickened, and deeply indented longitudinally. When the lepra extends universally, it becomes highly disgusting in its appearance, and inconvenient from the stiffness and unfitness for motion occasioned by it in the limbs. Yet even in this advanced stage, the disease seldom terminates spontaneously. It mostly continues nearly in the same state for several years, or sometimes during the whole life of the patient, not being apparently connected with any disorder of the constitution.

2. *Lepra alphos*. According to Dr. Willan, "the scaly patches in the alphos are smaller than those of the lepra vulgaris, and also differ from them in having their central parts depressed or indented." They do not exceed a silver penny. This species usually begins about the elbow, with distinct, eminent asperities, of a dull red colour, and not much longer than papillæ. These in a short time dilate to nearly the size of a silver penny. Two or three days afterwards the central part of them suffers a depression, within which small white powdery scales may be observed. The surrounding border, however, still continues to be raised, but retains the same size and the same red colour as at first. The whole of the fore-arm, and sometimes the back of the hand, is spotted with similar patches: they seldom become confluent excepting round the elbow, which in that case is covered with a uniform crust. This affection appears in the same manner upon the joint of the knee, but without spreading far along the thigh or leg. It seldom is seen on the trunk of the body, and never on the face. It is a disease of long duration, and not less difficult to cure than the foregoing species of lepra: even when the scaly patches have been removed by persevering in the use of suitable applications, the cuticle still remains red, tender, and brittle, very slowly recovering its usual texture. The alphos, as above described, frequently occurs in this country.

3. The *Lepra nigricans* differs little from the Lepra vulgaris, as to its form or distribution; but in the colour of the patches there is great dissimilarity, these being dark and livid. They appear first on the legs and fore-arms, extending afterward to the thighs, loins, neck, and hands. Their central part is not depressed as in the alphos. They are somewhat smaller in size than the patches of the lepra vulgaris, and not only is the border livid or purplish, but the livid colour of the base likewise appears through the scaly incrustation, which is seldom very thick. It is further to be observed, that the scales are more easily detached than in the other forms of lepra, and that the surface remains longer excoriated, discharging lymph, often with an intermixture of blood, till a new incrustation forms, which is usually hard, brittle, and irregular. The lepra nigricans affects persons whose occupation is attended with much fatigue, that exposes them to cold or damp, and to an incautious or improper mode of diet, as soldiers, brewers, labourers, butchers, stage-coachmen, scullermen, &c.; some women are also liable to it who are habituated to poor living and hard labour.

Dr. Willan's observations on the remedies for lepra, are discriminating and useful. Liniments composed of tar, or of some mercurial preparations, he says, are much used in the practice of the present times; but frequent bathing or washing is the external remedy most essentially necessary for the two first species of lepra; especially in the sulphur-waters of Harrowgate, &c. or in baths prepared with a solution of alkalized sulphur and marine salt.

Bathing in sea-water is also mentioned as a certain auxiliary in the cure of lepra. It is usual, and Dr. Willan thinks it proper, first to use a bath of warm sea-water till the skin be softened, and the scaly incrustations removed; after which a cure is soon obtained, especially in young persons, by bathing in the open sea. However, to prevent a recurrence, this must be persevered in for several summers.

A simple warm bath, accompanied with moderate friction, likewise contributes to remove the scales, and to produce a soft red skin, which, in time, regains the usual colour and texture. This plan Dr. Willan thinks sufficient, in slighter cases of lepra, without the use of internal remedies. If the disease affect the extremities only, he says, bathing of the whole body is not necessary; it may be enough to apply steams of warm water frequently to the disordered part.

Of the mercurial preparations applied externally, a watery solution of hydrarg. muriat. and the unguentum hydrargyri nitrati, have been most efficacious in removing the leprous crusts, and softening the cuticle. Dr. Willan, however, does not think the latter preferable to the tar-ointment which Dr. Willis has recommended.

For the lepra, when confirmed and inveterate, a variety of internal remedies have been employed, or recommended by medical writers, respecting some of which Dr. Willan has had occasion to remark: 1. That antimonials, sulphur, and nitre, have not alone any considerable efficacy. 2. That decoctions of emollient herbs, of guaiacum-wood, sarsaparilla, mezereon, or of elm-bark, which have been recommended as specifics, by no means deserve that character. 3. That calomel, hydrargyrus calcinatus, pilulæ hydrargyri, or mercurial frictions applied so as to produce salivation, do not remove the disease. The only preparation of this mineral, which makes any impression upon the lepra, is the hydrargyrus muriatus. The spirituous solution of it, in small doses, continued for a length of time, will be found very useful; and its operation is promoted by giving, at the same time, an antimonial, and some of the decoctions above mentioned. 4. That the nitrous and marine acids, lately recommended in obstinate cutaneous eruptions, have been given in the lepra three or four successive months, without any manifest advantage. Often, however, Dr. Willan experienced the most beneficial effects in this disease from a medicine of an opposite quality, viz. the aqua kali puri, in the dose of about 30 drops, given thrice a-day, in a cupful of any mild broth or gruel.

Dr. Willan found no advantage from employing the tinct. cantharid. but he is of opinion, that the tinct. rad. hellebor. nigr. if the dose be regulated so as not to disorder the bowels, has some efficacy. Dr. Crichton has recommended the use of the *solanum dulcamara* in lepra, by which he effected a cure, in 21 cases out of 23. He employed the following decoction:

℞. Stipitum Dulcamaræ unciam j.
Aquæ puræ libram iss. Decoque ad libram j.
et liquorem frigefactum cola.

Dr. Crichton ordered two ounces of this decoction every morning, noon, and evening: but afterwards increased the quantity, till the whole pint was consumed daily.

None of the remedies above mentioned, Dr. Willan says, are applicable to the cure of the lepra nigricans. This form of the disease requires, in the first place, a regular and nutritive plan of diet, with moderate exercise; and it may be afterwards wholly removed by the use of bark, and the mineral acids, sea-bathing, &c.

LETHA'RGUS, the lethargy; a heavy and constant sleep, with scarcely any intervals of waking. When awakened, the person answers, but ignorant or forgetful of what he said, immediately sinks into the same state of sleep. It is symptomatic of fever, apoplexy, &c. See Carus.

LETTUCE, GARDEN. See Lactuca.

LEUCA'NTHEMUM VULGA'RE, (*λευκανθεμον*, from *λευκος*, *white*, and *ανθεμος*, *a flower*, so called from its white floret). See Bellis major.

LEUCO'MA, (*λευκωμα*, from *λευκος*, *white*); a variety of the *carligo cernea* of Cullen's Nosology. See Caligo.

LEUCONYMPHÆ'A, (*λευκονυμφαια*, from *λευκος*, *white*, and *νυμφαια*, *the water lily*). See Nymphæa alba.

LEUCOPHLEGMA'SIA, (from *λευκος*, *white*, and *φλεγμα*, *phlegm*); a term applied by the older medical writers to a dropsical and cachectic habit of body.

LEUCOPI'PER, (*λευκοπιπερ*, from *λευκος*, *white*, and *πιπερις*, *pepper*). See Piper nigrum.

LEUCORRHŒ'A, (*λευκορροια*, from *λευκος*, *white*, and *ρεω*, *to flow*), the *fluor albus*, or whites. This is a disease of the vagina and its contiguous parts; from which a pale-coloured, greenish, or yellow fluid is discharged, attended with loss of strength, pain in the loins, bad digestion, and a wan, sickly aspect. In Dr. Cullen's Nosology it is the *menorrhagia alba*. It is the fifth variety of his *Menorrhagia*. He defines it, "a serous menorrhagy, without any local injury, in women not pregnant," and assigns the following reason for placing it under this head: because the leucorrhœa is almost always joined either with the menorrhagia, or soon follows it; and from the periods in which the leucorrhœa appears, it is very probable that the serum poured forth under this circumstance, flows from the same vessels from whence the menses issue, and that the leucorrhœa often arises from the same causes as the menorrhagia rubra. See Menorrhagia. The quantity, colour, and consistence of the discharge, chiefly depend upon the time of its duration, the patient's habit of body, and the nature of the cause by which it was produced. Taking cold, strong liquors, immoderate heat and moisture, or violent exercise, are all observed to produce a bad effect, as to its quantity and quality.

Weakly women of lax solids, who have had many children, and long laboured under ill health, are of all the most subject to this disagreeable disease; from which they unfortunately suffer more severe penance than others, as the nicest sensations are often connected with such a delicacy of bodily frame as subjects them to it. In Holland it is very frequent, and in a manner peculiar to the place, from the dampness of its situation; the surrounding air being so overcharged with moisture as to relax the body, stop perspiration, and throw it upon the bowels or womb: producing in the first a diarrhœa or flux, in the last the *leucorrhœa*, or *fluor albus*.

The discharge, though at first from the vagina, often proceeds, as has been observed, from the vessels subservient to menstruation; because, in delicate habits, where those vessels are weak, and consequently remain too long uncontracted, the *leucorrhœa* sometimes immediately follows the menses, and goes off by degrees, as they gradually close. It also comes from the mucous glands of the contiguous parts, as is particularly evident in very young females of eight or ten years old; in whom, though very rarely, it has been observed. Sometimes it occurs from these parts in women with child, the womb itself, during pregnancy, being closely sealed up. The application of those instruments called *pessaries*, from the pain and irritation they occasion, are also apt to bring on this discharge. Here the fault seems to belong to the secreting glands of the part, the irritation of which occasions the secretions to be changed from their natural quality and quantity.

This flux has been supposed to supply the want of the menses; because, where the first prevails, the last is generally either irregular or totally wanting: but it might more properly be said, that the presence of leucorrhœa, which is a preternatural evacuation, occasions the absence of that which is natural; as is evident from the return of the menses, after the whites have been cured. Indeed, when this discharge appears about the age of thirteen or fourteen, and returns once a month, with symptoms like those of the menses, it then becomes natural, and therefore ought not to be stopped.

The leucorrhœa may be distinguished into two stages, the first arising from a simple weakness, or the relaxation of the vagina: or, secondly, it may be *general*, where the whole bodily system is enervated and unstrung; and where the uterine vessels are primarily affected, in consequence of hard labour, frequent miscarriages, a suppression or immoderate quantity of the menses, or a sprain of the back or loins. In most cases, however, both causes exist at the same time, so as to demand the use both of general and topical remedies.

In the first case, the discharge, being generally mild, may be treated by astringent injections alone, to overcome the habit which the glands of the vagina have acquired. By way of diet, nothing will be more proper than nourishing simple food; such as veal broths, jellies of isinglass, fresh eggs, and a milk diet. The acid fruits will also be proper; and the patient, if not plethoric, may take restorative, strengthening remedies, which will assist the weakened organs in returning to their natural state. The Tunbridge or Spa waters may be drank at the same time.

Injections may be used, of an infusion of green tea, or smith's-forge water; or the following:

℞ Bals. Capaiv. ℥ss.
Mucil. gum. arab. ℥j.
Aquæ fontis ℥viss. Fiat injectio.

Dr. Hugh Smith recommends the following topical astringents:

℞ Cort. quercus, ℥j.
Cort. granat.
Flor. balaust. aa ʒij.
Coq. ex. vin. rub. q. s. ad colatur. ℔j.
Adde Alumin. ℥ss.
Misce pro fotu, bis die partibus usurpand.

Or,

℞ Cupri vitriol. gr. x.
Aq. fontan. ℥ij.
M. ft. injectio omn. nocte cubitum iturus ope siphon. utend.

He says, should the disease prove obstinate, the patient may go into the cold bath every second day; and also drink lime-water with milk, which will expedite the cure, and prevent a relapse. Women affected with leucorrhœa should wholly abstain from tea; breathe a dry clear air; and wear a flannel shift next the skin. The cold bath, or a blister applied to the bottom of the spine, have also produced very powerful effects, and have sometimes succeeded after other remedies had been tried in vain.

Dr. Hugh Smith recommends the following internal remedies, to be used at the same time with the topical applications:

℞ Gum. olibani ʒss.
Sacchari, ʒj. Tere simul: dein adde,
Tinct. cinchonæ ʒij.
Aq. cinnam. ten. ℥jss.
Tinct. cantharid. ʒj.
M. ft. haust. mane et cubitum iturus sumend.

℞ Extract. cinchonæ ʒss.
Rubigin. ferri ppt. gr. xv.
Pulv. aromatic. gr. v.
Syr. croci. q. s. ut. ft. bol. hor. xj. matut. et 5ta P. M. sumend.

Or, the doctor observes, the following bolus may be used for the above, as they nearly answer the same intention:

℞ Aluminis in pulv. trit.
Colcoth. vitriol. aa gr. xv.
Pulv. aromatic.
Pulv. rhabarb. aa gr. iv.
Syr. bals. q. s. ut ft. Bol. ter die sumend. superbibend. tinct. rosæ rub. haustulum.

In those cases where the discharge is copious, sharp, and of long standing, it would be right not to suppress it too suddenly by astringents; until the system be restored to a sound and vigorous state.

In women of a plethoric habit, the following has been found to succeed remarkably well.

℞ Calomel. gr. xij.
Pulv. gum. arab. ʒij.
Fiant pulv. No. xij. sumat j. omni nocte.

After this course has been continued a fortnight or three weeks, some strengthening bitter infusion may be used, taking care, however, that costiveness be not induced; or both remedies may be employed at the same time. The patient should abstain from malt liquors, and drink rice-water, in each pint of which half an ounce of gum-arabic has been dissolved. If the patient be weak, and of a cold habit of body, a little ginger may be added to these. In the latter state it will be proper to take the bark freely, and to use the Tunbridge or Pyrmont waters for common drink; but if those cannot conveniently be had, the *artificial mineral water*, impregnated with iron and carbonic acid gas, will make an excellent substitute. If these should cause costiveness, and occasion head-ach, she may take a little senna-tea sweetened with manna, as a laxative.

We cannot close the present article without adverting to a recent proposal of Mr. Robertson, a surgeon in Edinburgh, to employ tinct. canthar. internally in leucorrhœa. Reflecting that the constitutional symptoms of leucorrhœa are precisely similar to those of gleet in men, the matter discharged of the same appearance and consistence, evidently depending on the debilitated state of the mucous membrane of the vagina; in short, that all the circumstances are as completely similar as the structure of two opposite sexes will admit, it appeared to that gentleman very probable, that this remedy might also remove leucorrhœa, by invigorating the general system, and producing a change in the action of the mucous membrane concerned, as has been known to happen in gleets. In the Edin. Med. and Surg. Journ. Vol. II. he relates a case in which this treatment appears to have succeeded, under circumstances of peculiar difficulty; but it was assisted by a cupreous injection, and other remedies.

Mr. Robertson observes, that cantharides seem formerly to have been used successfully in leucorrhœa, though the nature of the affection which this medicine removed does not appear to have been understood by those who employed it. Dr. Greenfield, for example, had adopted a notion that almost all such discharges as those of leucorrhœa and gleet depended on ulceration of the bladder, and that cantharides were an infallible remedy for such ulcers; just as, in our own times, some promulgate that almost all affections of the organs of generation may depend on strictures in the urethra. He relates a case communicated to Greenfield, by Cha. Bernard, surgeon to Queen Anne, which was evidently one of leucorrhœa mistaken for an ulceration of the bladder. In this, two grains of cantharides were taken twice a-day, and this quantity, after an interval in which strangury was produced, was augmented to three grains. The change observed a first was, that the quantity of purulent matter which she used daily to evacuate was wonderfully diminished; " but, after some intermissions, " the purulent matter lessened daily, and at length wholly disappeared."

As females are sometimes connected with those who do not conscientiously regard their safety, it is a circumstance of the utmost consequence *to distinguish a fresh venereal infection, from the leucorrhœa:* for if the first be mistaken for the last, and be either neglected or improperly treated, the worst consequences may arise. The following signs will best inform the practitioner in such a case: 1. In the gonorrhœa, the discharge chiefly proceeds from the parts contiguous to the urinary passage, and continues whilst the menses flow; but in leucorrhœa this is supplied from the uterus and its passage, and then the menses are seldom regular. 2. In the former, an itching, inflammation, and heat of urine, are the fore-runners of the discharge; the orifice of the urinary passage is prominent and painful, and the patient is affected with a frequent irritation to make water. In the whites, pains in the loins, and loss of strength, attend the discharge; and if any inflammation or heat of urine follow, they happen in a less degree, and only after a long continuance of the discharge, which, becoming sharp and acrimonious, excoriates the surrounding parts. 3. In the gonorrhœa, the discharge suddenly appears, without any evident cause; but in the *fluor albus*, it comes on more slowly, and is often produced by irregularities of the menses, frequent abortion, sprains, or long-continued illness. 4. In the gonorrhœa, the discharge is greenish or yellow, less in quantity, *and not attended with the same symptoms of weakness.* In leucorrhœa, although it is often also of the same colour, especially in bad habits of body, and after long continuance; yet is usually more offensive, and redundant in quantity.

LEVATOR ANGULI ORIS, (*levator;* from *levo*, to lift up; so named from its office, which is to lift up the part to which it is affixed). It is the *elevator labiorum communis* of Douglas, and *caninus* of Winslow. This muscle is situated above the mouth. It draws the corner upwards, and makes that part of the cheek opposite to the chin prominent, as in smiling. It arises thin and fleshy from the hollow of the superior maxillary bone, between the root of the socket of the first grinder and the foramen infra orbitarium, and is inserted into the angle of the mouth and under lip, where it joins with its antagonist muscle.

LEVATOR ANI, a muscle of the anus. It arises from the os pubis, within the pelvis, as far up as the upper edge of the foramen thyroideum and joining of the os pubis with the os ischium, from the thin tendinous membrane that covers the obturator internus and coccygæus muscles, from the spinous process of the ischium. From these origins all round the inside of the pelvis, its fibres run down like rays from a circumference to a centre, to be inserted into the sphincter ani, acceleratores urinæ, and anterior part of the two last bones of the os coccygis, surrounding the extremity of the rectum, neck of the bladder, prostate gland, and part of the vesiculæ seminales. Its fibres joining with those of its fellow, form a funnel-shaped hole, that draws the rectum upwards after the evacuation of the fæces, and assists in shutting it. The levatores ani also sustain the contents of the pelvis, and assist in ejecting the semen, urine, and contents of the rectum, and probably, by pressing upon the veins, they contribute greatly to the erection of the penis.

LEVATOR LABII INFERIORIS, the *Levator menti* of Albinus, *Incisivus inferior* of Winslow, and *Elevator labii inferioris proprius* of Douglas. It is a muscle of the mouth, situated below the lips. It arises from the lower jaw, at the roots of the alveoli of two incisor teeth and the cuspidatus, and is inserted into the under lip and skin of the chin. It draws up the parts into which it is inserted.

LEVA'TOR LA'BII SUPERIORIS alæque nasi, the *Elevator labii superioris proprius* of Douglas, and *Incisivus lateralis et pyramidalis* of Winslow; a muscle of the mouth and lips, whose use is to raise the upper lip towards the orbit, and a little outwards. It serves also to draw the skin of the nose upwards and outwards, by which the nostril is dilated. It arises by two distinct origins; the first broad and fleshy from the external part of the orbitar process of the superior maxillary bone, immediately above the foramen infraorbitarium; the second from the nasal process of the superior maxillary bone, where it joins the os frontis. The first portion is inserted into the upper lip and orbicularis muscle, the second into the upper lip, and outer part of the ala nasi.

LEVA'TOR O'CULI. See Rectus superior oculi.

LEVA'TOR PALA'TI. This muscle is the *Levator palati mollis* of Albinus, *Petrosalpingo-staphilinus* vel *salpingo-staphilinus internus vulgo* of Winslow, *Salpingo-staphilinus* of Valsalva, *Pterigo-staphilinus externus, vulgo*, of Douglas, and *Sphæno-staphilinus* of Cowper. It is situated between the lower jaw and the os hyoides laterally. It arises tendinous and fleshy from the extremity of the petrous portion of the temporal bone, where it is perforated by the Eustachian tube, and also from the membranous part of the same tube, and is inserted into the whole length of the velum pendulum palati, as far as the root of the uvula, and unites with its fellow. Its use is to draw the velum pendulum palati upwards and backwards, so as to shut the passage from the fauces into the mouth and nose.

LEVA'TOR PALA'TI MOLLIS. See Levator palati.

LEVA'TOR PA'LPEBRÆ SUPERIORIS, called otherwise *Aperiens palpebrarum rectus*, or *Apertor oculi;* a proper muscle of the upper eyelid, that opens the eye, by drawing the eyelid upwards. It arises from the upper part of the foramen opticum of the sphænoid bone, above the rectum superior oculi, near the trochlearis, and is inserted by a broad thin tendon into the cartilage that supports the upper eyelid.

LEVA'TOR PARVUS. See Transversus perinæi.

LEVA'TOR SCA'PULÆ, the *Angularis*, vel *Levator proprius*, of Winslow, and *Elevator*, seu *Musculus patientiæ*, of Douglas. This muscle arises, tendinous and fleshy, from the transverse processes of the five superior vertebræ of the neck, by as many distinct slips, which soon unite to form a long muscle, about two inches in breadth, that runs downwards and outwards. It is inserted, fleshy, into the superior angle of the scapula; and its use is, to pull the scapula upwards, and a little forwards.

LEVIGATION, in pharmacy, the reducing hard and ponderous bodies to an impalpable powder, by grinding them on a porphyry, or in a mill, with water or some other fluid. But unless the grinding instruments are extremely hard, they will wear away so much, as to double sometimes the weight of the medicine. A new method of reducing dry powders to a great degree of fineness has lately been practised, by means of a fanner. This has the advantage over the other methods, in being much more expeditious, and attended with less trouble and expence; the degree of fineness to which they are reducible being thus also in a manner unlimited. The construction of the fanner employed for this purpose is different from that employed for winnowing corn; the blast not being collected into a small compass as in the latter, but diffused over a considerable space, lest a violent blast should hurry off both coarse and fine together. For this purpose, the leaves of the fanner are made as long, in the direction parallel to the axis, as can be done conveniently. In the other direction projecting from it, they differ not from the ordinary length, nor do they in the general situation with respect to each other. Before the leaves is a wooden partition, reaching half way up, to prevent the gross powder from falling in among the leaves, which reaches about half way from bottom to top; and about two feet or less from this, according to the size of the fanner, is another partition, in a sloping direction, reaching from the bottom of the box to near the top. The whole is inclosed in a large box, six or seven feet long, having, in the end farthest off from the leaves, a slit equal to the space left betwixt the top of the box and the sloping partition already mentioned. On the top of this is another box, extending from the farthermost end of the former to the hopper which holds the coarse powder, with a hole in the end nearest to the fanner; and upon this another box, &c. as long as it is found that the air carries off with it any quantity of powder. This will be best understood from the engraving and description of the machine, under this head, in the Encycl. Brit. Thus it is evident, we may obtain powders of every degree of fineness, and such as neither sieve nor levigating mill could equal. Washing over with water may indeed produce powders equally fine; but the length of time requisite for settling, and the trouble of drying them again, must decidedly give the preference to the fanner; especially when we consider, that there is not any occasion for taking out the powder in small quantities, as is the case in sifting, washing, or levigating; but it may be allowed to remain till as much is collected in the boxes as we desire.

LEVI'STICUM, (from *levo*, to assuage; so called from the relief it gives in painful flatulencies of the intestines), lovage; the *Ligustrum levisticum*, Linn. *Ligustrum foliis multiplicibus, foliolis superne incisis.* Class, *Pentandria.* Order, *Digynia.* The smell of this plant is strong and particularly ungrateful. Its taste is warm and aromatic. It abounds with a yellowish gummi-resinous juice, very much resembling the opoponax. Its virtues are supposed to be similar to those of angelica and master-wort in expelling flatulencies, in exciting sweat, and opening obstructions. Hence it has been chiefly used in hysterical disorders, and uterine obstructions. The leaves are eaten in salads, and are accounted emmenagogue. The root, which is less ungrateful than the leaves, is said to possess similar virtues, and has been exhibited in powder.

LI'BER, in botany, the inner bark or rind of a tree or plant, distinct from the cortex, which is the outer. According to Linnæus, the calyx is a continuation of the cortex, but the corolla, a continuation of the liber.

LICE'TUS, a celebrated Italian physician, was born at Rappollo, in the state of Genoa, in 1577. He was an untimely birth, but trained with great care by his father, and became a very distinguished man in his profession. He was the author of a great number of works: but his book *De Monstris* was the most popular. He was professor of philosophy and physic at Padua, where he died in 1655.

LI'CHEN, (of the Gr. λειχῆν or λιχην, *a tetter* or *ring-worm)*, a cutaneous disease, defined by Dr. Willan, " an extensive eruption of papulæ affecting adults, connected with internal disorder, usually terminating in scurf, recurrent, not contagious." The varieties of lichen he considers under the denominations of *Lichen simplex*, *Lichen agrius*, *Lichen pilaris*, *Lichen lividus*, and *Lichen tropicus*.

1. *Lichen simplex*, usually commences with head-ach, flushing of the face, loss of appetite, general languor, and increased quickness of the pulse; but these are seldom in so considerable a degree as to confine the patient to the house. After continuing four or five days, they are generally relieved by the appearance of the eruption. This disease is not peculiar to infants, but mostly occurs in adults. About the cheeks and chin, or on the arms, distinct red papulæ first arise; and in three or four days the same appearance takes place on the neck, body, and lower extremities, accompanied with an unpleasant sensation of tingling, which is sometimes aggravated during the night; the colour of the eruption fades in about a week, and the cuticle begins to separate; at length the whole surface is covered with scurfy exfoliations, which are particularly large, and continue longest in the flexure of the joints. The period of its termination is seldom the same in any two cases; for ten, fourteen, seventeen, sometimes twenty days, will intervene between the eruption and the renovation of the cuticle. On different parts of the surface of the body there appears some difference in the form of the papulæ. On the face they are large, rounded, and often form into small tubercles like vari; on the neck, breast, and extremities, they are most distinct and acuminated; and on the hands they have the least redness, sometimes resembling obscure watery pustules, but always exfoliate without any discharge of fluid. This disease most commonly affects persons of a weak irritable habit, and occurs about the beginning of summer or autumn. There are besides several irregularities which frequently take place in its form and course; for, in some instances, the papulæ appear and disappear repeatedly, without producing any scurf. The eruption is often partial, affecting the arms, neck, and face only. In many cases there are successive eruptions and exfoliations of the papulæ, by which the complaint is prolonged many months. The preceding febrile affections differ in degree in different cases, and sometimes the eruption appears suddenly, without any manifest disorder of the constitution. For this species of lichen little medical treatment is necessary. The patients should avoid heating themselves, either by exercise or the use of stimulants; their diet should be light, the liquors they drink mild and cooling, and some gentle aperients may be occasionally administered, as the purging salts in small doses.

2. *Lichen agrius*, which is attended with nausea, pain in the stomach, head-ach, loss of strength, deep-seated pains in the limbs; accompanied with fits of shivering, that for several days precede the eruption, after which the uneasy symptoms abate. The papulæ are distributed in clusters, or oftener in large patches, chiefly on the arms, the upper part of the breast, the neck, face, back, and sides of the abdomen. They have a strong red colour, and also a flushing, or some degree of inflammation round them, to a considerable extent, attended with itching, heat, and a painful tingling. In the morning the papulæ subside, and the inflammation in a great degree abates, till after dinner, when the patient begins to be more uneasy: but when warm in bed, the redness increases, and there is a strong sensation of burning and smarting, for an hour or more, similar to what is experienced from scalding. Washing, especially with soap, violent exercise, or drinking wine, produced the same effects.

In consequence of a long continuance, or frequent returns of the heat and redness, the cuticle of the parts chiefly affected is at length altered in its texture, becoming harsh, thickened, chappy, and exquisitely painful on being rubbed or handled. The duration, and methods of its termination, are equally various: sometimes it continues the same for four or five weeks; at others it terminates in a short time, with slight exfoliations of the cuticle; but most commonly the eruption appears and disappears repeatedly, before the disease is removed. Cracks and excoriations arise from rubbing the places affected too harshly, from whence much watery fluid is discharged; which circumstance may occur, in the more advanced period, merely from the violent inflammation of the skin. In neither case do medical applications readily heal the ulcerated surface. Should the papulæ be repelled by improper applications suddenly, a variety of disagreeable consequences may arise: an acute disease, attended with great quickness of the pulse, heat, thirst, pains of the bowels, frequent vomiting, head-ach, and delirium, has happened in one or two cases from repulsion, occasioned by imprudent exposure to cold; which symptoms continued for ten days or longer; happily the patients recovered, though the eruption did not continue. This disease, after repeated attacks, sometimes terminates in a chronic pustular disease, of a very inveterate kind. The diffuse redness connecting the papulæ, and the tendency to become pustular, distinguish this species of the lichen from that termed *simplex*, and the other varieties of this complaint, in which the inflammation is confined to the basis of the papulæ, and which terminate in scurf or scales. Women are much more liable than men to the *lichen agrius*, which usually affects those who have undergone long-continued fatigue, watching, and anxiety. In this complaint it is useful to give, at intervals, two or three moderate doses of calomel as a purgative, and afterwards administer, three times a day, the infusion of roses, or decoction of bark, with the vitriolic acid; and, to allay the troublesome heat and itching, soothing topics, as the *unguentum rosatum* of Quincy's Dispensatory, or the rose pomatum of the perfumers, may be applied. But any application that is sharp and stimulating, when the skin is rough, inflamed, or chapped, very much aggravates the complaint.

3. *Lichen pilaris.* This is merely a modification of the first species of lichen, and, like it, often alternates with complaints of the head or stomach, in irritable habits. The peculiarity of the eruption is, that the small tubercles or asperities appear only at the roots of the hairs of the skin, being probably occasioned by an enlargement of their bulbs, or an unusual fulness of the blood-vessels distributed to them. This affection is distinguishable from the cutis anserina, by its permanency, by its red papulæ, and by the troublesome itching or tingling which attends it. If a part thus affected be violently rubbed, some of the papulæ enlarge to the size of wheals, but the tumor soon subsides again. The eruption continues more or less vivid for about ten days, and terminates, as usual, in small exfoliations of the cuticle, one of which surrounds the base of each hair. This complaint, as likewise the lichen agrius, frequently occurs in persons accustomed to drink largely of spirituous liquors undiluted.

4. *Lichen lividus.* This species is so called from the eruption being of a dark red, or livid colour, which forms the characteristic symptom: it is somewhat more permanent than the *lichen pilaris.* On the arms and legs the eruptions chiefly appear, but sometimes they extend also to other parts of the body. They are at last, though at very uncertain periods, succeeded by slight exfoliations of the cuticle; after which a fresh eruption makes its appearance, and in this mode the disease continues for several months. No febrile symptoms either precede or attend this eruption. It principally affects people of weak constitutions, who live chiefly on poor diet, and are engaged in laborious employments. Young persons, and often children living in confined situations, or using little exercise, are also subject to the *lichen lividus;* and the papulæ in them are generally intermixed with the petechiæ, or large purple spots resembling vibices. Hence it shows some affinity with the *purpura*, or land-scurvy, and it is cured by the same mode of treatment; by nourishing food, moderate exercise in the open air, along with the use of Peruvian bark united with vitriolic acid, or the tincture of muriated iron.

5. *Lichen tropicus*, the *tropical lichen*; is so called because it affects the inhabitants of tropical climates, well known under the name of the *prickly heat.* This appears without any preceding disorders of the constitution. Numerous papulæ, about the size of a small pin's head, and elevated so as to produce a considerable roughness in the skin. The papulæ are of a vivid red colour, and often exhibit an irregular form, two or three of them being in many places united together; but no redness or inflammation extends to the skin in the interstices of the papulæ. The eruption is diffused over those parts of the body which are usually covered, and sometimes on the forehead contiguous to the hair, though never found on the palms of the hands or soles of the feet, nor on the hairy scalp. Wearing flannel, or too warm cloathing, increases the number of the papulæ. Small pearly pustules, containing a limpid fluid, are often intermixed with the prickly heat: when perspiration is very copious, more especially on the breasts, and about the wrists, they have no disposition to ulcerate, though violently scratched, but terminate in scales. A troublesome itching attends the prickly heat, and prevents sleep during the night; and likewise a frequent sensation of pricking. This often takes place suddenly after drinking any warm liquor, so as to cause the person affected to start from his seat. The eruption is in general stationary, and appears equally vivid in the day and night. It sometimes disappears on a sudden, and returns again as suddenly, without any obvious cause; but whenever it continues for any length of time, the papulæ throw off minute scales, and are succeeded by a fresh crop, no vestiges being left on the skin. Persons of a fair complexion, with red hair, and a soft skin, are more liable to this eruption, and have it in the greatest quantity. Those of dark complexions have it slightly, or commonly remain free from it. As the prickly heat is considered as a salutary eruption, no attempts are made for its repulsion, though this is not easy to accomplish, if desired. Its sudden disappearance, however, is rather the effect than the cause of internal disorder; as of fever, or any slight complaint of the stomach, in which latter case, a stimulus applied to that organ, as spirits, or warm liquids, generally reproduces the eruption. Its appearance on the skin of persons in a state of convalescence is always deemed a favourable sign. To alleviate the itching and tingling of the prickly heat, a light cool dress, and to avoid drinking warm liquors, Dr. Willan says, have been found to produce the best effect.

A vivid eruption of papulæ, somewhat analogous to the *prickly heat*, appears in our own climate, on the arms, hands, face, and neck of labourers, and other persons who use violent exercise during the hot months of summer. It produces a sensation of tingling, a smarting, more than of itching, and disappears in a short time, without any particular consequences. In Dr. Willan's excellent work on cutaneous diseases, many references may be found to other authors who have written on this disease.

LI'CHEN CANI'NUS; the systematic name of the ash-coloured ground liver-wort. See Lichen cinereus terrestris.

LI'CHEN CINE'REUS TERRE'STRIS, or *Muscus caninus;* a cryptogamious plant, called ash-coloured ground liver-wort. It is the *Lichen caninus* of Linnæus. This plant has a weak, faint smell, and a sharpish taste. Formerly it was in high repute, as a remedy and preventive in the rabies canina, but now it is deservedly forgotten. See Pulvis antilyssus.

LI'CHEN COCCI'FERUS. See Muscus pyxidatus.

LI'CHEN ISLA'NDICUS; called also *lichen terrestris*, *lichenoides*, &c. the eryngo-leaved, esculent, *Iceland lichen.* It is the *lichen foliaceus ascendens laciniatus*, *marginibus elevatis ciliatis*, Linn. Class, *Cryptogamia.* Order, *Algæ.* It is a native of Britain, and grows, particularly on the mountains, both in the Lowlands and Highlands of Scotland, and in Wales. It is foliaceous, erect, large; the leaves are crowded, connected, about two inches high, of a stiff substance when dry, but soft and pliant when moist: they are variously divided, without order, into broad distant segments, turned in at the edges, and fringed with short strong bristles; the upper surface is smooth, concave, shining, of a pale green or chesnut colour, but red at the base: the under is smooth and whitish, a little pitted and sprinkled with very minute black warts. The fructifications are large, of a reddish colour, and placed on the lobes of the leaves. This plant is extremely mucilaginous, has a bitter and somewhat astringent taste, and is considered as a laxative in its recent state: but its bitterness and aperient quality are in a great measure destroyed by drying, or slightly infusing in water. The Icelanders make a flour of it called *fialgras*, either by first washing the plant, and cutting it into small pieces, or by drying it by the fire or in the sun, then putting it into a bag, which is well beaten; and lastly, by stamping, working it into flour. This is a tolerably agreeable and grateful food. As a medicine, Scopoli and Haller recommend it in coughs and consumptions; and it has also been said to prove efficacious in dysentery and diarrhœa. Dr. Woodville has commended the qualities of this plant; which indeed found its way into a late edition of the Edinburgh Pharmacopœia, though it has since been expunged by that college. Dr. Crichton gives it a high character; but in two species only of consumption, viz. the *phthisis hæmoptoica* and *phthisis pituitosa vel mucosa;* for by its use, he says, he has seen patients get so far the better as to be dismissed from the hospitals as cured. The form in which it is given is a decoction, made by boiling an ounce and an half in a quart of milk, *over a slow fire*, *exactly one quarter of an hour:* the dose, about three or four ounces frequently in the day. If the milk disagrees, water may be used in its stead; but care must be taken to boil it over a slow fire, and not more than a quarter of an hour.

The purgative quality of this species of lichen is not considerable, and depends upon a volatile principle, which is dissipated, as already observed, by drying. In the recent state, however, it is frequently used by the peasants to purge and expel worms. We scarcely meet with any instances, in authors, where it is pretended, that the cure of phthisis has been *solely* trusted to this remedy; for in general it has been united with other active medicines, such as squills, opium, cinchona, &c. so as to render their accounts very equivocal.

Dr. J. C. Fritze, of Berlin, an experienced physician, notices the Iceland moss, in his " Medizinisch, Annalen," and recommends it as a valuable remedy in phthisis; but he limits its use to those cases in which *pus is expectorated.* To this medicine, he says, several phthisical patients under his care, for some years, were indebted for *a tolerable degree of health.* He generally exhibited a decoction of it in milk, or when this was disagreeable to the stomach, in water, to which were added the flowers of the hypericum perforatum and tussilago farfara. In the " Annalen des Klinischen Instituts zu Berlin," Dr. I. F. Fritze, Professor of Medicine, relates several cases of phthisis, in which this moss was tried. The success does not appear very flattering, nor was the remedy trusted to that alone, but several auxiliaries were called in, as blisters, issues, antimonial preparations, ammonia, dulcamara, ammoniacum, &c. Where the indication, he observes, is to strengthen the organs of digestion without irritation, to nourish the body, and to supply it with bland fluids, the Iceland moss will be found extremely useful. In his practice he has ordered from three to four ounces, or more, of this jelly to be consumed daily; but when the patient's stomach cannot bear so much, he advises us to lay it aside, as it will be of no use in a smaller quantity.

Dr. Schaeffer in his " Ortbeschreibung der Stadt Regensburg," with a laudable candour says, as phthisis occurred in the year 1786 more frequently than usual, he had an opportunity of trying this and other remedies; but that he did not cure one of his patients, except in those cases, where early assistance was called for, the fever moderate, and the disease not yet fixed upon the lungs. His usual practice was to give every second or third day such a dose of ipecacuanha as would excite vomiting two or three times; and in the intermediate days he exhibited the Iceland moss, valerian, polygala amara, gum arabic, the bark, &c. But when vomicæ were formed, and in an inflamed or suppurating state, with considerable fever, the bark he says was evidently hurtful.

It does not appear, on the whole, that the Iceland moss will ever become a sterling remedy with English practitioners; though it is at this time greatly in favour on the continent, and, candidly speaking, may merit a further trial. Abroad, however, it owes much of its celebrity to the prevalence of the humoral pathology; for, as it consists of a mucilage united with a bitter, it is supposed that the first principle would render it powerful in *inviscating acrimony;* and the second in *gently constringing and corroborating the muscular fibres of the stomach.* The bitter principle however, which has been considered of such importance, cannot be very strong or durable, as it is easily extracted by a slight maceration in cold water, the only process requisite before it is prepared for food. The mucilage is contained in considerable quantity; and it is said to thicken milk, or water, as much as three times the same weight of gum arabic, but perhaps not more than an equal quantity of linseed

In an economical point of view, the lichen islandicus at least merits peculiar attention. In times of scarcity, such as we have lately experienced, this moss, either alone or mixed with a certain proportion of farinaceous matter, offers an useful substitute for bread. In the country from which it receives its trivial name, this lichen constitutes a considerable portion of the diet of the inhabitants; and the harvest of moss is attended to with as much care as that of wheat in this country. The learned Van Troil, in his Letters on Iceland, observes, that a flour is obtained from the (*fialgras*, rock-grass) Lich. Island. by washing it and then cutting it into small pieces; "though the greater number, (he adds) dry it by the fire or sun, then put it into a bag, in which it is well beaten, and, lastly, worked into flour by stamping." It seems probable that this moss has never been used as an article of diet in this country, though it grows abundantly in those parts where the cerealia do not thrive. It was formerly supposed to possess eminent virtues in diseases of the liver, whence its popular name of *Liverwort.*

LI'CHEN PLICA'TUS, the systematic name of the *muscus arboreus.* See Muscus arboreus.

LI'CHEN PULMONA'RIUS; the systematic name of the officinal muscus pulmonarius quercinus. See Pulmonaria arborea.

LI'CHEN PYXIDA'TUS; the systematic name of the cup-moss. See Muscus pyxidatus.

LI'CHEN ROCCE'LLA; the systematic name of the roccella of the shops. See Roccella.

LI'CHEN SAXA'TILIS; the systematic name of the grey-blue pitted lichen, or *muscus cranii humani.* See Usnea.

LIENTE'RIA, (λειεντερια, from λειος, *smooth*, εντερον, *an intestine*, and ρεω, *to flow*); a species of diarrhœa. Dr. Cullen makes it the fifth species of diarrhœa, and defines it, a diarrhœa in which the aliments are quickly hurried through the body in a nearly indigested state. See Diarrhœa.

LIEUTAUD (Joseph), counsellor of state and first physician at the court of France, was born at Aix in Provence, and resided principally there till he took the degree of doctor of medicine. After this he prosecuted his studies for some years at Montpelier. He returned to Aix, where he soon acquired extensive practice, and became eminent for literary abilities. He resided there till the year 1750, when he was invited to act as physician to the royal infirmary at Versailles. There he practised with such reputation and success, that he soon arrived at the head of his profession; and in the year 1774, upon the death of M. Senac, he was appointed archiater. His extensive engagements in practice did not prevent him from cultivating the science of medicine in all its branches, and from freely communicating to others the result of his own studies. He published many valuable works; amongst which the following may be accounted the most remarkable: 1. *Elementa Phisiologiæ.* 2. *Precis de la Medicine.* 3. *Pratique Precis de la Matiere Medicale.* 4. *Essais Anatomiques.* 5. *Synopsis Universæ Praxeos Medicinæ.* 6. *Historia Anatomico-Medica.* He died at Versailles in 1780, aged 78 years.

LIFE, the state of animal or vegetable organization, and indispensably requisite to the capability of function. In the former Dr. Hooper defines it, the property of acting from an intrinsic power. According to this definition, the life of an animal body may be considered in a threefold view. 1. *Its Physiological Life*, which consists in the action of organic parts proper to each, as the action of the heart and blood-vessels; so that, these actions ceasing, the body is said to be physiologically dead. 2. *Its Physical Life*, which consists in the irritability of the parts. This physical property remains for some time after death. Thus the heart or intestines removed from the body, whilst still warm, contract themselves on the application of a stimulus. In like manner, the serpent or eel being cut into pieces, each part moves and palpitates for a long time afterwards. Hence these parts may be said to live *physically*, as long as they continue warm and soft. 3. *Its Chemical Life*, which consists in that attraction of the elements, by which the vital principle, diffused through the solids and fluids, defends all the parts of the body from putrefaction. In this sense it may be said, that every atom of our body lives *chemically*, and that life is destroyed by putrefaction alone. The physiological life ceases first, next the physical, and finally the chemical perishes.

It may be requisite, in treating this subject, to advert to the circumstances of nutrition, growth, life, and death. After the child is born, it continues to grow, but always more slowly in proportion to its age; but there are many causes for the perpetual diminution of its growth. Many vessels seem to be obliterated, both because they are compressed by the neighbouring torrent of some large artery, and because the blood, now become more viscid, coagulates. Besides, the food being now coarser, accumulates in the blood more earth, which, being carried through the whole body with the nutritious fluid, renders every part of it harder, bones, teeth, cartilages, tendons, ligaments, vessels, muscles, membranes, and cellular substances: so that an increase of hardness may be perceived, even by the touch. Wherefore, since the blood flows from the heart through fewer canals, and since all the parts which should be lengthened or distended have become harder, it necessarily follows, that those which ought to increase in bulk, will yield less and less to the impulse of the heart.

But the heart likewise, which is the part that is first consolidated of all the soft ones, increases less than any other part of the whole body; and while the much more tender limbs and softer viscera are distended, the heart itself grows more slowly, and continually bears a less, and at least an eight times smaller, proportion to the rest of the body in the adult. At the same time, from that very density which it has so quickly acquired, it becomes less irritable, and is contracted less frequently within a given time. Thus, while the resisting powers are augmented, the distending ones are at the same time diminished.

Hence, sooner or later, there will be an end of increase; and this will happen sooner, in proportion to the quickness and frequency of the contractions of the heart, and will approach when the cartilaginous crusts of all the bones are now become so thin that they cannot yield or give way to the increase of the bony part. In women, the menses seem to put an earlier stop to the growth. There is no durable state; for nature, from the first conception, tends, by a perpetual progress, towards decrease. It is said, however, to take place, when there is neither an increase, or very visible decrease, of bulk.

For man is perpetually consuming: nor do we only lose the fluid parts of our bodies, but even those which are the most solid. For even the bones are changed; and the teeth, which are harder than the bones, increase in bulk when the attrition of the opposite teeth ceases to wear them away, and therefore, their elements are changed: even the fibres of ivory in the elephant's tooth have given way, and surrounded on each side, in curved lines, a leaden shot. The bony juice likewise is changed; since, in some cases, the bones grow soft; in others, it forms bony tumors: even cicatrices themselves have a manifest growth, for otherwise they would not be sufficient, in an adult, to fill up a wound received in infancy; and a great quantity of the earthy, certainly of the animal, part of our bodies, goes off by urine, as is proved by what happens in some diseases.

The destruction of the solids is caused by their perpetual extension and retraction, which happens at every pulsation of the heart, of which there are an hundred thousand every day; also in the friction of the fluids against the solids; the wearing away of all the membranes, which terminate with a loose extremity, either on the surface or in the internal cavities of the body, which are supported solely by the rest of the canal; in the alternate swelling and collapse of the muscles; and in the attraction and pressure which the muscles exert. But the parts of our body are the sooner worn away, that they consist of a great deal of gluten combined with a small quantity of earth; and that gluten, when it is extended, if the extension has been a little superior to the force of cohesion, must of necessity fall away and be carried off from the earthy parts. Thus, deficiencies are generated, such as are visible in the arteries of old men. The cellular texture, which otherwise would be dissolved in water, into a jelly, is worn away by the friction produced by the impetus of the blood pressing against the neighbouring blood-vessels and muscles, and by their perpetual alternation of flexion and extension.

This decrease would be very quick, and, indeed, there would be no great distance between the end of our life and its beginning, unless these losses were repaired. The fluid parts are restored by the aliments, and that pretty quickly; as appears from the example of a chicken, in which blood is generated from its aliment within two days. The fat, however, and red globules of the blood, are formed out of the fat, as is shown elsewhere; the lymphatic juice from the jelly; the mucus, from mucus; and the rest of the humours, from these and water. The solids are repaired almost by the same means which we have described in the history of the fetus. A gelatinous juice is conveyed from the aliments, through the arteries, to all parts of the body, and exudes into the cellular texture every where. The furrows, which Haller imagines to be made in the inmost arterial membrane by the impetus of the blood, are filled up by a viscid matter, applied to them by the lateral pressure; never in too great quantity, because the exuberant parts of the nutritious particles must necessarily be abraded by the current of the blood. Nor will it be deficient while there is a sufficient quantity of aliment, since there is more rest, and less resistance in the bottom of the furrow, which is farther removed from the motion of the blood through the centre of the vessel. There seems to be certain powers in the air, by which the aliment is attached to the solid parts, although we are ignorant of the manner in which they act.

The decrease of the cellular texture arising from attraction or pressure, is repaired by the viscid vapour exhaling from the artery, and applied to the wasted places by the force of the neighbouring arteries and compressing muscles, its aqueous part being expressed and absorbed. The gluten repairs most of the organic parts, tendons, and membranes; being formed into new cellular substance, as in the fetus. The waste, which takes place in the unconnected extremities of parts adhering by their other extremity to the rest of the body, can be repaired by protrusion alone, while the lymph fills up the intervals produced.

When the growth of the body can proceed no further, fatness supervenes, which is a kind of imitation of real growth. This proceeds from the fat generated by the aliment; which, from the impetus of the blood being now lessened, as it enters the small vessels with more difficulty, is removed to the sides of the vessels; enters the lateral vessels, and inorganic pores of the arteries; exudes into the cellular texture; and there is accumulated, in consequence of the diminution of the compressing power of the blood, and likewise of the absorption by the veins.

The beginnings of decay are perceptible even in youth itself. Even then the solid elements of the body are augmented, the apertures through which the humours flow are lessened, the vessels are obliterated, and the greater attraction of the cellular substance has condensed the whole body. In every part of the body the induration produced by age becomes conspicuous, in the bones now wholly brittle, in the skin, in the tendons, in the conglobate glands, in the arteries, and in the weight of every part, and of the brain itself. But those parts grow soonest rigid, which are most exercised by motion; as those are, in every workman, which he chiefly employs in his profession.

Moreover, the arteries continue to become denser, narrower, and even impervious, both by the internal pressure of the blood flowing through the large arterial tube, and by the attraction of the cellular texture of which the greatest part of the artery is composed. An infinite number of parts of the cellular texture therefore cease to be nourished; to which the minute arteries hitherto conveyed nourishment, but which being now stopped up bring none. The extending force being removed, the cellular flocculi attract each other, lessen the interstices between them, degenerate into membranes, or substances of a hard texture, which inclose, and, as it were, strangulate other vessels. The gelatinous vapour likewise concretes in the interstices of the cellular texture, and forms a hard solid with its sides. The muscles, by the expulsion of their blood, and the concretion of their fibres, degenerate into hard dense chords, destitute of irritability.

At the same time, the nerves become more and more callous, and insensible to the impressions of the senses, and the muscles to irritation: thus the contractile force of the heart, and the frequency of its pulsations, is diminished, and with it every force which impels the blood into the extreme vessels.

The quantity of the secretions is diminished in the denser body, as the perspiration, semen, humours of the eye, and of the conglobate glands; the vapour, which moistens the solid parts of the body, every where manifestly decreases. For this reason, nutrition now languishes, because there is more which requires nourishment, and less nutritious juice. Nor is the quantity only diminished; but they themselves likewise become vitiated. They abound with earthy particles, both collected insensibly from the aliments after the secretions have become less easy, and partly abstracted from the solids themselves, and returned into the blood: for this earth is demonstrated in some diseases, and by the nature of the gouty concretions. From this abundance of earth, the proportion of that element through the whole body is, again, augmented, because the nutritious liquor brings too much of it along with it; whence the brittleness of the bones, and the hardness of all the parts increases: it is likewise every where deposited in the cellular texture, and produces every where crusts, at first callous, and then bony or stony, chiefly in the coats of the arteries.

The rigidity of the whole body, the decrease of the muscular powers, and the diminution of the senses, constitute old age; which, sooner or later, oppresses mortals severely: sooner, if subjected to violent labour, or addicted to pleasure, or fed upon an unwholesome diet; but more slowly, if they have lived quietly and temperately, or if they have removed from a cold to a warm climate.

But as those causes incessantly continue to operate in rendering the matter of the body more dense, in diminishing its irritability, and in augmenting the quantity of earth, it is not possible but decrepid old age must succeed. In it, the senses are almost destroyed, and the vis insita of the muscles becomes exceedingly weak, so that the limbs lose their strength, and become, especially the legs, unable to direct the body; that the callous insensibility of the nerves cannot be excited to perform the office of generation; that the very intestines becoming torpid, do not obey the habitual stimuli; that, by the induration of the intervertebral cartilages, the body bends forward; that by the falling out of the teeth, the jaws, now rendered shorter, do not support the lips sufficiently; and lastly, that the pulsations of the heart become one-half less frequent than in the infant state.

Thus at last, the necessity of natural death approaches, although the greatest number of mortals are carried off prematurely by diseases. One in a thousand exceeds the age of 90; and one or two perhaps in a century live to the age of 150. Man is long-lived, when compared with other animals; he is also more tender than any of them, has looser flesh, and less hard bones. It is not easy to say what was the cause, in long-lived people, of their longevity. England seems to exceed all other nations in the number of those who live to an advanced age; and, in general, the temperate countries are remarkable in this respect. Among the classes of men, the commonalty has almost solely afforded these rare examples; although, from its being the most numerous, we might expect a greater number of examples. Some prerogative seems to belong to sobriety, at least in a moderate degree; temperate diet; peaceable disposition; a mind not endowed with very great vivacity, but cheerful, and little subject to care. Among animals, birds are longer lived: and fishes, whose heart is very small, growth very slow, and whose bones never harden, are the longest lived. See LONGEVITY.

Dissolution from old age happens sometimes, but rarely. It may be said to occur, when the powers gradually decay, first of the voluntary muscles, then of the vital muscles, and lastly of the heart itself; so that, in an advanced age, life ceases through mere weakness, rather than through the oppression of any disease. Haller says he often observed the same kind of death in animals. The heart becomes unable to propel the blood to the extremities, the pulse and heat desert the feet and hands; yet the blood continues to be sent from the heart into those arteries nearest to it, and to be carried back from thence: the flame of life is thus supported for a little while, which soon after we perceive to be extinguished; when now the heart itself, being totally deprived of its powers, and not irritable by the blood to any effectual motion, cannot propel the blood through the lungs, that the aorta may receive its due quantity. The last efforts of respiration are now exerted to open a passage for the blood through the lungs, until even the powers given by nature for performing the action of inspiration, becoming unequal to their task, cease. Then, the left side of the heart neither receives blood nor is irritated, and therefore remains at rest; while yet, for a little time, the right ventricle, and lastly the auricle of the same side, receive the blood brought by the veins from the cold and contracted limbs, and being irritated by it, continue to beat weakly. But at last, when the rest of the body has become perfectly cold, and the fat itself congealed, even this motion ceases, and the death becomes complete.

Haller calls that state death, when the heart has become totally deprived of irritability. For the mere quiescence of the heart is not without the power of resuscitation: neither does the putrefaction, or insensibility, or coldness, of any part of the animal body, demonstrate the death of the whole animal: but all these things, when joined together, and perpetually increasing, with the rigidity produced by the congelation of the fat, in consequence of rest and cold, afford the signs of death in any doubtful case. The body after death is of course destroyed by putrefaction.

With regard to the natural limits of human life, it is agreeable to the calculations of authors, that every animal body should live eight times the length of its growth. From the most accurate political accounts made by comparing the bills of mortality published in different countries and climates, we have the following result:—Of one thousand persons living in large cities, no less than thirty-five or thirty-six die annually; while, in country places, or small towns, only from twenty-eight to thirty deaths happen in a similar period. Among 1000 children, five die during parturition; and scarcely half that number in child-bed; but about 300 are computed to fall victims to a perverse mode of education, though suckled by their mothers; and not less than 500, or one half of all that are born, if reared by wet-nurses. The mortality of infants, indeed, has increased to a most alarming degree in this luxurious age: as the plurality of them is carried off by convulsions, and difficult teething. Among 115 dead persons, there is only one woman deceased in child-bed; and, of 400 mothers, one only by previous pains. A greater proportion of boys than of girls die of the natural small-pox. There are always to be found more aged persons in hilly or mountainous countries, than in low situations; and it is proved by the most authentic computation, that, of 3,125, only one individual survives the hundredth year. From the same source, the following is the most probable chance which persons may have for the duration of their lives, after a certain fixed period, namely:

	Years.	*Months.*
A new-born infant will probably live....	34	6
A person of 1 year old	41	9
3	45	7
5	46	4
10	44	9
15	41	6
20	38	3
25	35	3
30	32	3
35	29	8
40	26	6
45	23	0
50	20	11
55	17	0
60	14	2
65	11	5
70	8	11
75	6	8
80	4	10
85	3	3
90	2	0

The proportion of the female sex to that of males, with respect to the number of deceased, is as 100 to 108. Previously to the 60th year, the chance of survivorship is in favor of women: but, after that age, men generally survive them. Married women, on the whole, live longer than those in a state of celibacy. From observations made for the space of 50 years, it is evident, that most persons die in the months of March, August, and September; but the fewest in November, December, and February. In populous cities, however, such as London and Paris, death makes the greatest havock during the winter. One half of the human race is doomed to dissolution, before they have completed the 17th year of their age; but, after this critical period, the survivors' chance of life becomes more valuable with every year: hence, for instance, a person thirty years old, according to the preceding calculation, will probably live thirty-two years longer; so that he may attain the age of sixty-two; whereas a youth of fifteen, though he have a chance of living forty-one and a half years longer, will nevertheless arrive only at the 56th or 57th year of his age.

Boerhaave observes, the most healthy children are born in the months of January, February, and March: indeed, the greatest number of births takes place during the two months last mentioned. The proportion of boys, annually born, is to that of girls as 104 to 100: but, on the other hand, a greater number of the former die during infancy, than of the latter; so that, about the age of puberty, both sexes are nearly equal. Among 65 or 70 infants there is generally but one instance of *twins*. The number of marriages, compared to that of the whole population of a country, is as 175 to 1000. Four children are generally computed to arise from each married couple; but, in towns, only thirty-five children from ten families. Lastly, it is proved from the records of the most experienced physicians, that, among 100 persons living in cities, throughout the year, only twenty are indisposed, or confined to their beds for one month; or twenty-four for the space of a fortnight.

The most proper treatment of persons in a feeble state, is suggested under the article Health, and the restoration to active existence under Resuscitation.

LIGAME'NTUM, (from *ligo*, to bind) a ligament. The ligaments are elastic and strong membranes connecting the extremities of the moveable bones. By anatomists they are divided into *capsular*, or those which surround the joint like a bag; and *connecting* ligaments. The use of the capsular ligaments is to connect and inclose the extremities of the moveable bones, and preserve the synovia; the external and internal connecting ligaments strengthen the extremities of the moveable bones. Dr. Hooper gives the following detail of the ligaments in the human body.

1. *Ligaments of the lower jaw;* or those connecting its condyles with the articular sinuses of the temporal bone. This is effected by two ligaments, called the capsular and lateral ligament.

2. *Ligaments of the occipital bone, and vertebræ of the neck.* The condyles of the occipital bone are united with the articular depressions of the first vertebræ by the capsular, broad, anterior, and posterior ligaments, the ligaments of the odontoid process, and the ligamentum nuchæ.

3. *The vertebral ligaments.* The vertebræ are connected together by means of their bodies and oblique processes. The bodies by a soft cartilaginous substance, and the processes by ligaments, viz. the transverse ligament of the first vertebræ; the anterior and posterior common; the interspinous; the intertransverse; the intervertebral ligaments: the capsular li-

gaments of the oblique processes; and the ligaments of the last vertebræ of the loins with the os sacrum.

4. *Ligaments of the ribs.* The posterior extremity of the ribs is united with the vertebræ; the anterior with the sternum. The ligaments of the posterior extremity are, the capsular ligaments of the greater and lesser heads; the internal and external ligaments of the neck of the ribs; and a ligament peculiar to the last rib. The ligaments of the anterior extremity are, the capsular ligaments of the cartilages of the true ribs, and the ligaments of the ribs *inter se.*

5. *Of the sternum.* The ligaments connecting the three portions of the sternum to the ribs are, the membrana propria of the sternum: and the ligaments of the ensiform cartilage.

6. *Of the pelvis.* The ligaments which connect the ossa innominata with the os sacrum are, three ligamenta ileo-sacra; two sacro-ischiatic ligaments; two transverse ligaments of the pelvis: the ligamentum obturans of the foramen ovale, and the ligamentum Poupartii, or inguinale. See PELVIS.

7. *Of the os coccygis.* The basis of the os coccygis is connected to the apex of the os sacrum, by the capsular and longitudinal ligaments.

8. *Of the clavicle.* The anterior extremity is connected with the sternum and first rib; and the posterior extremity with the acromion of the scapula, by the interclavicular, the capsular ligament, the ligamentum rhomboideum, and, in the posterior extremity, the capsular ligament.

9. *Of the scapula.* The proper ligaments which connect the scapula with the posterior extremity of the clavicle are, the conoid and trapezoid ligaments.

10. *Of the humerus.* The head of the humerus is connected with the glenoid cavity of the scapula by the capsular ligament.

11. *Of the articulation of the cubit.* The elbow joint is formed by the inferior extremity of the humerus, and superior extremities of the ulna and radius. The ligaments connecting these bones are, the capsular, the brachio-cubital and the brachio-radial ligaments.

12. *Of the radius.* The radius is affixed to the humerus, cubit, and carpus, by peculiar ligaments, namely, the superior, inferior, oblique, and interosseous ligaments.

13. *Of the wrist.* The ligaments which connect the eight bones of the wrist together, and with the fore-arm and metacarpus, are, the capsular ligament of the carpus; the first and second transverse ligament; the oblique ligaments, and the capsular ligament proper to the bones of the carpus.

14. *Of the metacarpus.* The bones of the metacarpus are in part connected with the second row of bones of the carpus, and in part together, by the articular and interosseous ligaments.

15. *Of the fingers.* The fingers and phalanges are connected together, and with the metacarpus: and the thumb with the carpus, by the lateral ligaments of the fingers, and ligament of the thumb with the os trapezium of the carpus.

16. *Retentive ligaments of the tendons which move the hand.* The ligaments which keep the tendons of the muscles of the hand in their place, lie partly on the palm and partly on the back of the hand. In the back of the hand are, the external transverse ligament of the carpus, the vaginal, and the transverse ligaments of the extensor tendons. In the palm of the hand are, the internal transverse ligament of the carpus, the vaginal or crucial ligaments of the flexor tendons of the phalanges, and the accessory ligaments of the flexor tendons.

17. *Ligaments of the articulation of the femur.* The head of the os femoris is strongly annexed to the acetabulum of the os innominatum, by two very strong ligaments, the capsular ligament, and ligamentum teres, or round ligament.

18. *Ligaments of the knee joint.* The knee is formed by the condyles of the os femoris, head of the tibia and the patella. The ligaments are the capsular, the posterior, the external and the internal lateral ligaments, the crucial and the alar ligaments, the ligaments of the semilunar cartilages, and ligaments of the patella.

19. *Of the fibula.* The fibula is connected with the tibia by means of the capsular ligament of the superior extremity, the interosseous ligament, and the ligaments of the inferior extremity.

20. *Of the articulation of the tarsus.* The inferior extremity of the tibia and fibula forms the cavity into which the astragalus of the tarsus is received. This articulation is effected by the anterior, middle, and posterior ligament of the fibula, the ligamentum tibiæ deltoides, the capsular ligament, and the ligaments proper to the bones of the tarsus.

21. *Of the metatarsus.* The bones of the metatarsus are connected in part together, and in part with the tarsus, by means of the capsular ligament, the articular ligaments, the transverse ligaments in the back part and sole of the foot, and the interosseous ligaments of the metatarsus.

22. *Of the toes.* The phalanges of the toes are united partly together, and partly with the metatarsus, by the capsular and lateral ligaments.

23. *Retaining ligaments of the tendons that move the foot.* These lie partly in the back and partly in the sole of the foot. They are the vaginal ligament of the tibia, the transverse or crucial ligaments of the tarsus, the ligaments of the tendons of the peronei muscles, the laciniated ligament, the vaginal ligament of the extensor muscle and flexor pollicis, the vaginal ligaments of the flexor tendons, and transverse ligaments of the extensor tendons.

LIGAME'NTUM CILIA'RE; the ciliary ligament, situated behind the uvea in the human eye. There arise out of the choroid membrane, from the ciliary circle, white complicated striæ, covered with a black pigment, and running from thence backwards, firmly attached to the very thin membrane of the vitreous humour, where it is inserted into the crystalline lens. The fluctuating extremities of these striæ are spread abroad even to the crystalline lens, upon which they lie, but are not affixed. Taken together, they constitute what is called *ligamentum ciliare.*

LIGAME'NTUM OVA'RII, the ovarian ligament;

or that thick round portion of the broad ligament of the uterus, by which the ovarium is connected with the latter. The ancients supposed this was hollow, to convey the female semen into the uterus, but later anatomists have disproved this. See Ovaria.

LIGHT. The nature of this body, if it may be so called, has occupied much of the attention of philosophers of all ages; and numerous opinions have been entertained concerning it. It has been sometimes considered as a distinct substance, at other times as a quality; sometimes as a cause, frequently as an effect; by some it has been considered as a compound, by others as a simple substance. The philosophers of the present day are not agreed as to the independent existence of light, or the cause by which we see. Mr. Accum, taking the subject in a chemical view, assumes the doctrine of those, who admit the independent existence of light, not only because it is more generally received, but also as being best calculated to explain its properties. Light is that which proceeds from any body producing the sensation of vision, or perception of other bodies, by depicting an image of external objects on the retina of the eye. Hence it announces to animals the presence of the bodies which surround them, and enables them to distinguish these bodies into transparent, opaque, and coloured. These properties are so essentially connected with the presence of light, that bodies lose them in the dark, and become undistinguishable. Light is regarded by philosophers as a substance consisting of a vast number of exceedingly small particles, which are actually projected from luminous bodies, and which probably never return again to the body from which they were emitted. It is universally expanded through space. It exerts peculiar actions, and is obedient to the laws of attraction, and other properties of matter.

The following terms are made use of by philosophers when treating of it: 1. They mean by a *ray of light*, an exceedingly small portion of light as it comes from a luminous body. 2. A *medium* is a body which affords a passage for the rays of light. 3. A *beam of light* is a body of parallel rays. 4. A *pencil of rays* is a body of diverging or converging rays. 5. *Converging rays*, are rays which tend to a common point. 6. *Diverging rays*, are those which come from a point, and continually separate as they proceed. The rays of light are *parallel*, when the lines which they describe are so. 7. *The radiant point* is the point from which diverging rays proceed. 8. The *focus* is the point to which the converging rays are directed.

Light is emitted from the sun, the fixed stars, and other luminous bodies. It is produced by percussion, during electrisation, combustion, and in various other chemical processes. Why the sun and stars are constantly emitting light, is a question which probably will for ever baffle human understanding; at any rate it is not connected with chemistry. The light emitted during combustion exists previously, either combined with the combustible body, or with the substance which supports the combustion. The light liberated during chemical action, formed a constituent part of the bodies which act on each other. The light emitted during percussion and electrisation, &c. is foreign to our subject, as are most of its physical properties.

Light is capable of being decomposed by the prism. Every ray of light consists of seven parts: the first of these seven parts of the ray, excites upon our organs of sight, the sensation which we call *red*, the second excites the sensation called *orange*, the third *yellow*, the fourth *green*, the fifth *blue*, the sixth *indigo*, and the seventh *violet*. None of these seven parts of a ray of light can be further decomposed: they always produce the same colour, on which account they are called original or primitive colours.

Dr. Herschel has lately proved, that the rays of light differ in their power of illuminating objects. The rays towards the middle of the spectrum possess the greatest illuminating powers, and those at the extremity, the least; the illuminating power of the rays gradually diminishes from the middle of the spectrum towards its extremities. It has been supposed, that three of these colours, the red, yellow, and blue, were simple; and that the other four were formed each of the two contiguous ones; that is, the orange from the red and yellow; the green from the yellow and blue; the indigo from the blue and violet; and the violet from the indigo and red. But this supposition has not yet been satisfactorily proved.

LI′GNUM AGA′LLOCHI VE′RI. See Lignum aloes.

LI′GNUM A′LOES, also called *Lignum agallochi veri*, *Lignum calambac*, *Lignum aspalathi*, and *Xyloalœs;* the wood of a tree that is not as yet scientifically known. It is imported from China in small, compact, ponderous pieces, of a yellow rusty brown colour, having purplish veins. It is sometimes of a black colour; has a bitterish resinous taste, and a slight aromatic smell. It is used to fumigate rooms in eastern countries.

LI′GNUM ASPA′LATHI. See Lignum aloes.

LI′GNUM CALAMBAC. See Lignum aloes.

LI′GNUM CAMPECHE′NSE, (*Campechense;* because brought from Campeachy, in the bay of Honduras), also named *Lignum campechianum;* or *Lignum sapen;* logwood. It is the wood of the *Hæmatoxylum campechianum*, Linn. Class, *Decandria*. Order, *Monogynia*. It is of a solid texture, and of a dark red colour. It is imported principally as a substance for dyeing. It has a sweetish subastringent taste, but no remarkable smell: it gives a purplish red tincture both to water and alkohol, and tinges the stools, and sometimes the urine, of persons who take it internally, of the same colour. It is employed as an astringent and corroborant, particularly in diarrhœas; in which it has been found peculiarly efficacious. Also in the latter stages of dysentery, when the obstructing causes are removed by other remedies, it obviates the laxity of the intestines usually superinduced by the repeated dejections. An extract is ordered in the pharmacopœias.

LI′GNUM I′NDICUM. See Guaiacum.

LI′GNUM MOLUCCE′NSE. See Lignum pavanæ.

LI′GNUM NEPHRI′TICUM, nephritic wood;

the wood of the *Guilandina moringa*; *inermis foliis sub-bipinnatis, foliis inferioribus ternatis*, Linn. which also affords the ben nut. See Ben Nux. It is brought from America in large, compact, ponderous pieces, without knots. The outer part is of a whitish, or pale yellow colour, the inner of a dark brown, or red. When rasped it gives out a faint aromatic smell. It is never used medicinally in Britain, but stands high in reputation on the continent as a remedy in difficulty of urine, nephritic complaints, and most disorders of the kidneys and urinary psssages.

LI'GNUM PAVA'NÆ, called also *Lignum pavanum*, and *Lignum moluccence;* the wood of the *Croton tiglium*, Linn. *Croton foliis ovatis glabris acuminatis serratis, caule arboreo*, which affords the *grana tiglii.* The wood is of a light spongy texture, white within, but covered with a greyish bark; and possesses a pungent, biting taste, and a disagreeable smell. It is said to be useful as a purgative in hydropic complaints, but our pharmacopœias reject it.

LI'GNUM RHO'DIUM. See Rose-wood.

LI'GNUM SANCTUM. See Guaiacum.

LI'GNUM SA'NTALI RUBRI. See Santalum rubrum.

LI'GNUM SAPPAN. See Lignum Campechense.

LI'GNUM SERPE'NTUM; a name given to the wood of the *Ophyoxilum serpentinum*, Linn. It is said to be an alexipharmic, but is not known in our practice.

LI'GNUM RHO'DIUM, or Rosewood; a wood or root, chiefly brought to us from the Canary islands. The writers on botany and the materia medica are much divided about the lignum rhodium, not only with regard to the plant which affords it, but likewise in their accounts of the drug itself; and have described, under this name, simples manifestly different. This confusion seems to have arisen from an opinion, that the *rhodium*, and the *aspalathus* (an article of considerable esteem among the ancients, but with regard to which the moderns are very much at a loss), are the same; whence different woods brought into Europe for unknown aspalathus, were sold again by the name of *rhodium.* The wood usual with us under this name, is said to be that of the *Genista Canariensis; foliis ternatis utrinque pubescentibus, ramis angulatis*, Linn.

In the few pharmacopœias which admit the lignum rhodium, different Linnæan names are given to it: thus the authors of the Dispensatorium Brunsvicense suppose it to be the *Rhodiola rosa* of Linnæus: and those of the Pharmacopœia Rossica, the *Genista Canariensis*, as we suppose it. As to the *aspalathus*, the ancients themselves disagree; Dioscorides meaning by this appellation, the wood of a certain shrub freed from the bark, and Galen the bark of a root. At present we have nothing under this name in the shops. What was heretofore sold amongst us as aspalathus, were pieces of a pale-coloured wood brought from the East Indies, and more commonly called *calambour.*

The aspalathus, calambour, and lignum aquilæ, are supposed to be woods of the nature of agallochum, or lignum aloes, but weaker in quality. The lignum rhodium of the shops is usually in long crooked pieces, full of knots, which, when cut, appear of a yellow colour like box, with a reddish cast: the largest, smoothest, most compact, and deepest coloured pieces, should be chosen; and the small, thin, or pale ones, rejected. The taste of this wood is lightly bitterish, and somewhat pungent, its smell is very fragrant, resembling that of roses. Long kept, it seems to lose its smell; but on cutting, or rubbing one piece against the other, it smells as well as at first. Distilled with water, it yields an odoriferous essential oil, in very small quantity. The oil of rhodium is employed as an agreeable perfume, and is also said to possess cordial and corroborant virtues.

LIGULATED, in botany, an appellation given to such fioscules as have a straight end turned downwards, with three indentures, but not separated into segments.

LIGU'STICUM LEVI'STICUM; the systematic name of lovage. See Levisticum.

LILIACEOUS, in botany, an appellation given to such flowers as resemble those of the lilly. They furnish a natural order of plants in some systems.

LI'LIUM ALBUM, (*lilium*; from λειος, *smooth, graceful;* so named from the beauty of its petals); the common white lilly: *Lilium candidum; foliis sparsis, corollis campanulatis, intus glabris*, Linn. Class, *Hexandria.* Order, *Monogynia.* The roots of this plant are directed by the Edinburgh pharmacopœia. They are extremely mucilaginous, and when boiled in milk, or water, they form a useful emollient and suppurating cataplasm, which is almost the only medical use assigned them.

LI'LIUM CA'NDIDUM; the systematic name of the white lilly. See Lilium album.

LI'LIUM CONVA'LLIUM, called also *Convallaria*, and *Maianthemum*; the lilly of the valley, or May-lilly. The flowers of this plant, which is the *Convallaria majalis scapo nudo* of Linnæus, have a penetrating bitter taste, and were once given in nervous and catarrhal disorders, but they are now neglected.

LILLY, MAY. See Lilium convallium.

LILLY, WHITE. See Lilium album.

LILLY, WATER. See Nymphæa alba, and Nymphæa lutea.

LILLY OF THE VALLEY. See Lilium convallium.

LIMA'CES, (from *limus*, slime, so named from its sliminess); snails. These animals abound with a viscid slimy juice, which is readily given out by boiling in milk or water, which is thereby rendered thick and glutinous. These decoctions are considered very nutricious and demulcent, and are therefore recommended in consumptive cases and emaciation.

LIMATU'RÆ FERRI, the filings of iron. These are considered as possessing stimulating and strengthening qualities, and are exhibited in worm cases, ataxia, leucorrhœa, diarrhœa, chlorosis, &c. See Iron.

LIMB; a popular name for the upper or lower extremity of the human body.

LIMBS, DISTORTED. See Foot, Club.

LIME, *calx*, or calcareous earth; a substance obtained by decomposing calcareous matters by the action of fire, which deprives them of their acid. It has, indeed, been found totally disengaged from all combination, by Dr. Falconer, near Bath. But as this is perhaps the only instance in which it has been found in such a state, it may be useful to show the process by which lime may be obtained in a state of the greatest purity. For this purpose, chalk is washed in boiling distilled water, then dissolved in distilled acetous acid, and precipitated by the carbonate of ammonia, or mild volatile alkali. The precipitate, being washed and calcined, becomes pure lime. This earth possesses the following characters: it converts syrup of violets to a green colour; is soluble in six hundred and eighty times its weight of water, at the temperature of sixty degrees of Fahrenheit; it has a penetrating, acrid, urinous, and burning taste. According to Mr. Kirwan, its specific gravity is about 2.3, but from the trials of Bergman it appears to be 2.720.

This earthy substance seizes water with great avidity, and, at the same time that it falls into powder, increases in bulk, and emits heat. After being slaked with air, this substance appears under the form of a very fine white dust; it has acquired a very considerable augmentation in weight, and its taste is become much fainter. These appearances are occasioned chiefly by the water contained in the atmosphere, and the force with which the lime tends to unite with it. By heating lime which has been slaked with air in a retort, till it becomes red-hot, water is obtained, and the lime returns to its original state.

Acids dissolve it without effervescence, but with the production of heat. The borate of soda, or borax, the oxids of lead, and the phosphates of urine, dissolve it by the blow-pipe without effervescence. It would appear to be infusible alone, as it has resisted the heat of flame urged by a steam of oxygen, in the trials of Mr. Lavoisier. If it be mixed with acids, it forms a fusible combination; and it hastens the fusion of aluminous, siliceous, and magnesian earths, as the experiments of Mr. Darcot and Bergman have sufficiently shown.

The combination of lime with different acids affords several kinds of calcareous salts: thus the *Carbonate of Lime* is a combination of the lime with the carbonic acid. This combination is very commonly met with, and comprehends all the stony substances which have been generally distinguished under the names of *Limestone*, *Calcareous Stone*, &c. The carbonates of lime are characterized by their effervescing with certain acids; and by their being converted into lime by calcination. Various opinions and hypotheses have been advanced concerning the formation of these stony substances, but the most probable one is, that which supposes them to be owing to the wearing down of shells. To whatever cause, however, we may attribute the origin of this stone, it is found to exist in two principal states; that is, either in the form of crystals, or of irregular masses.

Crystallized calcareous stony substances require, in order to form them, a concurrence of circumstances which very seldom meet together. Calcareous stone, in its crystallized state, presents us with several varieties of form; but the rhomboidal figure appears to be the most constant and the most general. These kinds of calcareous stones have the name of spars.

It has been found by Mr. Kirwan, that the specific gravity of calcareous spars, when pure, is about 2.700; they also contain from thirty-four to thirty-six parts of carbonic acid, and from fifty-three to fifty-five of earth; the rest being water. Spars often exhibit a smooth uniform surface, upon which the sulphuric acid takes but slight hold; and they are sometimes contaminated with iron, which gives them various tinges of colour.

Calcareous stony substances which are not crystallized, seldom affect any regular form: they lie almost always in strata, or immense blocks thrown or heaped together on the surface of the globe, in which we cannot reasonably pretend to discern any primitive design of crystallization. Among calcareous stones that are not capable of crystallization, two natural divisions may be established; as substances of this kind are either susceptible of a perfect polish, in which case they are called marbles and alabasters; or they are not susceptible of this polish, in which case they are called friable earths, tufa, &c. The first division comprehends the different kinds of marble and alabaster; the second include the calcareous stone made use of in building; and chalk from which Spanish white is made.

We have already seen that calcareous substances possess, as one of their component parts, an air different from atmospheric air. Dr. Black has asserted, that calcareous stone, when deprived of this air by calcination, forms lime; and that lime may again pass to the state of calcareous stone, by resuming the principle it had been deprived of. Mr. Jacquin has also proved that lime and alkalis owe their causticity to the substraction of carbonic acid, at the same time that he has pointed out several methods of depriving them of it. The processes which are most commonly used for the decomposition of lime-stone, are fire and acids: the first is used in the marking of lime; the second in laboratories, when it is intended to procure the carbonic acid.

The operation of calcination deprives lime-stone of the acid and water which it contained. These two principles are evidently replaced by the matter of heat itself; and several circumstances serve to show, that in proportion as the calcareous stone is deprived of the aëriform principle, it combines with the igneous principle, which cannot be displaced but by the way of affinities. It appears from the experiments of Dr. Higgins, that the best lime is that which is made with the hardest and most compact stone broken in small pieces, and heated slowly, until the furnace is become of a white heat. This heat must be kept up until the stone is no longer capable of effervescing with acids. The lime becomes over-burned if the ignition be carried to a greater degree; and the produce is then a frit, which is no longer capable of being divided into water, or of resuming with avidity the principles it had lost. The most perfect lime is that which is the most quickly divided by immersion in water, and affords the greatest quantity of heat in this process, which causes it to fall into the finest powder. Good lime should likewise dissolve in the acetous acid without effervescence, and leave the least possible quantity of residue. Lime constantly endeavours to resume the acid and the water of which the stone was destroyed by calcination; therefore, when it is left exposed to the air, it cracks, becomes heated, falls into powder with an increase of bulk, and resumes the property of effervescing. It is consequently of importance to use lime newly made, if we should be desirous of possessing its whole force and virtue. Lime is sparingly soluble in water, and its solution is called lime-water; the lime may be precipitated by means of carbonic acid, which regenerates calcareous stone in the form of a precipitate or sediment. Lime-water is employed to indicate the presence, and determine the proportion of carbonic acid in any mineral or other water. The sulphate, nitrate, and other combinations of the acids, with lime, now remain to be spoken of: for the former we refer to the article Gypsum.

The *Nitrate of Lime* is spontaneously produced near inhabited places, in old plastered walls, &c. which afford it in abundance, by lixiviation, but it is also obtained by artificially uniting nitric acid with this base. The nitrate of lime is one of the salts which abound in the mother-waters of the nitre-makers; and it has also been found in some mineral waters. It is commonly obtained in small needles, applied side-ways to each other. When a solution of nitrate of lime is concentrated to a gelatinous consistence nearly equal to that of syrup, it forms, in process of time, crystals in hexahedral prisms. Two parts of cold water dissolve one of this salt; and boiling water dissolves more than its own weight. Its taste is bitter and disagreeable; it liquefies easily on the fire, and becomes solid by cooling. If it be strongly calcined, and carried into the dark, it is luminous, and constitutes what is known by the name of *Baldwin's Phosphorus.* It loses its acid in a violent and continued heat; and, when distilled in close vessels, it affords the same products, as nitre by the decomposition of its acid. If it be projected upon ignited coals, it detonates in proportion as it becomes dry. Its acid may be disengaged by means of clay, or the sulphuric acid; and both alkalis and barytes precipitate its earth. The sulphuric salts, and carbonates of alkali, decompose it by means of a double affinity.

The *Muriate of Lime* is a combination of the muriatic acid with this base. It exists naturally in the waters of the sea; and contributes to the water that bitter taste which has improperly been referred to bitumens. This salt is generally known by the name of *calcareous marine salt.* It is very deliquescent; one part and a half of water dissolves one of this salt; and hot water dissolves more than its own weight. It may be made to crystallize by concentrating a solution of it to the 45th degree of Baumé, and then exposing it in a cool place. By these precautions it affords a salt in tetrahedral prisms, terminated by four-sided pyramids. It enters into fusion with a moderate degree of heat; but is decomposed with great difficulty. It acquires, by calcination, the property of shining in the dark, and is called *Homberg's Phosphorus.* Barytes and the alkalis decompose this salt. The concentrated sulphuric acid, poured upon a very strong solution of muriate of lime, disengages the acid in vapours, and forms a solid precipitate; an appearance which seems in an instant to transform two liquids into a solid, and produces a very striking effect. The theory of this phenomenon is easily explained from the very great solubility of the muriate, and the almost absolute insolubility of the sulphate which takes its place.

The *Phosphate of Lime* has been found, by Mr. Bowle, in Spain, in the kingdom of Estremadura. It has had the title of *calcareous phosphoric salt;* and is a whitish stony substance, of considerable density, but not hard enough to give fire with steel. It is found in horizontal strata, reposing upon quartz, and exhibiting vertical, flattened, and close fibres. Mr. Proust has observed that, when thrown on ignited coals, it does not decrepitate, but burns quietly, and affords a beautiful green light, which seems to penetrate through it, and which does not disappear so quickly but that a sufficient time is allowed to contemplate its brilliancy at our leisure. Before the blow-pipe, it runs into a white enamel, without boiling up; whereas bones support the most violent heat without fusion. Its habitudes with the nitric and sulphuric acids are the same as those of calcined bones; its acid may be separated and brought into the state of an animal glass; it is also capable of being decomposed, and the phosphorus extracted from it.

Applied to the living body, lime acts as an escharotic, and as such it is applied by surgeons to destroy tumors, or correct ill-conditioned and obstinate sores. Dissolved in water, it is sometimes given internally as a tonic or astringent, in scrophula and various fluxes; and formerly it enjoyed considerable reputation as a lithontriptic. See Lithontriptics.

The officinal preparations of lime are:—*Aqua calcis*, Edin. Lond. Dubl. *Aqua potassæ*, Edin. Lond. Dubl. *Aqua ammoniæ*, Edin. Lond. Dubl.

LIME-TREE. See Tilia.

LI'MON, or limonum, (*limon*, Heb.) called *Citrea malus*, and *Citrus*; the lemon. The tree which affords this fruit is the *Citrus medica; petiolis linearibus*, Linn. Class, *Polyadelphia.* Order, *Icosandria.* This tree is a native of the upper parts of Asia, but cultivated in Spain, Portugal, and France. The juice is much more acid than that of the orange, and possesses similar virtues; hence it is always preferred where a strong vegetable acid is required. Saturated with the fixed vegetable alkali, it forms the *kali citratum*, which is frequently employed in febrile diseases, and, by promoting the secretions, especially that of the skin, proves of considerable service in abating pyrexia. Dr. Cullen asserts, that this acid enters the animal fluid; and hence, as an antiscorbutic, the citric acid is very generally taken on board of ships destined for long voyages: but even when well depurated of its mucilaginous parts, it is found to spoil by long keeping. To preserve it pure, therefore, for a considerable length of time, it is necessary that it should be brought to a highly concentrated state, and for this purpose it has been recommended to expose the juice to a degree of cold sufficient to congeal the aqueous and mucilaginous parts. This method, as practised by Mr. Georgias, a Swedish chymist, is detailed under the article Citric Acid. For the same purposes it has even been reduced to a concrete form, but the crystals are usually depreciated by an intermixture of the crystals of tartar. By means, however, of Scheele's process, as reduced to determinate quantities by Proust, we can obtain the acid perfectly pure and crystallized. To ninety-four parts of lemon juice, four parts of carbonate of lime are to be added: the carbonic acid is separated by effervescence, and a quantity of insoluble citrate of lime is precipitated. By evaporating the supernatant liquor, another portion of citrate of lime is obtained. These added together amount to about seven and a half parts, and require twenty parts of sulphuric acid, of the specific gravity of 1.15, to decompose them. The sulphate of lime, being nearly insoluble, is precipitated, while the citric acid remains in solution, and is to be separated by washing, and crystallized by evaporation. If too much sulphuric acid be added, when the liquor is much concentrated, it reacts upon the citric acid, and chars a portion of it. When this is the case, a little chalk must be added.

The exterior rind of the lemon is a very grateful aromatic bitter, not so hot as orange peel, yielding in distillation a smaller quantity of oil, which is extremely light, almost colourless, and generally brought from the southern parts of Europe, under the name of *Essence of Lemon.* The lemon-peel, though less warm, is similar in its qualities to that of the orange, and is employed with the same intentions. The pharmacopœias direct the following officinal preparations: Of the *rind—Aq. distillat.* Edin. *Sp. ammon. comp.* Edin. Lond. Dubl. Of the *juice—Syr. Citr. med.* Edin. Lond. Dubl. *Succ. spissat.* Lond. The *oil* enters the *Ung. Sulph.* Edin. and *Ung. helleb. alb.* Lond. Dubl. merely as a perfume.

LINA′RIA, (from *linum,* flax; so named from the resemblance of its leaves to those of flax), also called *Urinaria;* common toad-flax. It is *the Antirrhinum linaria,* Linn. *Antirrhinum foliis lanceolato linearibus confertis caule erecto, spicis terminalibus sessilibus, floribus imbricatis.* This plant is perennial, indigenous, and found very commonly in barren pastures, hedges, and the sides of roads, flowering from July to September. The leaves have a bitterish and somewhat saline taste, and when rubbed between the fingers have a faint smell resembling that of elder. They are said to be diuretic and cathartic, and in both characters to act powerfully, especially in the first, whence it acquired the epithet *urinalis.* They have been recommended in dropsies and other disorders requiring powerful evacuations. The linaria has also been used as a resolvent in jaundice, and such other diseases as were supposed to arise from visceral obstructions. But the plant has been chiefly valued for its effects when externally applied, especially to hæmorrhoidal tumors, for which purpose, both the leaves and flowers have been applied in various forms of ointment, fomentation, and poultice. Dr. Wolph first invented an ointment of this plant for the piles, and applied it in the case of the Landgrave of Hesse, to whom he was physician. It has now a place in the foreign pharmacopœias.

LI′NCTUS, (from *lingo,* to lick), a name in pharmacy, generally applied to a soft mucilaginous and somewhat oily medicine, of the consistence of honey.

LI′NEA ALBA; an aponeurosis that extends from the scrobiculus cordis down to the navel, and from thence to the pubis. It is formed by the tendinous fibres of the internal oblique ascending, and the external oblique descending, muscles, and the transversalis, interlaced with those of the opposite side. In the operation of hysterotomy, the incision should be made in this part, from which the least hæmorrhage is to be expected.

LINEA′TUS, (from *linea,* a line), in botany, a term applied to such leaves of plants as are lined, or striped on the surface.

LINGUA, (from *lingo,* to lick); the tongue. See Tongue.

LIN′GUA AVIS, a name given to the seeds of the *Fraxinus,* or ash, from their supposed resemblance to a bird's tongue.

LI′NGUA CANI′NA, a name for the *cynoglossum;* so called from the resemblance of its leaves to a dog's tongue. See Cynoglossum.

LI′NGUA CERVI′NA. See Scolopendrium.

LI′NGUÆ FRÆNUM. See Frænum linguæ.

LINGUA′LIS, (from *lingua,* a tongue); a muscle of the tongue, which arises from its root laterally, and runs forward between the hyoglossus and genio glossus, to be inserted into the tip of the tongue, along with part of the stylo-glossus. This muscle contracts the substance of the tongue, and brings it backwards.

LINIME′NTUM, (from *limo,* to anoint), a liniment; an oily substance of a mediate consistence between an ointment and an oil, yet so thin as to run abroad. The pharmacopœias furnish many useful formulæ for liniments.

LINNÆ′A; a plant so named by Gronovius, in honour of Linnæus. This plant, the *Linnæa borealis,* has a bitter subastringent taste, and is used in some places in the form of a fomentation, for rheumatic joints; and an infusion with milk is much esteemed in Switzerland in the cure of the sciatica.

LINNÆ′A BOREA′LIS; the systematic name of the plant named in honour of Linnæus. See Linnæa.

LINSEED, or lintseed. See Linum.

LINT, a substance prepared from linen, which is scraped, yet united, so as to form a soft, woolly, substance. It is employed in dressing wounds, and when used is shaped into various forms, and denominated accordingly. Thus, if it be a flat square or oval, it is called a *pledget;* and, if cylindrical, it is termed a *dossil.* The purposes to which lint is applied, are, 1. To prevent the flow of blood in fresh wounds, by filling them with this absorbent substance, before a bandage can be applied. 2. To promote the healing of wounds, especially when spread with some digestive ointment, or balsam. 3. For cleaning wounds and ulcers; in which case it is usually attached to the end of a probe. 4. To keep them open, in order that the lips may not close before the interior part is perfectly healed. 5. To preserve wounds from the hurtful influence of the air. Mr. Hunter, however, disapproves of lint as a dry application to wounds, and prefers the use of simple poultices, where nothing is to be done, but to protect the parts whilst granulation is going on.

LI'NUM, (from λειος, *soft*, or *smooth;* so called from its soft and smooth texture), the common flax; *Linum usitatissimum*, Linn. *Linum calycibus capsulisque mucronatis, petalis crenatis, foliis lanceolatis alternis, caule subsolitario.* Class, *Pentandria.* Order, *Pentagynia.* The seeds of this useful plant, called linseed, have an unctuous, mucilaginous, sweetish taste, but no remarkable smell. On expression, they yield a large quantity of oil, which, when carefully drawn, without the application of heat, has no particular taste or flavour. Boiled in water, they yield a large proportion of a strong flavourless mucilage, which is in use as a demulcent remedy in coughs, hoarsenesses, and pleuritic symptoms, that frequently prevail in catarrhal affections; and it is likewise recommended in nephritic pains and stranguries. The meal of the seeds is also much used externally in emollient and maturating cataplasms. See Poultice. The expressed oil is an officinal preparation, and is supposed to be of a more healing and balsamic nature than the other oils of this class: it has, therefore, been very generally employed in pulmonary complaints, and in colics and constipations of the bowels.

LI'NUM CATHA'RTICUM, the purging flax, or mill-mountain; *Linum catharticum, foliis oppositis ovato-lanceolatis, caule dichotomo, corollis acutis*, Linn. This plant is an effectual and safe cathartic. It has a bitter disagreeable taste. A drachm of the dried leaves in powder, or a handful of the fresh plant, infused in half a pint of boiling water, is the dose for an adult.

LI'NUM USITATI'SSIMUM; the systematic name of the common annual flax. See Linum.

LI'PARIS, (λιπαρις; from λιπος, *fat);* so named from its unctuous quality. See Pinguicula.

LIPAROCE'LE, (λιπαροκηλη, from λιπος, *fat*, and κηλη, *a tumor);* that species of sarcocele in which the substance constituting the disease is fat.

LIPO'MA, (from λιπος, *fat)*, the name of a solitary, soft, unequal, indolent tumor, arising from a redundance of adeps in the cellular membrane. The adipose structure forming the tumor is sometimes diseased towards its centre, and more fluid than the rest. At other times it does not appear to differ in any respect from mere adipose membrane, except in the enlargement of the cells containing the fat. These tumors are always many years before they arrive at any size, but are easily cured by extirpation.

LIP. See Labia.

LIP, HARE. See Hare-lip.

LIPPITU'DO, (from *lippus*, blear-eyed); an exudation of a puriform humour from the margin of the eyelids. The proximate cause is a deposition of acrimony on the glandulæ Meibomianæ in the margin of the eyelids. In the night the discharge agglutinates the tarsi of the eyelids together. Their margins are red and swelled, and their natural motions are attended with irritation and pain. An ophthalmia, fistula lachrymalis, and sometimes an ectropium, are the consequences of this affection. The species are: 1. *Lippitudo infantum*, familiar to children, particularly of a scrofulous habit. The lippitudo of infants is mostly accompanied with tinea, or some scabby eruption, which points out that the disease originates, not more from a local, than a general or constitutional affection. 2. *Lippitudo adultorum vel senilis.* This arises from various acrimonies, and is common to hard drinkers, particularly dram-drinkers. 3. *Lippitudo syphilitica*, which arises from a venereal taint; or, as some say, from a suppressed virulent gonorrhœa. It is likewise observed in children born of parents with venereal complaints. 4. *Lippitudo scrofulosa.* This species also exhibits other scrophulous symptoms. 5. *Lippitudo scorbutica*, affecting the scorbutic. This is generally cured by the means used for the sea or land scurvy. Most of these affections are to be relieved by the means suggested under the article Ophthalmia; but their cure requires the use of escharotic remedies, such as *ung. hydrarg. nitrat.* or a liniment in which there is a moderate proportion of finely levigated *hydrarg. nitrat. rub.* At St. Thomas's Hospital, in London, a remedy of this kind is used under the name of *unguentum ad lippitudinem.*

LIQUEFACTION, or melting, an operation by which a solid body is reduced into a liquid; or the action of fire, or heat, on fat and other fusible bodies, which puts their parts into a mutual intestine motion. In speaking of metals, instead of liquefaction, we ordinarily use the word *fusion.*

LIQUID, a body which has the property of flowing out or dispersing itself if not confined; and, besides that, a peculiar quality of wetting other bodies immerged in it, arising from some configuration of its particles, which disposes them to adhere by attraction to the surfaces of bodies contiguous to them. See Fluid.

LIQUIDAMBER. See Liquidambra.

LIQUIDAMBER STYRACIFLUA; the systematic name of a tree which affords both the liquidamber and liquid storax. See Liquidambra.

LIQUIDA'MBRA, (from *liquidus* and *amber)*, liquid-amber; a resinous juice, of a yellow red colour, at first of the consistence of turpentine, but by age hardened into a solid and brittle mass. It is obtained from the bark of the *Liquid amber styraciflua: foliis palmato-angulatis; foliis indivisis, acutis*, Linn. This substance has a moderately pungent, warm, balsamic taste, and a fragrant smell, somewhat like that of the *Storax calamita*, heightened by a little ambergrise. It is seldom, if ever, used medicinally at present. The *Styrax liquida* is also obtained, by boiling, from this plant. There are two sorts distinguished by authors. One consists of the purer part of the resinous matter that rises to the surface in boiling, which is separated by a strainer. It is of the consistence of honey, tenacious like turpentine, of a reddish or ash-brown colour, moderately transparent, of an acrid unctuous taste, and a fragrant smell, faintly resembling that of the solid storax, but somewhat disagreeable. The other sort, is the more impure part, which remains on the strainer, not transparent, and in smell and taste much weaker than the former. The use of both is chiefly confined to an application to the stomach, in the form of plaster.

LIQUIRI'TIA, (from *liquor*, juice; or from *eliboris*, Welsh); liquorice. See Glycyrrhiza.

LI'QUOR A'MNII, a name given to that fluid which is contained in the membranaceous ovum, surrounding the fœtus in utero. It has, among nurses, the general name of *the waters:* the water of the amnion or ovum. The quantity, in proportion to the size of the different parts of the ovum, is by far the greatest in early pregnancy. At the time of parturition, in some cases, it amounts to, or even exceeds, four pints, and in others it is scarcely equal to as many ounces. It is usually in the largest quantity when the child has been some time dead, or is born in a weakly state. This fluid is generally transparent, often milky, and sometimes of a yellow or light brown colour, and very different in consistence; and these alterations seem to depend upon the state of the woman's constitution. It does not coagulate with heat like the serum of the blood; and, if chemically examined, it is found to consist of mucus, earthy matter, and sea salt, in different proportions in different subjects. It has been thought excrementitious; but it is more generally conceived to be secreted from the internal surface of the ovum, and to be circulatory as in other cavities. It was formerly imagined, that the fœtus was nourished by this fluid, which it was said to swallow. But there have been many examples of children born without any passage to the stomach; and a few, of children in which the head was wanting, and which nevertheless arrived at their full size. These cases fully prove, that there must be some other medium by which the child is nourished. The incontrovertible uses of this fluid, however, are, to serve the purpose of affording a soft bed for the residence of the fœtus, to which it allows free motion, and prevents any external injury during pregnancy: and, inclosed in the membranes, it procures the most gentle, yet efficacious dilatation of the os uteri, and soft parts, at the time of parturition. Instances have been recorded, in which the waters of the ovum are said to have been voided so early as in the sixth month of pregnancy, without prejudice either to the child or parent. The truth of these reports seems to be doubtful, because, when the membranes are intentionally broken, the action of the uterus never fails to come on, when all the water is evacuated. Dr. Denman says, a few cases have occurred to him in practice, which might have been construed to be of this kind; for there was a daily discharge of some colourless fluid from the vagina for several months before delivery; but there being no diminution of the size of the abdomen, and the waters being regularly discharged at the time of labour, it was judged that some lymphatic vessel near the os uteri had been ruptured, and did not close again till the patient was delivered. The Dr. also met with one case, in which, after the expulsion of the placenta, there was no sanguineous discharge, but only a flow of lymph, to the quantity of several pints, in a few hours after delivery; but the patient suffered no inconvenience except from the alarm it occasioned.

LI'QUOR VOLA'TILIS CORNU CERVI; a preparation of the volatile alkali, commonly termed hartshorn. It possesses the same virtues as the aqua ammoniæ, but with some combination of animal oil. It is commonly taken, and used to smell to, in faintings, &c. See Cornu Cervi.

LIQUORICE. See Glycyrrhiza.

LIQUORICE, SPANISH. See Glycyrrhiza.

LITHA'RGYRUM. See Lead.

LITHA'RGYRUS, (*λιθαργυρος*, from *λιθος*, *a stone*, and *αργυρος*, *silver*), litharge; the scum of silver. See Lead, and Oxydum plumbi semivitreum.

If oxidized lead be urged with a hasty fire, it fluxes with the appearance of oil, and on cooling concretes into litharge. The greater part of the litharge met with in the shops, is produced in the purification of silver from lead, and the refining of gold and silver by the means of this metal. According to the degree of fire and other circumstances, it proves of a pale or deep colour; the first has been commonly called litharge of silver, the other litharge of gold. The oxids of lead dissolve by heat, in expressed oils, and these mixtures are the basis of several officinal plasters and ointments; but that metal and its oxids when undissolved, have no considerable effect as medicines. Dissolved in oils, they are supposed to be (when externally applied) anti-inflammatory and desiccative. Combined with vegetable acids, they are remarkably so; and taken internally, prove powerful though dangerous styptics. As many topical remedies prepared from litharge are now in use, we shall detail some of the most material.

Aqua lithargyri acetati. Lond.

Take of litharge, two pounds and four ounces;
Distilled vinegar, one gallon.
Mix, and boil to six pints, constantly stirring; then set it aside, and after the feces have subsided, strain the liquor.

Aqua lithargyri acetati composita. Lond.

Take of the water of acetated litharge, a drachm;
Distilled water, one pint;
Weaker spirit of wine, a drachm.
Mix the spirit and liquor of acetated litharge, then add the distilled water.

From the first of these is also prepared the following:

Ceratum lithargyri acetati compositum. Lond. Dubl.

Take of water of acetated litharge, two ounces and a half;
Yellow wax, four ounces;
Olive oil, nine ounces;
Camphor, half a drachm.
Reduce the camphor with a little of the oil. Melt

the wax with the remaining oil, and as soon as the mixture begins to thicken, pour in by degrees the water of acetated litharge, and stir constantly until it be cold; then mix in the camphor previously rubbed with oil.

This is the *Cerat. litharg. acet. comp.* of the Dublin pharmacopœia. Its application has been rendered famous by the recommendation of M. Goulard, and unquestionably in many cases it is very useful. It cannot, however, be considered, as varying essentially from the other saturnine ointments, except in its consistence, but is employed with nearly the same intentions.

Another saturnine remedy is also in use, under the improper name of *soap cerate.*

Ceratum Saponis. Lond.

Take of soap, eight ounces;
Yellow wax, ten ounces;
Litharge, powdered, one pound;
Olive oil, one pint;
Vinegar, one gallon.

Boil the vinegar with the litharge, over a slow fire, constantly stirring, until the mixture unites and thickens; then mix in the other articles, and make a cerate.—The Dublin College direct ℥xiv. of oil and lb. viii. of vinegar.

Of the plasters prepared from litharge, the following is the principal:

Emplastrum Lithargyri. Lond.

Take of litharge, in very fine powder, five pounds;
Olive oil, a gallon;
Water, two pints;

Boil them with a slow fire, constantly stirring, until the oil and litharge unite, so as to form a plaster.

From this form the Dublin College differs only in directing *nine pounds* of oil.

In the boiling of these compositions, a quantity of water must be added, to prevent the plaster from burning and growing black. Such water as it may be necessary to add during the boiling, must be previously made hot; for cold liquor would not only prolong the process, but likewise occasion the matter to explode, and be thrown about with violence, to the great danger of the operator. This accident will equally happen upon the addition of hot water, if the plaster be extremely hot: it is therefore better to remove it from the fire a little before each addition of water.

This plaster, which was long known under the name of *Diachylon,* is a common application for excoriations of the skin, slight flesh wounds, and the like. It keeps the part soft and somewhat warm, and defends it from the air, which is all that can be expected in these cases from any plaster.

The oxids of lead, boiled with oils, unite with them into a plaster of an excellent consistence, and which makes a proper basis for several other plasters. The officinal preparations to which plaster contributes are these:—*Emp. oxidi ferri rubri.* Edin. *Emplast. hydrarg.* Edin. *Emp. thuris comp.* Edin. *Emp. sapon.* Edin. Lond. Dubl. *Emp. litharg. comp.* Lond. *Emp. gum.* Edin. *Emp. assæ fœtid.* Edin. *Emp. litharg. cum resina,* Lond. (See Adhesive Plaster). *Emplast. resin.* Edin. *Empl. litharg. cum hydrarg.* Lond.

LI'THATS, or lithiats; salts formed by the union of the lithic acid, or acid of the stone sometimes found in the human bladder, with different bases; thus, we have *lithiat of alumine, lithiat of ammonia,* &c. See Calculus.

LITHIC ACID, also named *Uric acid.* See Calculus.

LITHI'ASIS, (*λιθιασις,* from *λιθος, a stone);* the gravel in the kidneys, and stone in the bladder. See Calculus. This name has also been given to the difficulty or suppression of urine, which is symptomatic of the stone or gravel. During the paroxysm, the inflammation or spasm is to be removed by bleeding, emollients, and terebinthinate clysters, in which is the oleum ricini. The latter should also be given by the mouth as a purge, and the warm bath especially made use of; and, when the inflammation is abated, opiates, with oily emollient decoctions, may be administered. In general, plethoric habits are relieved by proper bleeding; but while the violence of the pain continues, with difficulty in the discharge of urine, nothing affords greater relief than the emollient oily clysters, warm bathing, and the pediluvium. Fomentations made with poppy heads and chamomile, &c. and applied to the pubes or loins, considerably allay the pains and spasms. Where the suppression is occasioned by irritability of the bladder, the most successful practice is that of Mr. Cline, surgeon to St. Thomas's hospital, in London, who directs ten drops of tinct. ferri mur. in distilled water, every half hour, till relief is obtained.

LITHOLO'GIA, (*λιθολογια,* from *λιθος, a stone,* and *λογος, a discourse),* lithology; or a discourse on stones formed in animal bodies.

LITHONTRI'PTICA, (*λιθοντριπτικα,* from *λιθος, a stone,* and *θρυπτω, to break),* lithontriptics. According to the strict sense and common acceptation of the word, this class of medicines should comprehend such as possess a power of dissolving calculi in the urinary passages. It is, however, doubted by modern authors, whether there be in nature any such substances. By this term, then, is rather meant those substances which possess a power of *removing a disposition in the body to form calculi.* The different articles referred to the class of lithontriptics are comprehended under these two orders: 1. *Antacid lithontriptics,* as *lime-water,* and *caustic alkali,* which are best suited to such constitutions as are disposed to acidity in the primæ viæ. 2. *Astringent lithontriptics,* as *uva ursi,* &c. which are mostly selected for the relaxed fibre, but which may be given with obvious advantage where there are no manifest marks indicating laxity.

Various lithontriptics have been recommended by different writers. Lime water, caustic alkali, soap, &c. but the grand objection brought against them is, that none of them can be conveyed into the bladder in such a state as to be much depended upon; as they undergo the greatest change in the course of the circulation. Some, however, have asserted, that these remedies find their way to the bladder without going the round of the circulation. To obviate these changes, it has been recommended to inject certain fluids of this class through the urethra into the bladder: but this has not been attended with any material advantages, and has generally been found to do injury to the bladder.

Professor Mascagni of Siena, relates, in a letter to Dr. Gauturi, some observations on urinary stones and gravel. The efficacy of alkalis upon them, he says, seems to consist in neutralizing the lithic acid, and by that means forming neutral salts, which dissolve easier in water than the acid itself. The urine of persons affected with the stone, always shows evident traces of lithic acid, whenever the symptoms of the stone are increasing. With this view, a solution of pure kali is employed in complaints occasioned by the stone or gravel. But as the pure kali has the inconvenience of sometimes affecting the stomach and bowels by its corrosiveness, the professor was curious to know whether the carbonat of potass would have the same effect, though he was conscious of its not acting upon stony concretions out of the body, which are easily dissolved in pure kali, with which the lithic acid forms a neutral salt; whereas it seems not so nearly related with the potass, as to disengage the carbonic acid. However, being himself subject to the affections of gravel, Prof. Mascagni began to take the carbonat of potass, and found it very efficacious in preventing the formation of the gravel; and, during the time it was used, the traces of lithic acid entirely disappeared, but the symptoms increased when it was for some time left off. In the urine a fine saline substance was discovered, that easily dissolved in warm water. By the continuance of the alkali, the urine seemed to become supersaturated with it, and yellow vegetable colours were changed into red by it. These experiments seemed to prove, that the common kali penetrates to the urinary system, and prevents, by its combination with the lithic acid, the formation of calculus and gravel, and it is not improbable, that it likewise acts as a lithontriptic; but this is to be ascertained by further experiments. The carbonic acid is very probably disengaged from the potass in the way of digestion and chylification, by which the latter is enabled to act upon the lithic acid.

Pure potass may be given to one drachm dissolved in two pounds of water, which portion is to be taken in one day. The dose of the carbonate of potass is three drachms per day. Its continued use does not seem to have any bad effect upon the organs of digestion. Professor Hufeland, in whose Practical Journal this letter is published, remarks, that his own observations perfectly agree with the above experiments, and he always found alkalis, mineral as well as vegetable, do much good in calculous affections; and on this account the waters of *Carlsbad* in Bohemia, prove extremely efficacious against them, as they contain a considerable portion of mineral alkali. He frequently saw, by the use of it, *calculous* substances become *sabulous*. There is a remedy celebrated in Holland particularly, under the name of *liquor lithontripticus Loosii*, which contains, according to an accurate chemical analysis, *calx muriata*. This Professor Hufeland recommends in the following form:

℞ Calcis muriat. drach. j.
Aquæ distillatæ ℥ij. Fiat Solutio.

Thirty drops are to be taken four times a-day; which dose may be increased, as far as the stomach can bear it.

Calculus in the urinary bladder, has in some instances been advantageously treated by giving water impregnated with carbonic acid gas, by the apparatus, or by adding to a solution of alkali in water, a due proportion of vitriolic acid. To these the names of *aërated*, or *mephitic alkaline water*, or *carbonated water*, have been given. See Carbonic acid. A case in which this remedy was employed is related by Mr. Harrison, in the Mem. of the Med. Society of London. This remedy was given twice a-day, and after the patient had taken it about seven or eight weeks, he was suddenly relieved by a large discharge of cretaceous, or rather stony matter in the urine, without any pain or inconvenience. It ran from him during the greater part of the night involuntarily, while he was asleep, as well as when he was awake. It soaked through the bed, and sacking of the bedstead, and ran upon the floor, staining it with a whitish grey hue, or rather with the colour of free-stone. The powder left behind upon the floor, and in the chamber-pot, was almost as fine as if it had been levigated. He never observed any calculous matter to be voided in his urine before the use of this medicine, and the whole of it was discharged in the space of five or six days. From this time all symptoms of a stone in the bladder disappeared.

Dr. Cullen's opinion on the action of lithontriptics may be seen under the article Antacida. Speaking of the alkaline salts in this view, he says, "I am persuaded that these, from several considerations, are most effectual in their caustic state, and have frequently observed their good effects in that state, as it has been commonly exhibited in what has been called *Chittick's medicine*. See Chittick's lithontriptic. This, however, has frequently failed; and I impute its failure either to its not being properly administered, or to its not being given in sufficient quantity.

"In order to relieve the uneasiness arising from calculi, I know, from much experience, that it is necessary that the alkaline remedy should be exhibited in considerable quantity, and very constantly. But for this purpose, on account of its acrimony, it is not easy to exhibit the pure alkali, unless some means are contrived for covering it in the mouth and fauces. Such a measure might be supposed to be the employing soap; and this I have accordingly found, in some cases, employed with great advantage. But there are several inconveniencies that prevent the employment of it in large quantity; and though there might be means of obviating these, I do not enquire after them, as we have found another way of answering our purpose, that is commonly very effectual. This is done by saturating a pure fixed alkali with the *aerial acid.* This covers the acrimony, and any thing disagreeable in the alkali; which therefore can be taken down into the stomach in large quantity: and as this acid is readily separated by the acids so constantly present in the stomach, it allows it to have all the effect in correcting the acidities of the stomach that can be wished for, and has now been found, by frequent experience, to relieve all the uneasiness arising from calculi, more certainly and more completely than any other remedy formerly tried." The apparatus and measures necessary in making this preparation are commonly known. See Carbonic acid.

LITHOSPE'RMUM, (*λιθοςπεϱμον*, from *λιθος*, *a stone*, and *ςπεϱμα*, *seed*, named from the hardness of its seed), or *Milium solis;* common gromwell. *Lithospermum officinale; seminibus lævibus, corollis vix calycem superantibus, foliis lanceolatis*, Linn. The seeds of this officinal plant were formerly supposed efficacious in calculous and gravelly disorders. Little credit, however, is to be given to their lithontriptic character, yet they are occasionally used for clearing the urinary passages, and for obviating strangury, in the form of emulsion.

LITHOSPE'RMUM OFFICINA'LE; the systematic name of the officinal plant gromwell. See Lithospermum.

LITHOTOMY, (*lithotomia;* from *λιθος*, *a stone*, and *τημνω*, *to cut);* the operation by which a calculus is removed from the bladder. The success of this depends much upon the dexterity of the surgeon, as well as on the constitution of the patient. When the constitution has been so much impaired that the patient complains greatly of sickness and oppression at stomach, with nausea and an inclination to vomit, especially upon taking food; when he has likewise a constant thirst, and the pulse is as high as a hundred strokes in the minute; an operation is improper till these symptoms are removed. The operation is improper also when the patient labours under a severe fit of the stone: for then inflammation of the bladder is apt to ensue to such a degree as to produce suppuration. By frequent attacks and continuance of these fits, the coats of the bladder are apt to be thickened and greatly contracted. This last circumstance may be known by the introduction of the sound; for then it will stop after getting past the sphincter of the bladder, and cannot be pushed further without considerable force, and at the same time giving the patient the most exquisite pain. Nor ought the operation to be performed when the bladder is ulcerated, especially where the patient is old, and much debilitated, and where the discharge of matter is great.

Children more readily recover from the operation of lithotomy than adults; and old people from the age of fifty-five to that of seventy, whose constitutions have not been broken, are in less danger than those in the full vigour of life, probably owing to inflammatory symptoms being more apt to proceed to a dangerous length in the extremes of age than at the middle period of life. When the constitution, however, is not much impaired by the continuance of the disease, the operation may be undertaken with a probable degree of success almost at any period of the patient's life.

Several methods have been recommended for performing this operation; but there are only two which can be practised with any propriety. One is, where the operation is to be performed immediately above the pubes, in that part of the bladder which is not covered with peritonæum: the other, where it is done in the perinæum, by laying open the neck and lateral part of the bladder, so as to allow of the extraction of the stone.

1. Franco, a French surgeon, finding a stone in a child of two years of age too large to be extracted through an opening in perinæo (the place where the operation was then performed), was induced to make an incision into the bladder above the pubes; but though the stone was extracted and the child recovered, Franco, who published the case in 1561, never attempted the operation again, and even dissuades others from doing it. This, which was called the *high operation*, does not appear indeed to have been much practised any where till some time after the commencement of the last century, about the year 1720, when it was adopted and frequently performed in Britain, and other parts of Europe, for the space of about twelve or fifteen years. The lateral operation came then to be more generally known, and since this period the high operation has been seldom practised, we shall nevertheless briefly describe it; as cases *may* occur in which it may be proper to resort to it.

In performing the high operation, the bladder must be in a distended state, so as to make it rise above the ossa pubis, to allow an incision to be made into that part of it which is uncovered by the peritonæum, and thereby to prevent the abdomen from being opened or its contents exposed. Some days, or even weeks, previous to the operation, the patient ought to be desired to retain his urine as long as he can, so as to distend the bladder till it can hold at least a pound and a half, when the person is an adult, and of an ordinary size; or the penis may be tied up to allow the urine to collect. As these methods may be attended with great distress, some prefer distending the bladder by injecting warm water by slow degrees till the bladder is sufficiently full, which may be easily known by relaxing the abdominal muscles and feeling above the pubes.

When the operation is to be performed, the patient is to be laid upon a table of convenient height, with the pelvis higher than the shoulders, that the parts may be fully on the stretch, and to prevent the bowels from pressing upon the bladder. The legs and arms are to be properly held by assistants. An incision is to be made through the skin, in the very middle of the under and fore part of the abdomen, from some way under the umbilicus, to the symphisis pubis. The cellular substance, the tendon of the oblique muscles, the musculi recti and pyramidales, are now to be separated; and it is better to make this separation from the pubes upwards, so as to be in no danger of cutting into the abdomen. The surface of the bladder will now appear uncovered by the peritonæum. Then the operator, with a common scalpel, or an abscess lancet, or, what is better, with a concave sharp-pointed knife, makes a perforation into the most prominent part of the bladder, till the fore-finger of the left hand can be introduced. The ligature is now to be removed from the penis; then with a probe-pointed bistoury, making the finger serve as a conductor, the wound is to be made sufficiently large for the extraction of the calculus, taking particular care, however, not to carry the incision so high as to cut the peritonæum. This part of the operation being finished, the stone is to be extracted with the finger; or if that be impracticable, the forceps are to be employed. Should it unfortunately happen that the stone is broken in the extraction, the pieces are to be removed entirely by the fingers rather than by scoops, which are sometimes used. The edges of the wound in the integuments are now to be drawn together by means of the twisted suture, leaving about an inch and a half immediately above the pubes for the discharge of any urine which may be there evacuated. The patient is to be laid in bed, with the pelvis still kept higher than the shoulders.—Gentle laxatives are to be occasionally given, and the antiphlogistic plan strictly adhered to.

The advantages of this method are, that larger stones can be extracted by this than by the lateral operation, and that fistulous sores are less apt to ensue. The disadvantages are, the danger of opening or wounding the peritonæum, and thereby exposing the abdominal viscera; the frequent occurrence of inflammation about the beginning of the urethra, so as to occasion the urine to be diffused in the cellular substance on the outside of the bladder, and thereby producing sinuses difficult to cure; the extreme difficulty of healing the wound, especially in bad constitutions; and lastly, the small number of patients, after the age of thirty, who have been found to recover from this operation.

2. We shall now speak of the lateral operation, of which Frere Jacques, a French priest, was the inventor. He first appeared at Paris in 1697, and afterwards operated in a great number of cases with success. He introduced a sound through the urethra into the bladder; with a straight bistoury, cut upon the staff, and carried his incision along the staff into the bladder. He then introduced the fore-finger of his left hand into the bladder, searched for the stone, which, having withdrawn the sound, he extracted by means of forceps. The patient was now carried to bed, and the after-treatment left to the attendants.

Professor Rau, of Holland, improved upon this method, by making a groove in the staff, which enabled him, with greater certainty, to continue his incision into the bladder; but instead of dividing the urethra and prostate gland, the latter of which he was afraid of wounding, he dissected by the side of the gland, till the convex part of the staff was felt in the bladder, where he made his incision, and extracted the stone; but this method was too difficult to perform, and attended with too many inconveniences and dangers, ever to be generally received. It suggested, however, to the celebrated Cheselden, the lateral method of cutting, as it is now, with a few alterations, very generally practised. We shall attempt to describe the different steps of this operation in its present improved state.

The manner of *preparing the patient* for the operation, requires attention to a variety of circumstances. If he be plethoric, a few ounces of blood should be taken away, and at proper intervals the bowels ought to be emptied by any gentle laxative which will not gripe. The diet should consist of light food for some time previous to the operation. If the pain be violent, opium is necessary. Sometimes it is relieved by keeping the patient in bed, with the pelvis raised so as to remove the stone from the neck of the bladder. He ought not to sit up, or take any exercise, in the time of preparation. The warm bath ought to be used two or three times, and the patient should remain in it half an hour at each time. A laxative ought to be given on the day preceding the operation, and an injection a few hours before it is performed. The patient ought to drink plentifully of some diluent liquor, and to retain the urine several hours previous to the operation. If this cannot be readily effected, a slight compression, by means of a ligature, may be made upon the penis, so as to have the bladder sufficiently distended, that there may be no danger of the posterior surface being hurt by the end of the gorget. The perinæum and parts about the anus should be well shaved.

For the operation of *lithotomy* in the modern way, a table somewhat more than three feet in height, and of sufficient strength, should be firmly placed, and properly covered with blankets, pillows, &c. Upon this the patient is to be laid, after having his hands properly secured. For this latter purpose, there must be procured two pieces of broad firm tape, each about five feet in length, which are to be doubled and a noose formed upon them. A noose is then to be put upon each wrist, and the patient desired to lay hold of the middle of his foot upon the outside. One end of the ligature is to go round the hand and foot, and the other round the ancle and hand, and cross again so as to repeat the turns in the reverse way. A running knot is then to be tied, by which the hand and foot will be properly secured. The buttocks are then to be made to project an inch or two over the table, and to be raised considerably higher than the shoulders by a couple or more pillows, and one ought to be put under his head.

The operator is now to introduce a grooved staff pl. VIII. fig. 9.) of proper size, and open to the end, through the urethra, into the bladder; and having again fully satisfied himself of the existence of a stone, he inclines the staff, if the surgeon be right-handed, obliquely over the right groin, so that the convex part of the staff, may be felt in the perinæum on the left side of the raphe. He then fixes it, and delivers it to his assistant, who is to hold it with his right hand; desiring him to press it gently, in order to make the sulcus of the staff project in the direction in which he received it. With his left hand the same assistant is to raise and support the scrotum.

The thighs of the patient being sufficiently separated by the assistants, and the surgeon being seated upon a chair of a proper height, and in a convenient light, he makes an incision with a common convex-edged scalpel through the skin and cellular substance, immediately below the symphisis of the ossa pubis, which is a little below the scrotum, and where the crus penis and bulb of the urethra meet, and on the left side of the raphe, and continues it in a slanting direction downwards and outwards to the space between the anus and tuberosity of the ischium, ending somewhat lower than the basis of that process, by which a cut will be made of three or four inches in length. This incision ought not to be shorter than is here directed, otherwise there will not be room for the rest of the operation. As soon as the integuments are thus divided, he ought to introduce two of the fingers of the left hand. With one he keeps back the lip of the wound next the raphe, and with the other he presses down the rectum. He ought likewise particularly to guard against cutting the crura of the penis, which he can readily feel, and separate at their under part with one of the fingers. He next makes a second incision almost in the same direction with the first, but rather nearer to the raphe and anus, by which he preserves the trunk of the arteria pudica. By this incision he divides the transversalis penis, and as much of the levator ani and cellular substance within these, as will make the prostate gland perceptible to the finger. If any considerable vessel be cut, it is immediately to be secured, though this is seldom necessary. After this he will have a view of the membranous part of the urethra, which is distinguished from that covered by the bulb, by being very thin. He is now to search for the groove of the staff with the fore-finger of his left hand, the point of which he presses along from the bulb of the urethra to the prostate gland, which surrounds the neck of the bladder. He keeps it there; and turning the edge of the knife upwards, he cuts upon the groove of the staff, and freely divides the membranous part of the urethra, from the prostate gland to the bulb of the urethra, till the staff can be felt perfectly bare, and that there is room to admit the point of the finger; and as the finger assists in keeping the parts stretched, and effectually prevents the rectum from being hurt, the incision into the urethra may be made with perfect ease and safety.

The next part of the operation, viz. dividing the prostate gland and neck of the bladder, might, by a dexterous operator, be safely performed with a common scalpel, with the edge turned the opposite way. But to guard against accidents, a more convenient instrument, called the *cutting gorget* (see the pl. fig. 1), is now in general use. It was originally invented by Mr. Hawkins of London, and since his time has undergone various alterations by different practitioners, as may be seen by turning to the description of plates in the article INSTRUMENTS. The double gorget invented by Dr. Monro is a valuable improvement. The inner plate, which is blunt, is made to slip forwards to protect the back part of the bladder. The membranous part of the urethra being now divided, and the fore-finger still retained in its place, the point of the gorget, previously fitted to the groove, is to be directed along the nail of the finger, which will serve to conduct it into the groove of the staff: and as this is one of the nicest parts of the operation, the most particular attention is here required, that the point of the gorget be distinctly heard to rub in the bare groove, and that nothing is interposed.

In the introduction of the gorget into the bladder, if the assistant could be depended upon, the staff might be allowed to remain in his hand: the operator, however, generally chooses to manage it himself. He now rises from his seat, takes the staff from the assistant, raises it to near a right angle, and presses the concave part against the symphisis of the ossa pubis; satisfies himself again that the point or beak is in the groove, and then pushes on the gorget, following the direction of the groove till the beak slip from the point of the staff into the bladder. The gorget is not to be pushed further than this, otherwise it may wound the opposite side of the bladder, &c.

The gorget having now entered the bladder, which is readily known by the discharge of urine from the wound, the staff is to be withdrawn, and the finger introduced along the gorget to search for the stone, which, when felt, will point out the direction to be given to the forceps. At any rate the introduction of the finger serves to dilate the wound in the bladder; and this being done, a pair of forceps (fig. 7) of a proper size, and with their blades as nearly together as their form will allow, are to be introduced, and the gorget withdrawn slowly, and in the same direction in which it entered, so as to prevent it from injuring the parts in its return. After the forceps are introduced, and passed till they meet with a gentle resistance, but no further, the handles ought to be depressed till they are somewhat in an horizontal direction, as this will most correspond with the fundus of the bladder. One blade of the forceps is to be turned towards the symphisis of the pubis to defend the soft parts there, the other, of consequence, guards the return. After they have distinctly touched the stone, by moving them a little in various directions, they are then to be opened, and the stone laid hold of, which may generally be done with considerable ease. It frequently happens, however, that when the stone is small, it is not readily felt with the forceps; and instances may happen where the under and back part of the bladder may be so depressed as to conceal the stone. In such a situation, nothing will more readily bring it in the way of the forceps than to introduce the finger into the rectum, and elevate this part of the bladder. Straight forceps are generally used; crooked ones, in some very rare cases, however, may be necessary, and therefore the surgeon ought to be provided with them (see fig. 6).

After the forceps has laid hold of the stone, if it be small and properly placed, it may readily be extracted; but if, on the contrary, the handles of the forceps are now observed to be greatly expanded, it is certain the stone is improperly fixed, or that it is remarkably large: in either case it should not be held fast, but allowed to move into the most favourable situation; or the finger is then to be introduced so as to place it properly for extraction. If this cannot be done with the finger, it ought to be allowed to slip out of the forceps, in order to get it more properly fixed; and as the most common form of the stone is flat and oval, or somewhat like a flattened egg, the forceps should have hold of the smallest diameter, while an end presents to the neck of the instrument. The stone should be grasped with no greater firmness than is merely sufficient to bring it fairly out. It should be extracted in a slow and gradual manner.

When a stone is broken in the bladder, all the larger pieces are to be extracted by the forceps, which are to be introduced by means of the finger serving as a director. The smaller parts are to be removed by means of a scoop (fig. 70), or probably the finger may be more convenient; and as the least particle allowed to remain, or which is not washed off by the urine, may serve as the nucleus of another stone, a large quantity of water, properly warmed, is to be injected by a bag and pipe, or by a syringe, and for this purpose the body of the patient should approach at least to an upright posture; and to give the particles of stone an opportunity of collecting near the incision of the bladder, the wound may be stopped for a while after the injection is thrown in.

When a stone is extracted of a regular, firm, and rough surface, it seldom happens that any others remain in the bladder. On the contrary, when it is of an irregular shape, and smooth and polished, particularly in certain places, with impressions formed upon it, there is the greatest probability of others remaining. There are exceptions, however, to these rules; and therefore the operator, instead of trusting to them, should introduce his finger, which will answer the purpose without any other searcher.

3. The *subsequent treatment* should be as follows: If, after the operation, any considerable artery bleeds much, it is to be taken up with a ligature; but if this be impracticable, the hemorrhagy ought to be stopped by means of pressure, and for this purpose a firm roller introduced at the wound answers sufficiently: and to prevent any stoppage to the discharge of urine, a silver canula, covered with caddice, and dusted over with styptic powder, may be introduced into the wound with advantage.

Sometimes it happens that a considerable quantity of blood, instead of passing off by the wound, is collected in the cavity of the bladder, and may produce very unpleasant symptoms. To prevent this as much as possible, immediately upon the operation being finished, the patient's pelvis should be placed considerably lower than the rest of his body; by which means the wound will keep in a depending posture, and the blood will escape more readily by the wound. But if it be found that the blood is still lodged in the cavity of the bladder, it must be immediately extracted.

As soon as the bleeding is stopped, the patient is to be untied, a piece of dry lint put upon the lips of the wound, and often renewed, and the thighs brought together. He is then to be laid in a bed, in such a way that the pelvis may be considerably lower than the rest of the body, to give a favourable direction to any blood which may afterwards flow from the wound. A considerable dose of laudanum is now to be given. From thirty to fifty drops for an adult will commonly be necessary. From this period, unless the stone has been large and difficult to extract, the patient commonly falls asleep, or at least lies quiet for a few hours; but afterwards generally begins to complain of pain in the upper part of the abdomen. Anodynes are now to be given both by the mouth and anus, and warm fomentations, by means of flannels, or bladders filled with warm water, are to be applied to the region of the bladder, as the affection seems to be of the spasmodic kind.

If by a continuance of these remedies the pain abates, no anxiety need be entertained concerning it; but if it increase, and especially if the abdomen become hard and swelled, and the pulse full and quick, and these symptoms become gradually worse, great danger is to be apprehended, as they most commonly take place in consequence of inflammation. In this situation, as much blood ought to be taken as the patient can bear. A large injection of warm water and oil, or linseed tea, should be given every six or seven hours, and the fomentations continued to the abdomen. If the symptoms continue to grow worse, the patient should be immediately put into the semicupium or warm bath.

By a proper continuance of these means, with a low diet and plenty of diluent drink, the above symptoms may frequently be removed. The reverse, however, is sometimes the case. The wound becomes sloughy and ill-conditioned; all the symptoms, in spite of every effort, continue to increase, and soon terminate in death.

But where matters end favourably, the wound by degrees puts on a better appearance; the urine passes almost from the beginning by the urethra (most frequently, however, it is discharged by the wound for the first two or three weeks); the pain in the abdomen gradually abates, the feverish symptoms are soon removed, a complete cicatrix is formed, and the wound is sometimes cured in a month; though upon other occasions three will be necessary. But it must depend greatly on the vigour of the constitution.

Excoriation of the buttocks may be prevented by placing a sheet under them several times doubled, the breadth to be eighteen or twenty inches, and to be all rolled up, except the part which is to be laid under the patient, the rest of the roll to be by his side, which is to be unrolled as the nurse draws the wet part from under him. If, after the use of this, excoriations should still happen, the part may be washed with cold water; or the parts round the wound, after being well dried, may be rubbed with any simple ointment.

In patients of a debilitated constitution, incontinence of urine frequently occurs after this operation. In general, this is removed as the patient acquires strength. Nourishing diet, the cold bath, bark, and other tonics, are of much service here; but where these are afterwards found ineffectual, instruments for compressing the penis, or others for receiving the urine, have been found useful, and are now made in such a convenient way as to allow them to be constantly used so long as they may be found necessary.

5. *Lithotomy in females.*—An operation for a stone in the bladder is much seldomer required in women than in men, on account of the shortness of the urethra, in the former, allowing a readier passage for the small calculi which get into it, or are formed in the bladder. It is likewise in women more simple, and of course easier to perform. It might be done in the same manner as in the male, but there would be the greatest probability of wounding the vagina. In a few cases, the operation has been performed from the vagina itself; but it is by no no means advisable, as stones would not only be extracted with greater difficulty, but, on account of the thinness of the parts, the urine would most probably form a fistulous opening, and a communication be maintained between the bladder and vagina; or cicatrices there might be attended with great inconvenience in child-birth.

In the method commonly practised, the patient being placed and secured in the same manner as in the operation upon the male, the operator introduces a short grooved staff, slightly curved (fig. 11) into the bladder; then by means of the common gorget already mentioned, with its point passed along the groove of the staff, he lays open the whole of the urethra and the neck of the bladder. The staff is now to be removed, the finger introduced upon the gorget, to feel for the stone, which is to be removed as already directed for the operation of the male. Where incontinence of urine occurs after the wound is healed, a pessary is to be used within the vagina, or a sponge applied, or a tin machine to receive the urine.

In the third volume of the Memoirs of the Medical Society of London, a very curious case is related of a stone which released itself from the bladder, by passing through the rectum. Dr. Johnstone, of Worcester, who relates it, describes the patient to have, for many years, suffered the most excruciating pains from gravel and stones in the bladder; for which he received no relief, but rather aggravation of pain, from the use of the most celebrated lithontriptics. Nor did even the largest doses of opium, whether taken into the stomach, or conveyed by clyster, hardly give him any respite from pain. "Some years passed in this torture," says Dr. Johnstone: "he began at length, in searching his stools, to find pieces of gravel voided with them. I saw some of these pieces, and was perfectly convinced, by their appearance, that they had come from the bladder, and had forced their passage through it and the rectum. Tincture of opium was daily injected in oily clysters to quiet the pain, till these pieces of gravel came away in his stools; and he has ever since been free from the pains which had tormented him for so long a time. This kind of *natural lithotomy*, if I may so express myself, is, I believe, not very common; but no one who saw this patient in the least doubted that the stones, which had given such pain in the bladder, had cut their way through the bladder and rectum, and, being discharged with the stools, the wound through which they passed had perfectly healed; for he is now a very healthy and vigorous old man."

LI'TMUS, the *Bezetta cærulea*, *Succus heliotropii*, *Lacmus seu Tornæ*, or *Lacca cærulea*. The inspissated juice of the *Croton tinctorium; foliis rhombeis repandis, capsulis pendulis, caule herbaceo*, Linn. Some writers describe *litmus* as a pigment prepared from the archilla. See Archil. The tincture of litmus is extremely useful to chemists, as a test of the presence of acid or alkali; but this plant is possessed of no medical properties, as far as we yet know.

LIVER, a name formerly given to different chemical combinations, for no better reason than that they bore some resemblance to the human liver in colour. Thus we had the liver of sulphur, liver of antimony, &c. for which modern chemists have found more appropriate names.

LIVER, (*hepar;* of the Gr. ηπαρ); the largest of all the abdominal viscera. It is of a dark red colour, of considerable weight, and lies under the diaphragm, in the right hypochondrium, its smaller portion occupying part of the epigastric region. The human liver is divided into two principal lobes, the right of which is by far the largest. They are divided on the upper side by a broad ligament, and on the other side by a considerable depression or fossa. Between these two lobes is a smaller lobe, called *lobulus Spigelii.* In describing this viscus it is necessary to attend to seven principal circumstances:—*First*, its ligaments. *Secondly*, its surfaces. *Thirdly*, its margin or edges. *Fourthly*, its tubercles. *Fifthly*, its fissure. *Sixthly*, its sinus. *Seventhly*, the pori biliarii. The ligaments of the liver are four in number, all arising from the peritoneum. 1. *The right lateral ligament*, which connects the thick right lobe with the posterior part of the diaphragm. 2. *The left lateral ligament*, which connects the convex surface and margin of the left lobe with the diaphragm, and in those of whom the liver is very large, with the œsophagus and spleen. 3. *The broad* or *middle suspensory ligament*, which passes from the diaphragm into the convex surface, and separates the right lobe of the liver from the left. It descends from above, through the large fissure, to the concave surface, and is then distributed over the whole liver. 4. *The round ligament*, which in adults consists of the umbilical vein indurated into a ligament. The liver has two *surfaces*, one superior, which is convex and smooth, and one inferior, which is concave, and has holes and depressions to receive not only the contiguous viscera, but the vessels running into the liver. The *margins* of the liver are also two in number; the one, which is posterior and superior, is obtuse; the other, situated anteriorly and inferiorly, is acute. The *tubercles* of the liver are likewise two in number, and are found near the vena portæ. Upon looking on the concave surface of this viscus, a considerable fissure is obvious, known by the name of the *fissure of the liver;* but, in order to expose the *sinus*, it is necessary to remove the gall-bladder, when a considerable sinus, before occupied by the gall-bladder, will be apparent. The *blood-vessels* of the liver are the hepatic artery, the vena portæ, and the cavæ hepaticæ, of which more will be said presently. The *absorbents* of the liver are very numerous. The liver has *nerves* from the great intercostal and eighth pair, which arise from the hepatic plexus, and proceed along with the hepatic artery and vena portæ into the substance of the liver. With regard to the substance of the liver, various opinions have been entertained. It is, however, now pretty well ascertained to be a large gland, composed of lesser glands, connected together by cellular substance. The small glands which thus compose the substance of the liver are termed penicilli, from the arrangement of the arterial ramification, of the vena portæ composing each gland, resembling that of the hairs of a pencil. The chief use of this large viscus is, to supply a fluid, named bile, to the intestines, which is of the utmost importance. See Bilis. The small penicilli perform this function by a specific action on the blood they contain, by which they secrete, in their very minute ends, the fluid termed *hepatic bile;* but whether they pour it into what is called a follicle, or not, is yet undecided, and is the cause of the difference of opinion respecting the substance of the liver. If it be secreted into a follicle, the substance is truly glandular, according to the notions of the older anatomists; but if it be secreted merely into a small vessel, called a biliary pore (whose existence can be demonstrated), corresponding to the end of each penicilli, without any intervening follicle, its substance is then, in their opinion, vascular. According to the notions of anatomists, in the present day, in either case the liver is deemed glandular; for we entertain the idea of a gland, when any arrangement of vessels performs the office of separating from the blood a fluid or substance different in its nature from the blood. The small vessels which receive the bile that is secreted by the penicilli, are called *pori biliarii;* these converge together throughout the substance of the liver towards its under surface, and, at length, form one trunk, called *ductus hepaticus*, which conveys the bile into either the *ductus communis choledochus*, or *ductus cysticus*. See the article Gall-bladder.

Dr. Saunders observes, that such is the economy of nature in glandular bodies in general, that the same fluid which is fit for the nourishment of the gland, is adapted also to its secretory office, and is conveyed to the organ by the same vessel. But the physiologist is unable to ascertain, with any degree of precision, how much blood is allotted to nutrition, and how much to secretion. In this respect we receive some light from a peculiarity which obtains in the liver, and which distinguishes it in a very striking manner from all the other glands of the body. For, while in them the functions of nutrition and secretion are combined in the same vessel, in this, these offices are kept apart, and performed by different vessels. Therefore, by a careful comparison of the area of the nutrimental with that of the secreting vessel, we may readily allot to each its due proportion.

Blood of every description is not equally fit for nutrition: that only, which has received the change from respiration, and which circulates through the arteries, is well adapted to this purpose; therefore the liver receives its nutrimental blood from an artery. The rule by which nature seems to be guided in the origin of vessels supplying other organs, obtains equally in this, as the hepatic artery arises from the nearest considerable trunk. The aorta, whilst passing between the crura of the diaphragm, sends off, from its anterior part, three considerable azygous trunks: to wit, the cœliac artery; the superior and inferior mesenteric arteries; the two last supplying the intestinal canal. The cœliac trunk soon divides into three branches:—the first, from its being distributed to the lesser curvature of the stomach, is termed the coronary artery; the second, passing to the spleen, is called the splenic artery; and the third, or largest, whose office we are now to consider, takes the name of the hepatic artery.

The hepatic artery, at its origin, is of a considerable size, but diminishes as it arrives at the liver, and is sensibly smaller: the cause of which is, that in its progress it supplies the adjacent parts with blood. Hence, Dr. Saunders observes, in forming a true estimate of the quantity of blood sent to the liver *for its nourishment*, we are to consider the area of the hepatic artery, after the three preceding branches are sent off. This vessel at length divides into branches before in enters the substance of the liver; after which its ramifications multiply and extend with great minuteness through the whole mass; so that in every part of its substance there is circulating blood possessed of properties fit for nutrition. But as this blood is in a state of constant motion, and is continually displaced by successive fresh supplies, a redundancy is prevented here, as well as in the other parts of the body, by returning veins. The ultimate branches then of the hepatic artery terminate in the hepatic veins, and these return the blood into the vena cava inferior, by three or four venous trunks.

Considered as *an organ of secretion*, Dr. Saunders supposes the liver to differ from every other gland of the body, with regard to the nature of the blood from which secretion is performed. While other fluids are secreted from florid arterial blood, which has lately received changes from the air by the intervention of the lungs, the bile is formed from blood of a dark colour, possessing the common characters of venous blood, and is conveyed to the liver by the vena portarum, which takes its name from the part of the liver at which it enters; there being two eminences, one on each side of the fissure, called the *portæ*, where this vessel begins to penetrate. See Porta. To convey an adequate idea of the origin of this vein, and of the properties of the blood which it conveys, the Dr. explains the circulation through the chylopoietic organs. As the function of this vein differs from that of other organs, it has been supposed to possess some peculiarity of structure. It certainly, however, does not possess the grand discriminating mark of an artery, or the power of preserving a circular orifice when divided transversely. If it differs from veins in general, it is in having thicker tunics in proportion to the capacity of its canal; but with respect to the arrangement and disposition of its muscular fibres, this part of its structure does not appear sufficiently defined, to authorize us to speak with precision.

The vena portarum after it has reached the liver at its great fissure, forms one large trunk, called its *sinus*, from which three principal branches usually take their origin. The extremities of these end in two ways: one with respect to the circulation of the blood: the other, as connected with their economy, as secreting vessels. In the first point of view, they inosculate with branches of hepatic veins, and, through that channel return to the inferior cava all that blood which is not employed in the business of secretion. So that the hepatic veins are the common recipients of the contents of the hepatic artery, and likewise those of the vena portarum.

The secreting termination of this vein is in the beginnings of the hepatic ducts, called pori biliarii; which in their origin must necessarily be very minute, inasmuch as they preclude admission of the red particles of the blood: from these minute beginnings they gradually enlarge by an union of branches, until at length they pass out from the liver at its fissure, by two or three trunks, which soon after join together, and form the trunk of the hepatic duct. The structure of this vessel is apparently membranous, having no fibres which can be considered as muscular. If the internal surface of this system of vessels be examined, it will be found moderately vascular, as there is an appearance of follicles in many parts; from whence Dr. Saunders concludes that it secretes a mucous kind of fluid.

A difficult object of inquiry next presents itself; namely, to determine, why the blood, after its course through the chylopoietic viscera, seems better adapted to the secretion of bile than common arterial blood, from which the other secretions are supplied. That venous blood is more favorable to this secretion than arterial, Dr. Saunders thinks is very evident; and this exception of the liver to Nature's law in the economy of other glands, may be admitted as a proof of it. But the peculiar changes induced in the blood, after circulating through the arteries of the stomach, and yielding the gastric fluid; after penetrating the pancreas, and there affording pancreatic juice; after pervading the intestines, where it not only gives out the intestinal mucus, but from its vicinity to fæculent matter, may receive putrescent properties,—are at present, and may perhaps long continue, an ample field of speculation and conjecture. Haller was of opinion, that the blood returned by the epiploic and mesenteric veins, contained a large portion of adipose matter, which it received by the absorbent power of those veins, and which imparted to it so great a degree of viscidity, that without the diluting power of the splenic blood, which mixes with it when entering the *vena portarum*, it would be liable to concrete. But there must appear little probability in this opinion, whether we consider the power of the epiploic veins to absorb fat from the *omentum*, or the function of the spleen to dilute the blood of the *vena portarum.*

Absorption by red veins has so few advocates in the present day, that it is out of the question, as indeed the experiments of Dr. Saunders have now placed the notion of some physiologists, that the spleen possesses a power of acting on the blood of the liver as a diluting organ. The result of these experiments makes it highly probable, that the bile secreted after the loss of the spleen, differs in no respect from other bile; and that the liver, in the exercise of its function, is perfectly independent of that viscus. In the fœtus, the blood in the vena portarum has more of the arterial condition than in the adult, and likewise produces bile of less activity.

Most physiologists have agreed, that the hepatic artery carries blood to the liver for its nourishment, and that this is the only use to which it is destined. There are a few, however, who are inclined to a different opinion; and contend that, in addition to this function, it concurs with the vena portarum in the secretion of the bile. The reasons on which this latter opinion is founded, have at least speciousness to recommend them; but Dr. Saunders does not think the hypothesis which they are brought to support, by any means established. Yet, admitting the vena portarum alone is the secreting vessel, and that the hepatic artery furnishes blood, *only for imparting a due degree of energy*, it still remains a question, of what nature the communication between these two vessels is.

The precise structure and mechanism of the parts which form the immediate seat of secretion has hitherto eluded every attempt to investigate them: it remains, therefore, to trace the course of the bile, from the interior part of the liver to the place destined for its reception. This being formed, is conveyed on by the branches of the hepatic duct, which, at their origin, are very minute, and are there called *pori biliarii.* From these it passes into larger branches, and thence gradually into the trunk of the hepatic duct. Yet it is probable that the bile is not merely conveyed through these passages, but that it also undergoes, during this course, a change from a dilute to a concentrated state, in consequence of the numerous absorbents with which the liver is supplied, and which originate from its interior parts. Its ultimate conveyance to its natural reservoir is noticed under the article Gall-bladder.

The diseases to which the liver is obnoxious depend chiefly on the interruption or augmentation of its functions as an organ of secretion. They may be considered as, 1. Those arising from an increased secretion of bile. 2. From a diminished secretion. 3. From obstruction to its free passage through the ducts. 4. From the general causes affecting other glands. See Hepatitis, Icterus, Cholera morbus, Yellow fever, &c. That the liver is, of all the other abdominal viscera, the most subject to morbid alterations of structure, is pretty generally known. This, however, is much more the case in hot climates: a fact concerning which we may form a tolerable judgment from the Memoir of the State of Health of the 88th Regiment, presented, by Dr. M'Gregor, to the Medical Board, at Bombay. Describing the diseases which had taken place within one year, from the 1st of June, 1801, he expresses a difficulty in stating the proportion of cases, in which the liver was affected. If he ranks the cases where that viscus was of a colour different from the natural, or where there were variegated spots upon it, amongst liver complaints, but few were exempt from the distinction. Indeed, only four of the cases inspected would fall under the description of sound. In two he found abscesses in the right and left lobes. In one there were small cysts, containing pus, in all the lobes. In three the vessels were enlarged, the liver of an increased size, with marks of previous inflammation. In one there were abscesses in the right lobe and lobulus Spigelii. In another the abscess was in the lower extremity of the right lobe, including the fissure; and erosion there had proceeded so far, that it must have soon made its way through the coats of the subjacent great blood-vessels. In one case, the liver was rather of a darker colour than the spleen. In another, it was of a bright cast-iron colour. The liver was also found very small in two instances; in one of which it did not exceed half the natural size, and was harder than natural, but without the gritty feel of scirrhus. In nearly all the other cases, the liver was larger than the usual size. It sometimes filled both hypocondria, compressing the stomach and spleen, and touching the ribs of the left side. The weight was not always proportioned to the enlargement. The liver sometimes had a soft feel. In one case, however, where the enlargement was not so considerable as in many others, it felt very firm, and weighed five pounds. Here there were marks of inflammation on all the inferior portion of the right lobe, particularly near the portæ. In a case of long standing, there seemed to be more disease than in any other: the pori biliarii were full of matter of a consistence between that of serum and pus:—Query, Was this a morbid secretion? There was found an adhesion between the liver and peritonæum in eight cases; but there was an external prominence in only three of them. In one, an incision was made betwixt the 7th and 8th ribs; but the case proved unsuccessful. In none of the cases did there exist a communication between the liver and the lungs. Of the four subjects where no marks of diseased liver could be seen, two were cases of fever: one of scurvy, who had laboured latterly under every symptom of hepatitis; and the fourth had, for four months before his death, every symptom of the disease.

Dr. M'Gregor says, there was in general little disease either in the gall-bladder or biliary ducts. In ten cases the gall-bladder was found distended. In one the ductus communis was found impervious. In none of the cases did they find a calculus. In another, though the vesica fellis was not much distended, there were marks of inflammation; the vessels of the external coat were turgid, and there was an intimate adhesion to the stomach, and the gall-bladder contained a heterogeneous fluid. In the ten cases mentioned, the gall-bladder contained from two to four ounces of bile of different colours, consistence, and probably of different qualities. It would have been highly interesting to have ascertained this, and to have compared it with sound bile.

LIVER OIL, *Oleum jecoris aselli;* the oil which issues from the liver of the cod fish. This remedy was first brought into notice by Dr. Percival, of Manchester. In the hospital of that town, he says, near a hogshead of it is annually consumed. It is given in obstinate chronic rheumatisms, sciaticas of long standing, and in those cases of premature decrepitude, which originate from immoderate labour, repeated strains and bruises, or exposure to continual dampness and cold; by which the muscles and tendons become too rigid, and the flexibility of the joints is impaired, so as to crackle for want of a due secretion of *synovia.* Whilst physician to that charity, Dr. Percival had the fullest evidence of the successful exhibition of cod liver oil, in various maladies, of the class above described, which had resisted other powerful modes of treatment. And he frequently compared its operation with that of gum guaiacum, by prescribing each, at the same time, to different patients in similar circumstances. These trials almost always terminated in favour of the oil; and the patients who took guaiacum, on conferring with their fellow-sufferers, were sometimes so sensible of making a slower progress towards recovery, as to request a change of one remedy for the other.

At first it occasions, for the most part, an increase of pain; but this effect shortly ceases, and a gradual abatement of the symptoms succeeds. The pulse, in irritable habits, is sometimes accelerated by it, and a glow of warmth has been felt through the whole body, after each dose of the medicine. It is neither uniformly laxative, nor binding; but often promotes a gentle degree of perspiration. However, it proves successful, even when it produces no sensible operation, as generally happens in persons habituated to its use. In a few weeks, the appetite is impaired by it, the tongue grows foul, and an emetic is requisite. The dose of it varies from one table-spoonful to three, and it may be administered twice, thrice, or four times daily. In many cases, it is found serviceable to rub the parts affected, with the oil, during the course of its internal exhibition. But this practice is only to be followed, when no great soreness subsists. Indeed, either fever or inflammation forbids the use of it entirely.

The cod liver oil is chiefly brought from Newfoundland. It forms a considerable article of merchandize; and comes in barrels from 400 to 520lb. in weight. The method of obtaining it is, by heaping together the livers of the fish, from which, by a gentle putrefaction, the oil flows very plentifully. A similar oil is procured from the livers of the fish called *ling*, and also from a small species of cod, found on the coast of Buchan in the north of Scotland. The taste is nauseous, and leaves upon the palate a savour, like that of tainted fish. On this account, it is not much prescribed in private practice, but the hospital patients make no complaint of it; and Dr. Percival observes, that such is their confidence in its efficacy, that they often solicit to take it; and generally persevere, with steadiness, in the use of it. Indeed, we know, that oil, of the same kind, forms no inconsiderable part of the food of the Laplanders, and other northern nations; for habit soon reconciles to the taste the most disgusting viands. The cod liver oil may, however, be rendered much less offensive by the following mode of administering it:

℞. Ol jecoris aselli ℥j.
Aq. menth. piper. ʒss.
Aq. kali pur. gutt. xl.
Misce, fiat haustus.

By this combination, a liquid soap, not very unpleasant, is produced, which may be readily decomposed by the addition of a tea-spoonful of the juice of lemons. And as the oil is probably most efficacious in its original form, it may be advisable to drink a cup of some acidulous liquor, immediately after the medicine has been swallowed. This will at once cleanse the mouth and gullet, neutralize the alkaline salt, and separate the oil in the stomach. Dr. Russel, in his Natural History of Aleppo, has observed, that "in certain seasons, when oil is plentifully taken, the people there become disposed to fevers and infarctions of the lungs, which symptoms wear off by retrenching this indulgence." Dr. Percival says he never saw or heard of any such effects, from the long continued use of the *oleum jecoris aselli.* Perhaps this diversity may partly depend on the different qualities of vegetable and fish oil; the former having a tendency to obstruct, the latter to promote insensible perspiration. But, perhaps, it is chiefly to be ascribed to the influence of climate. The intense heats of Turkey relax the animal fibres, and oil adds to this relaxation. But, under a northern sky, the fibres are too much disposed to rigidity; and when this actually subsists as a malady, the emollient powers of oil are so far from being injurious, that they are highly salutary.

LIVER-WORT. See Hepatica terrestris.

LIVER-WORT, ASH-COLOURED. See Lichen cinereus terrestris.

LIVER-WORT, GROUND. See Lichen cinereus terrestris.

LIVER-WORT, ICELAND. See Lichen islandicus.

LIVER-WORT, NOBLE. See Hepatica terrestris.

LIVING PRINCIPLE, in a general sense, that which constitutes life in an organized being. See Life. This term was applied by the late Mr. John Hunter to the blood. See the article Blood. The living principle may continue, for a time, in an animal apparently dead. See Resuscitation.

LIXI'VIA VITRIOLA'TA SULPHU'REA, *olim Sal polychrestus.* For some account of its virtues, see Kali vitriolatum.

LIXIVIATION, a process which is employed in chemistry and pharmacy, for separating substances that are soluble in water, from such as are insoluble. In this operation, by means of warm water, the saline and soluble particles of bodies, for instance, the residues of distillation and combustion (coals, and such natural earths as are intended to be analysed), are dissolved. The process, therefore, very naturally derives its name from the *lixivial* salts which are obtained by means of it. It is merely a solution effected by means of heat, and nearly similar to infusion: the only difference is, that the latter is applied to vegetable and animal matters; while lixiviation is mostly employed to obtain substances possessing some of the properties of minerals. When this operation is performed with small quantities of materials, it may be conveniently managed in jugs or matrasses of glass, and by filtering the liquor through paper in a glass funnel; but when in large quantity, it must be lixiviated in a kettle of boiling water, and filtrated through paper supported by a cloth in a wooden frame.

LIXI'VIUM, or ley; water impregnated with the salts of burnt vegetables. The name of *Lixivium causticum* is given, by the Dublin College, to a ley prepared from alkali and quick-lime. This is nearly the same, and devoted to the same uses, as the *Aqua kali puri* of the London, and *Aqua potassæ* of the Edinburgh College. See Kali purum.

LIXI'VIUM SAPONA'RIUM. See Aqua kali.

LIXI'VIUM TA'RTARI. See Aqua kali.

LOBE, an anatomical term, which signifies any body of a roundish shape. Thus different parts of the body are distinguished; as the *lobes* of the ears, lungs, liver, &c.

LOBE'LIA, (so named in honour of Lobel, a botanist), blue lobelia, or cardinal-flower; the *Lobelia syphilitica,* Linn. *Lobelia, caule erecto foliis ovato-lanceolatis subserratis, calycum sinubus reflexis.* Class, *Syngenesia.* Order, *Monogamia.* The root is directed, by the Edinburgh College, for medical use. In taste it resembles tobacco, and is apt to excite vomiting. It derives the epithet *syphilitica* from its efficacy in the cure of syphilis, as experienced by the North American Indians, who consider it a specific in that disease. With them it was long a secret, but purchased by Sir William Johnson, and since described by different authors. The method of employing this medicine is stated as follows: A decoction is made of a handful of the dried roots in twelve pints of water, reduced by boiling to eight. Of this, half a pint is taken in the morning fasting, and repeated in the evening: and the dose is gradually increased till its purgative effects become too violent, when the decoction is to be intermitted for a day or two, and then renewed, until a perfect cure is effected. During the use of this medicine a proper regimen is to be enjoined; and the ulcers are also to be frequently washed with the decoction, or, if deep and foul, to be sprinkled with the powder of the inner bark of the New Jersey tea-tree, *Ceanothus Americanus.* Although the plant thus used is said to cure the disease in a very short time, yet it is not found that the antisyphilitic powers of the lobelia have been confirmed in many instances of European practice.

LOBE'LIA SYPHILI'TICA; the systematic name of the lobelia of the pharmacopœias. See Lobelia.

LOCA'LES; the fourth class in Cullen's nosology, comprehending morbid affections that are partial, and including eight genera, viz. *dysæsthesiæ*, *dysorexiæ*, *dyscinesiæ*, *apocenoses*, *epischeses*, *tumores*, *ectopiæ*, and *dialyses*. See Nosology.

LOCH. See Lohoch.

LO'CHIA, (of the Gr. λογια, from λοχευω, *to bring forth*), the cleansings; which consist of a serous, and for the most part green-coloured discharge, that takes place from the uterus and vagina in women after child-birth.

It is the third species of Dr. Cullen's *Menorrhagia*. The delivery of the child and placenta is followed by an efflux of more or less blood from the uterus, which, by the immediate evacuation of the large vessels, is allowed to contract itself the more freely, without the danger of an inflammation, which would probably happen in the contraction, if the great vessels were not emptied at the same time; but as the fluids in the smaller vessels cannot be so soon evacuated, or returned into the vena cava, it is necessary that, after the great discharge is abated, a slow and gradual evacuation should continue, until the womb shall be contracted to near the same size which it had before pregnancy; and to this it attains about the eighteenth or twentieth day after delivery, though the period is different in different women.

When the large vessels are emptied immediately after delivery, the discharge frequently ceases for several hours, until the fluids in the smaller vessels are propelled into the larger, and then begins to flow again, of a paler colour.

The red colour of the lochia commonly continues till the fifth day, though it is always becoming more and more serous from the beginning; but about the fifth day, it flows of a clear, or sometimes (though seldom) of a greenish tint; for, the mouths of the vessels growing gradually narrower by the contraction of the uterus, at last allow the serous part only to pass: as for the greenish hue, it is supposed to proceed from a dissolution of the cellular or cribiform membrane or mucus, that surrounded the surface of the placenta and chorion; part of which, being left in the uterus, becomes livid, decays, and, dissolving, mixes with and tinctures the discharge as it passes along.

Though the lochia, as we have already observed, commonly continue till the eighteenth or twentieth day, they are every day diminishing in quantity, and soonest cease in those women who suckle their children, or have had an extraordinary discharge at first; but the colour, quantity, and duration, differ in different women: in some patients, the red colour disappears on the first or second day; and in others, though rarely, it continues more or less to the end of the month. The evacuation in some is very small, in others excessive; in one woman it ceases very soon, in another flows during the whole month; yet all of these patients shall do well.

Some allege, that this discharge from the uterus is the same with that from a wound of a large surface; but it is more reasonable to suppose, that the change of colour and diminution of quantity proceed from the slow contraction of the vessels; because, previous to pus, there must have been inflammation and imposthume, but, in women who have suddenly died after delivery, no wound or excoriation have appeared upon the inner surface of the womb, which is sometimes found altogether smooth, and at other times rough and unequal, on that part to which the placenta adhered. The space that is occupied before the delivery, from being six inches in diameter, or eighteen inches in circumference, will, soon after the birth, be contracted to one third or fourth of these dimensions.

The lochia may produce much disorder by being deficient or redundant. When much defective, the belly swells; a heavy pain is felt there and in the loins, and sometimes in the groins also. There is heat and pulsation in the uterus, which produces restlessness and a fever; a full, hard pulse, pain in the head and back, a nausea, sometimes a vomiting, and a difficulty of breathing. The face looks red; the eyes are painful; the rigors of acute fever come on, fainting, cold sweats, a pulsation and heat of the uterus. The lochia in a natural case, diminish gradually; but sometimes disappear all at once, in the morbid suppression of them. Sometimes a delirium comes on, which, increasing, occasions convulsions and death; or the patient loses her senses and continues a lunatic. In suppressions of the lochia the cause must, if possible, be discovered and removed; but in many cases, nature herself supplies the deficiency, by the increase of milk, or of perspiration.

A redundance of the lochia may proceed from debility, a bad habit of body in the patient, or from fatigue in labours that have been unskilfully managed. The treatment will therefore depend on the cause. In other respects an attention is to be paid to the general health. Decoctions of cinchona, with the vitriolic acid and other invigorating remedies are usually prescribed; with a proper regulation of the patient's diet. Nervous or hysterical affections often accompany this state; in which case antispasmodics are usually exhibited. The treatment directed under the articles Milk-fever, Puerperal-fever, &c. may also be required in some cases of irregularity in the lochia.

LOCHIORRHŒ'A, (λοχιορροια, from λοχια, and ῥεω, *to flow*); an excessive discharge of the lochia.

LOCKED-JAW, *Trismus*; a species of tetanus. See Tetanus.

LOCULAME'NTA, or loculi, in botany, cells or pockets. The internal divisions of a capsule, or other dry seed-vessel, are so termed. These cells inclose the seeds, and are different in number in different plants. The term *loculus* is also sometimes used to express the minute divisions in some species of *antheræ*, which contain the pollen.

LOGWOOD. See Lignum campechense.

LO'HOCH, or loch, an Arabian name for those forms of medicine which are now commonly called *Lambatives*, or *Linctuses*.

LOMENTA'CEÆ, (from *lomentum*, a colour used by painters), in botany, the name of the 33d order in Linnæus's Fragments of a Natural Method, consisting of the following genera, many of which furnish beautiful tinctures that are used in dying; viz. adenanthera, bauhinia, cæsalpina, cassia, ceratonia, cercis, gleditsia, guilandina, hæmatoxylon, hymenæa, mimosa, parkinsonia, poinciana, polygama.

LONGEVITY, the protraction of human life to an unusual period. Of this sufficient notice has been taken in the article LIFE. It is, however, a subject by no means of mere curiosity and speculation, since an examination into its causes may enable the physician to suggest ideas of great importance to future ages. The mere preservation of health *whilst we live* is not so much the question here, as the preservation of health *as instrumental to a protracted existence.* The desire of self-preservation, and of protracting the short span of life, is so intimately interwoven with our constitution, that it is justly esteemed one of the first principles of our nature, and, even under circumstances of pain and misery, seldom quits us till the last moments of our being. It seems, therefore, to be no less our duty than our interest, to examine minutely into the various means that have been considered as conducive to this end; and, if possible, to distinguish such causes as are essential to it, from those which are merely accidental. But here it is much to be regretted, that in the otherwise accurate and circumstantial histories of the lives of persons remarkable for longevity, the particulars that relate to their diet, regimen, and the use of the non-naturals, have seldom been faithfully handed down to us; and without these, it is impossible to draw the necessary inferences. It is indeed matter of astonishment, that physiologists and philosophers have hitherto paid so little attention to longevity, since a full investigation of so interesting a subject, could not but prove highly useful to mankind. In order to furnish materials for a future history of longevity, the bills of mortality throughout the kingdom ought first to be revised, and put on a better footing, agreeably to the scheme of which Manchester and Chester have long given a specimen highly worthy of imitation. The plan, however, might be further improved, with very little trouble, by adding a particular account of the diet and regimen of every person who dies at 80 years of age or upwards; and mentioning whether his parents were healthy, long-lived people, &c. An accurate register, thus established throughout the British dominions, would be productive of many important advantages in society, not only in a medical and philosophical, but also in a political and moral view.

Longevity, of course, will essentially depend on a proper attention to the non-naturals, and on all the circumstances which tend to preserve invariably that proper balance of the constitutional powers which constitutes health. See HEALTH, and NON-NATURALS.

LONGI'SSIMUS DO'RSI, a muscle of the back. It is somewhat thicker than the sacro-lumbalis, yet greatly resembles it in shape and extent, and arises, in common with that muscle, between it and the spine. It ascends upwards along the spine, and is inserted by small double tendons into the posterior and inferior part of all the transverse processes of the vertebræ of the back, and sometimes of the last vertebra of the neck. From its outside it sends off several bundles of fleshy fibres, interspersed with a few tendinous filaments, which are usually inserted into the lower edge of the ten uppermost ribs, not far from the tubercles. Towards the upper part of this muscle there is a broad and thin portion of flesh, which crosses and closely adheres to the fibres of the longissimus dorsi. This arises from the upper and posterior part of the transverse processes of the five or six uppermost vertebræ of the back, by as many tendinous origins; and is usually inserted, by six tendinous and fleshy slips, into the transverse processes of the six inferior vertebræ of the neck. This portion of muscular fibres is described by Winslow and Albinus as a distinct muscle. The former names it *transversalis major colli*, and the latter *transversalis cervicis*. But its fibres are so intimately connected with those of the longissimus dorsi, that it may very properly be considered as an appendage to it. This muscle extends the vertebræ of the back, and keeps the trunk of the body erect. By means of its appendage it likewise serves to turn the neck obliquely backwards, and a little to either side.

LONGITUDINAL SINUS; a sinus of the brain. It is a triangular canal, that proceeds in the falciform process of the dura mater, immediately under the bones of the skull, from the crista galli to the tentorium, where it branches into the lateral sinusses. This sinus has a number of trabeculæ or fibres crossing it. Its use is to receive the blood from the veins of the pia mater, and convey it into the lateral sinusses, to be carried, through the internal jugulars, to the heart.

LONGUS CO'LLI; a muscle, which is situated close to the anterior and lateral part of the vertebræ of the neck. It is of tolerable size, and its outer edge is in part covered by the rectus internus major. It arises tendinous and fleshy within the thorax, from the bodies of the three superior vertebræ of the back, laterally; from the bottom and fore point of the transverse processes of the first and second vertebræ of the back, and of the last vertebra of the neck: and likewise from the upper and anterior parts of the transverse processes of the sixth, fifth, fourth, and third vertebræ of the neck, by as many small distinct tendons; and is inserted tendinous into the fore part of the second vertebra of the neck, near its fellow. This muscle, when it acts singly, moves the neck to one side; but, when both act, the neck is brought gradually forwards.

LONI'CERA DIERVI'LLA; the systematic name of a species of honeysuckle. See DIERVILLA.

LONI'CERA PERICLIME'NUM, the common honeysuckle. This plant was formerly used in the cure of the asthma; and topically for cleansing foul ulcers, and removing diseases of the skin. Modern practice, however, rejects it.

LOOL, a vessel made to receive the washings of ores of metals. The heavier or more metalline parts of the ores remain in the trough in which they are washed; the lighter and more earthy run off with the water, but settle in the lool.

LO'PEZIANA RADIX, or *Radix Indica lopeziana;* the root of an unknown tree, growing, according to some authors, at Goa. It is met with in pieces of different thickness, some of two inches in diameter or more. The woody part is whitish, and very light; softer, more spongy, and whiter next the bark, including a denser, somewhat reddish, medullary part. The bark is rough, wrinkled, brown, soft, and, as it were, woolly; pretty thick, covered with a thin paler cuticle. Neither the woody nor cortical part has any remarkable smell or taste, nor any appearance of resinous matter. This medicine has been described as remarkably effectual in stopping colliquative diarrhœas which had resisted other remedies. Those attending the last stage of phthisis were particularly relieved by its use. It seemed to act, not by an astringent power, but by a faculty of restraining and appeasing spasmodic and inordinate motions of the intestines. The celebrated Gaubius, who gives this account, compares its action to that of *simarouba*, but thinks it a more efficacious medicine.

LO'PEZ ROOT. See Lopeziana radix.

LO'PEZ I'NDICA RADIX. See Lopeziana radix.

LOPHA'DIA, or Lophia, (of the Gr. λοφαδια, or λοφια), ancient names for the first vertebræ of the back. *Lophia* also sometimes signifies the upper part of the back of the neck.

LO'RICA, (of the Lat. *lorica*, to crust over); in chemistry, the covering a glass or earthen vessel with a coat or crust of a matter able to resist the fire, to prevent its breaking in an operation that requires great violence of heat. See Crucible.

LOTION, in pharmacy, a form of medicine, compounded of aqueous liquids, used to wash any part with, or to apply on linen rags.

LOVAGE. See Levisticum.

LOVE-APPLE; the fruit of the *Solanum lycopersicum*, Linn. This is much used by the Portuguese and the Spaniards, as an ingredient in their soups and sauces. It is deemed cooling and nutritive, but has no material qualities as a medicine.

LOWER (Richard), an eminent English physician in the 17th century, was born in Cornwall, and educated at Westminster-school and Oxford. He instructed Dr. Willis in some parts of anatomy, especially when the latter was writing his "*Cerebri Anatomia*." In 1674, they discovered the medicinal waters at Ashop in Northamptonshire; which, upon their recommendation, became very much frequented. In 1666 he followed Dr. Willis to London, practised physic under him, and became Fellow of the Royal Society, and of the College of Physicians. In 1669 he published his "*Tractatus de corde*;" and, after the death of Dr. Willis, in 1675, he was esteemed the most eminent physician in London. "Upon the breaking out of the Popish plot in 1678," says Mr. Wood, in his *Athenæ Oxonienses*, "he closed with the Whigs, supposing that party would carry all before them; but, being mistaken, he lost his credit and practice." He died in 1691.

LOZENGE. See Trochiscus.

LUCID INTERVALS, the accidental or regular periods of intermission, in which the fits of mental derangement leave lunatic persons or maniacs. See Mania.

LU'ES, (from λυω, *to dissolve*, because it produces dissolution); a plague, or pestilential disease of any kind.

LU'ES VENE'REA, (from *Venus*, because propagated by venery); the *plague of Venus*, or *venereal disease*. Dr. Cullen names it *Syphilis*, and places it as a genus in the Class *Cachexiæ*, and Order *Impetigines*. He defines it a contagious disease, arising after impure coition, and a disease of the genitals; ulcers of the throat; corymbose papulæ of the skin, particularly at the margin of the hairy scalp, running in scabs and scabby ulcers; pain in the bones, and exostoses; of which he allows only one species.

It is the *Aphrodisius morbus*, *Morbus Gallicus*, *Indicus*, *vel Neapolitanus*, of authors; vulgarly called the *pox*. Astruc says it was brought from the Spanish West Indies into Spain in 1493. In 1494 it was carried from Spain to Italy; in 1495 it was propagated both in Naples and France; and from these last countries, all Europe was at length infected. That this disorder was unknown to the Greeks and Romans, appears from their absolute silence concerning it. All physicians who lived at the time when it appeared first in Europe unanimously declare their ignorance of it; farther than that it was brought into Europe at the close of the fifteenth century. The first instances of the disease upon record, as being imported from America, we find in the writings of one Boyle, a Benedictine monk, and in Peter Margarit, a noble Catalonian, in 1494. The origin of this disease, however, is traced much higher, even from the year 1193, by Dr .Swediaur.

The syphilitic virus is conveyed into the constitution by the lymphatics. If the infection is received by the penis, by means of the absorbents, or sometimes in consequence of mere irritation, and without any actual contamination of the virus, a bubo happens in the groin; for the lymphatics of the genitals pass through the inguinal glands. If the hand be infected, the axilla will be the seat of the bubo, for the same reason; and if at the lips, the glands in the neck will inflame. This disease never affects the viscera but it attacks the bones; and chiefly those that lie nearest the surface. Any bone in the body may be injured by it, though most commonly it is seated in the shin bones, the os frontis, clavicles, the bones of the arm near the joints of the elbows, and sometimes the ribs. Some external glands, as those of the palate, nose, skin, &c. are also apt to be affected by it.

This disease is always *propagated by contagion*. The venereal matter must be applied in a fluid state, either to some part where the mucus is very soft, as it is in the parts of generation, &c. or to a wound or ulcer, from whence it is carried into the constitution by the absorbents. That it may be given to a child from its mother during her pregnancy, and to a child during its sucking the nurse, are facts which authors have asserted, though Mr. Hunter thinks not upon very clear grounds; if we except, in the latter case, the existence of venereal ulceration on the breast or nipple. The venereal matter almost always occasions a conversion of the mucus of the part, or of the fluids of the ulcer or wound, into a matter similar to itself; and when a sufficient quantity has been thus produced, it brings on an inflammation in the part, affects the neighbouring glands, and is afterwards sometimes absorbed into the system. The first symptom of the disease therefore appears in the part where infection was received, at least in most instances.

Though lues venerea may be produced by any mode whatever in which the virus can be conveyed into the system; yet the most common source from whence it is received is from a previous chancre situated on the genital organs. (See CHANCRE). A bubo sometimes succeeds (see BUBO); and when the disease has existed long, ulcers form in different parts of the body, as in the throat, occasioning hoarseness, or perhaps a deafness, from their situation on the orifice of the Eustachian tube: or if these ulcers are very virulent, they eat through to the bone, and, soon after destroying it, a passage is formed from the mouth to the nose. Ulcers are also formed in the skin; beginning with a purplish spot or brown scab. When ulcers from this cause happen in the palms of the hands, the soles of the feet, behind the ears, about the anus, or the insides of the lips, they have the appearance of fissures; they ooze out a thin matter, and are attended with great soreness and pain. The scurf and scab with which these ulcers begin, are of a yellowish colour, inclining to brown, like the honey-comb. It appears on several parts of the body, by which circumstance these ulcers may be distinguished from all others. Sometimes they are broad, resembling the descriptions given of the leprosy by some writers; and the more this scurf spreads the easier the patient becomes. All these venereal eruptions are small, and most frequently are formed on the temples or other parts of the head, and when they scale off, they leave a mark nearly of a chocolate colour behind them. The venereal matter fixing on the eyes, produces an ophthalmia, and sometimes a loss of sight: falling on the ears, a deafness, and a caries of the bones take place. It very often happens that the periosteum is affected, and when the patient begins to grow warm in bed, violent pains are excited. These pains are seated in the head and in the middle part of the bones of the limbs. In the morning they abate, and during the day are rarely troublesome. Sometimes the periosteum thickens and becomes hard; forming thoſe tumors which are called nodes. Excrescences also arise on the glans penis, prepuce, anus, labia pudendi, &c. but these are seldom painful. Various other symptoms appear, when no means have been used to check the progress of the disorder; but the most formidable are those anomalous ulcers and other affections, which, though arising out of the venereal disease, are not curable by the same means.

The local and constitutional forms of the venereal disease, Mr. Hunter says, never interfere with each other. He observes, when treating of the gonorrhœa and chancre, that these do not interfere, when occurring in the same person, the one neither increasing the symptoms, nor retarding the cure, of the other. It may also be observed, that the chancre or gonorrhœa and the constitutional form of the disease meeting in the same person do not interfere with each other, either in their symptoms or cure; therefore a man may have any one of the kinds, and then get another without increasing the first, or having the last increased by the first.

"To explain these effects more fully," says Mr. Hunter, "if a man has a gonorrhœa, and a chancre appears some days after, the chancre does not either increase or diminish the gonorrhœa. Again, if a man has either a gonorrhœa, a chancre, or both, and a lues venerea ensue in consequence of either of these, neither the gonorrhœa nor chancre is affected by it. If a man has a lues venerea and gets either a gonorrhœa, or chancre, or both, neither of them affects the lues venerea, nor are their symptoms the worse. Nor is the cure of either singly, retarded by the presence of the other; for a gonorrhœa is as easily cured when there are chancres, as when there are none, even although the chancres are not attempted to be cured; and a chancre may be cured locally, independent of the gonorrhœa. Further, a gonorrhœa, chancre, or both, may be as easily cured, when the constitution is poxed, either by them, or previous to their appearance, as when the person is in perfect health; but the chancre has this advantage, that the constitution cannot be cured without its being likewise cured."

The gonorrhœa and chancre indeed so far influence one another, as the one can be, in some degree, a cause of prevention of the other; but it is probable that this circumstance does not assist in the cure of either, yet Mr. Hunter conceives it might, each acting as a derivator to the other, without increasing its own specific mode of action.

In his account of the phenomena of the lues venerea, Mr. Hunter reduces them to the following heads: He says, 1. That most parts, if not all, that are affected in the lues venerea, are affected with the venereal irritation at the same time. 2. The parts exposed to cold are the first that take on the venereal action; then the deeper seated parts, according to their susceptibility for such action. 3. The venereal disposition, when once formed in a part, must necessarily go on to form the venereal action. 4. That all parts of the body under such disposition, do not run into action equally fast, some requiring six or eight weeks, others as many months. 5. In the parts that come first into action the disease goes on increasing without wearing itself out, while those that are second in time follow the same course. 6. Mercury hinders a disposition from forming, or in other words, prevents contamination. 7. Mercury does not destroy a disposition already formed. 8. Mercury hinders the action from taking place although the disposition be formed. 9. The effect of mercury is to cure the action.

These principles being established, the facts respecting the cure are easily accounted for, and the several modes in which this specific is exhibited with that view, come next under consideration.

A lues venera is the effect of the poison which has circulated in the blood till it has irritated parts so as to give them a venereal disposition, which parts sooner or later assume the venereal action, according to the order of their susceptibility. When this matter is circulating, Mr. Hunter supposes certain parts to be irritated by it, and that a number of other parts escape, as is evidently the case with the chancre; for in the case of a chancre the whole glands, prepuce, and skin of the penis, have had the matter applied to them, yet only one or more parts are contaminated by it. All the others escape; and we often see, when the parts contaminated assume the action, it is confined to them without affecting other parts, although the disease be allowed to go on for a considerable time without any attempt to a cure: and also if these parts are imperfectly cured, the disease returns only in them; therefore these effects, although arising from the constitution, are in themselves entirely local, similar to the gonorrhœa and chancre, and like them may be cured locally; and, the person may still continue to have the lues venerea, although not in these, yet in other parts, because there may be many other parts in the same body that are under the venereal disposition, although they may not yet have assumed the venereal action. To cure the local and visible effects of the disease, we must attack it through that medium by which it was communicated, that is, the blood; without however considering the blood itself as a diseased part, or containing the poison, but as the vehicle of our medicine which will be carried by it to every part of the body where the poison was carried, and in its course will act upon the diseased solids. This practice must be continued some time after all symptoms have disappeared; for the venereal action may to appearance be stopped, and symptoms disappear, and yet all return again, the venereal action not being completely destroyed. If the medicine were also a cure for the disposition in the parts second in order, and could prevent their coming into action, it would be necessary to continue it somewhat longer on their account; but this is not the case, for the visible effects, symptoms, or appearances, in the first order of parts, give way to the treatment, while the parts that have only acquired the disposition, and are still inactive, afterwards assume the action and continue the disease. This deceives the surgeon, and leaves the ground-work for a second set of local effects in the parts second in order; but Mr. Hunter asserts that what will cure an action will not cure a disposition; if so, we should push our medicine no further than the cure of the visible effects of the poison, and allow whatever parts may be contaminated to come into action afterwards.

The parts that first assume the venereal action are easiest to cure; and Mr. Hunter suspected that those effects of the disease being external, were in some degree assisted in their cure, by the local action of the medicine, which evidently passes off through those parts.

When the disease has attacked the parts second in order of susceptibility, it generally happens that they are more difficult of cure than the former; therefore when they appear at the same time with the former, and are cured, we may be sure that the first will be also cured. From hence, as it would appear that the parts most susceptible of the disease are also easiest of cure, it follows that the parts least susceptible of the disease are also most difficult of cure: and Mr. Hunter believes, that this is seldom if ever reversed, therefore those second in order of susceptibility have this advantage, that we have the local complaints for our guide to judge of the whole; and in such we have only to continue the treatment till they all vanish, being certain that the cure of the first, if there are any, will be involved in those of the second.

As the second are attended with more tumefaction or swelling than the first, it becomes a question, whether the mercurial course should be continued till the whole has subsided. There can be no occasion for continuing the course longer than the destruction of the venereal action; but this effect of mercury, unfortunately, is not easily known, therefore it will be necessary to pursue the method of cure *till the appearances become stationary*, and probably *a little longer*, to destroy the whole action of the disease.

In the lues venerea, mercury is the great specific, (See MERCURY), and hardly any thing else is to be depended upon. It is necessary that we should always consider well the effects of the medicine, both on the constitution at large, and the disease for which it is given. The effects of mercury on a constitution, will always be as the quantity of mercury in that constitution; and when the same quantity affects one constitution more than another, it is in the proportion of the irritability of that constitution, to the powers of mercury, entirely independent of any particular preparation, or any particular mode of giving it.

With regard to the preparations of the medicine, and the modes of applying it, we are to consider two things: first, the preparation and mode that is attended with the least trouble or inconvenience; and secondly, the preparation and mode of administering it that most readily conveys the necessary quantity into the constitution. Mercury acts on all parts of the human machine, cures those which are diseased, affecting but little those that are sound. It is carried into the constitution in the same way as other substances; either externally by the skin, or internally by its absorption from the surfaces of the alimentary canal. It cannot however in all cases be taken into the constitution in both ways; for sometimes the absorbents on the skin will not readily receive it; whilst, on the other hand, it sometimes happens, that the internal absorbents will not take it up, or at least no effect is produced either upon the disease or constitution by mercury. In such cases, Mr. Hunter says, it is right to try all the different preparations; for it will sometimes happen that one preparation will succeed better than another. Some surfaces also absorb this medicine better than others; and most probably that of the bowels is the best. We find, however, that, in many patients, the bowels can hardly bear mercury at all, therefore it is to be given in the mildest form possible; also joined with opium, or such other medicines as will lessen or correct its violent local effects, without detriment to its specific action.

In general the external method by inunction, or fumigation (See FUMIGATION), is preferable to the internal, because the skin is not nearly so essential to life as the stomach. In this way it also injures the constitution much less; for the many courses of mercury which are sometimes found absolutely necessary, would kill the patient if taken by the stomach. Many preparations have been invented; but any one that produces an effect different from the specific, such as sweating or an increased discharge of urine, must be supposed either not to act as mercury, or the substance with which it is compounded produces this effect; but if its peculiar effects are less than usual, we may suspect that the mercury is acting not entirely as it ought.

Mercury, like many other medicines, has two effects, one upon the constitution and particular parts, which is according to its mode of irritation, independent of any disease whatever: the other is, its specific effects upon a diseased action of the whole body, or of parts, whatever the disease be, and which effects are only known by the disease gradually disappearing. The first becomes an object of consideration for the surgeon, as it is in some measure by them he is to be guided in giving this medicine, so as to have its specific effects sufficient for the cure of the disease. The part upon which mercury is most likely to fall, is the mouth; and Mr. Hunter says we are not possessed of any means either of driving it thither, or of preventing it from attacking that part.

In *giving mercury* in the lues venerea, the first attention should be to the quantity, and its visible effects in a given time; which when brought to a proper pitch, are only to be kept up, and the decline of the disease to be watched: for by this we judge of the invisible or specific effects of the medicine, which will often inform us that some variation in the quantity may be necessary. The visible effects are of two kinds, the one on the constitution, the other on some parts capable of secretion. In the first it produces irritability, making it more susceptible of all impressions. It quickens the pulse, increasing its hardness, so as to produce a kind of temporary fever: but in many constitutions, it exceeds this, acting as it were as a poison. In some it produces a kind of hectic fever, that is, a small quick pulse, loss of appetite, restlessness, want of sleep, and a sallow complexion, with a number of consequent symptoms; but after the patient is a little accustomed to the use of it, these constitutional effects commonly abate.

Mercury often produces pains like those of the rheumatism, and also nodes, which are of a scrofulous nature: hence it has been accused of affecting the bones, "lurking in them," as authors have expressed it; but all this is visionary in the extreme.

Various are the preparations of mercury recommended for internal use, while practitioners have generally been satisfied with but one for external application. Every practitioner finds some one of the preparations answering better, to appearance, in some one case than another, which casts the balance in favour of that medicine in his mind; or others, finding the bad effects of a particular preparation at some one time, have generally condemned that preparation; not to mention that deceit is often practised in the cure of this disease. One would naturally suppose that the simplest preparation is the best, that which is easiest dissolved in the animal juices, does least mischief to the stomach, or general health, and is least disturbed or hindered in its operations. For we can hardly suppose that any substance joined with mercury, which alters either its chemical or mechanical properties out of the body, can add to its power in the body; except a substance which had a similar power when acting alone. The preference generally given to ung. hydrarg. shows this; and if we could find a preparation still more simple than the ointment, that preparation should be used in preference to the crude mercury.

Formerly it was held as a rule, that a *salivation* ought to be raised, and a great discharge excited. But this is now found to be unnecessary: for as we have shewn that mercury acts by its specific power over the venereal virus, all that is required is to throw in a sufficient quantity for this purpose; and if it can be *diverted* from the salivary glands so much the better, since the inconveniences attending a spitting are such as we should always wish to avoid. To accommodate the inexperienced practitioner, we add some of the most approved formulæ; beginning with the *Pil. hydrarg.* of the London college:

℞ Hydrargyri purificati,
Extracti glycyrrhizæ, mellis crassitudinem habentis, sing. ʒij.
Glycyrrhizæ in tenuem pulverem triti ʒj.
The quicksilver being divided by triture with the extract, the powdered liquorice is to be added.

The late Dr. Kirkland employed the following, under the name of the *quicksilver pill:*

℞ Hydrargyri purificati ʒj.
Mucilaginis arabici gummi ʒiij.
Amyli in pulverem triti q. s.
Fiant pilulæ cxx. Dosis j. ad iij. mane et nocte.

Dr. Fordyce directs the following:

℞ Hydrargyri ʒj.
Terebinth. venet. ʒiss.
Terantur simul, quamdiu guttula hydrargyri appareat, addendo guttas aliquot olei terebinthinæ, si opus sit.
Dein cum. q. s. pulv. glycyr. fiant pilulæ lxxx. cap. j. vel ij. mane et vesp.

℞ Hydrarg. purif. gr. x.
Sacchari non purif. ℈j.
Cons. cynosb. q. s.
Fiat bolus omni nocte sumendus.
The quicksilver and mucilage are to be rubbed together, and the starch added by little and little, till the globules are extinguished, and the whole forms one uniform mass. The process, conducted in this way, is much more expeditious than the foregoing,

and there is less chance of the revivification of the quicksilver. Four grains of mercury are contained in each pill.

℞ Hydrargyri purif. gr. x.
Cons. rosæ rub. ℈j.
Tere simul donec globuli visum effugerint, et fiat bolus hora somni sumendus.

Mercury, combined with the mineral acids, has its activity prodigiously increased: hence the great variety of chemical preparations of this kind which have been contrived. All have been found capable of curing the disease, though by no means with uniform facility. On the contrary, as has been observed above, it is often a matter of indispensable necessity to change the preparation employed, for some other; and this should put us on our guard, not to persist obstinately in the use of any one preparation, merely because we have been accustomed to succeed with it in similar cases.

In the different hospitals, as well as in private practice, recourse is had to the following formulæ:

℞ Hydrargyri acetati ʒj.
Medullæ panis ʒij.
Fiant pilulæ lx. Dosis ij. ad v. omni nocte.

℞ Hydrargyri præcipitati cinerei ʒj.
Conservi cynosbati q. s.
Fiant pilulæ lx. Dosis j. ad iij. mane et nocte.

℞ Hydrargyri vitriolati;
Opii, sing. ʒj.
Syrupi simplicis q. s.
Fiant pilulæ lx. Dosis j. ad iij. omni nocte.

℞ Calomelanos ʒj.
Pulveris *opiati* (Ph. Lond.) ʒiii.
Syrupi simplicis q. s.
Fiant pilulæ lx. Dosis ij. and iv. mane et noct.

℞ Calomelanos gr. v.
Opii in pulv. trit. gr. j.
Cons. cynosbat. q. s.
Fiat pilula; omni nocte sumenda.

℞ Calomelanos ʒj.
Antimonii tartarisati gr. xv.
Opii purificati ʒss.
Syrupi simplicis q. s.
Fiant pilulæ lx. Dosis j. ad iij. omni nocte.

Whatever preparation we employ, we should give it in such a manner, and in such a dose, as to produce hardness, fulness, and moderate frequency of the pulse, with as little sensible evacuation as possible; for the mercury cures sooner, and with greater certainty, when the strength is but little, than when it is greatly reduced by it. Therefore, unless the case be very urgent, we are to begin with small doses at first, and afterwards gradually to increase them. Dr. G. Fordyce advises the giving opium and antimony, or now and then a small dose of rhubarb, if the intestines are affected; and omitting the medicine for two or three days, if there be symptoms of salivation, till these are gone off. See SALIVATION. If any of the above preparations should purge the patient, the doctor recommends,

℞ Opii gr. $\frac{1}{3}$ ad gr. j.
Antim. tart. gr. $\frac{1}{3}$ ad gr. ss.
Misce fiat pilula; mane et vesper. sumend.

Hydrargyrus muriatus is one of the most irritating of all the mercurial preparations, insomuch as not to be given but in very small doses. It therefore cannot be employed in substance; but must be dissolved, in order to render it capable of a more minute division. We may see, by looking into Wiseman, that this is an old medicine, though seldom given by regular practitioners. How it came to be introduced into so remote a part of the world as Siberia, is not easily found out; but Dr. Clerc, author of the *Histoire Naturelle de l'Homme Malade*, assures us, that this remedy has been used there time out of mind. It was, however, totally forgotten in other places, till Van Swieten brought it into vogue. At one period, if we may credit Dr. Locher, they used no other mercurial preparation at Vienna: and the number of patients cured by this remedy alone, in the hospital of St. Mark, from 1754 to 1761 inclusive, was 4880. The solution given, was in the proportion of half a grain, to an ounce of proof spirit. The dose to a grown person was one spoonful, in a pint of barley-water, morning and evening. The pharmacopœias of St. Bartholomew's and St. Thomas's hospitals, in London, furnish the following modes of exhibiting this remedy:

℞ Hydrarg. muriat. gr. viij.
Ammoniæ muriatæ ʒij.
Aq. distillat. lib. j.
Solve et cola. Dosis uncia dimidia bis die.

℞ Hydrarg. muriat. gr. viij.
Sp. vinosi ten. lib. j. Misce.
Dosis cochleare unum ex aqua hordeata bis die.

But though extensive trials of this preparation were made, as well on the continent as in Britain, it appears by no means an infallible remedy. On the contrary, as Sir John Pringle observes, it was seldom if ever found to perform a *radical cure;* and the frequent use of it proved in many cases highly prejudicial. Dr. Fordyce says, the compounds of mercury and acids are uncertain remedies, and ought never to be used, unless the patient be in a situation where he runs the greatest risque of catching cold.

At Vienna, the use of this preparation was superseded in practice, by mercury united with mucilage. This remedy was first recommended by Plenck, and has since been improved upon by Dr. Saunders, of London. It is thus described in the "Pharmacopœia Chirurgica," under the name of *syrupus hydrargyri*:

℞ Hydrargyri purificati ʒj.
Pulveris arabici gummi ʒiij.
Syrupi simplicis ℥ij.
Aquæ fumariæ ℥j.

The quicksilver being rubbed down with the gum and the syrup, the rain water is to be afterwards added. From two to three tea-spoonfuls are given night and morning.

Of a nature analogous to the foregoing is the *hydrargyrus calcinatus*, a preparation which has been exhibited in the following way, and with the greatest effect.

℞ Hydragyri calcinati;
Opii purificati;
Camphoræ, sing. ʒj.
Syrupi simplicis q. s.
Fiant pilulæ lx. Dosis j. vel ij. omni nocte.

℞ Hydrargyri calcinati gr. x.
Pil. opii (Ph. Lond.) ʒj.
Mucil. gum. arabic. q. s.
Fiant pil. xx. Dosis j. ad iij. omni nocte.

We might add very considerably to this list, but the works of different writers may be consulted for farther variety.

Where, after a long trial of mercury, distressing symptoms still remain, particularly obstinate ulcerations, and severe pains, benefit has often been derived from the use of opium: but there is little reason to believe, as has been held by some, that *of itself* it affords an infallible cure of this disease; at least, we are inclined to think, that all the facts, hitherto brought in support of the cure by opium alone, are, at the utmost, very doubtful, if not decidedly erroneous.

A remedy which has been still more recently tried, and which, though perhaps not competent to the cure independent of mercury, nevertheless promises to be of considerable importance, is the *nitrous acid*. This has been already demonstrated, by Dr. Rollo, in a number of instances, to have been of service; but for the sake of doing the subject the justice it deserves, we shall reserve it for the article Syphilis.

In obstinate ulcerations, remaining probably after the venereal virus has been overcome, and resisting the use of mercury, a complete cure has, in many instances, been obtained from the root of the *Daphne Mezereon*, Linn. given in decoction:

℞ Cort. rad. mezerei ʒij.
Aq. fontis ℔iij.
Coque ad colat. ℔ij. quotidie sumend.

Another celebrated remedy in these anomalous cases, is known under the title of *Lisbon diet-drink*, of which one or other of the two following is said to be the receipt; though some suppose it nothing more than the *Decoct. sarsapar. comp.* of the London Pharmacopœia.

℞ Radicis sarsaparillæ incisæ;
Ligni santali rubri;
Ligni santali citrini, sing. ℥iss.
Radicis glycyrrhizæ;
Radicis mezerii, sing. ʒij.
Ligni rhodii;
Ligni guaiaci officinalis;
Ligni sassafras, sing. ʒss.
Antimonii unc. j,
Aquæ distillatæ lib. v.

These ingredients are to be macerated for twenty-four hours, and afterwards boiled till the fluid is reduced to half its original quantity. From one to four pints are given daily.

℞ Radicis sarsaparillæ incisæ;
Radicis chinæ, sing. ℥j,
Nucum juglandis cortice siccatarum No. xx.
Antimonii ℥ij.
Lapidis pumicis pulverisati ℥j.
Aquæ distillatæ lib. x.

The powdered antimony and pumice-stone are to be tied in separate pieces of rag, and boiled along with the other ingredients.

Some place great confidence in the decoctions of the *astragalus exscapus*, or *lobelia syphilitica*, as possessing specific powers in syphilis, but they are not yet established by sufficient experience. See Astragalus and Lobelia. Upon the whole, however, the sequelæ of this disease are as much influenced by sea-bathing, country air, gentle exercise, and nourishing diet, particularly a milk-diet, as by the use of any medicine. Various practices, accommodated to the nature of the symptoms, will, on particular occasions, be requisite; and these may be fully known by consulting the late Mr. Hunter's treatise on the venereal disease.

The treatment of Chancre and Bubo has been noticed under their proper heads.

LU'JULA, the *Acetosella*, or wood-sorrel. It is the *Oxalis acetosella* of Linnæus. See Acetosa.

LUMBA'GO, (from *lumbus*, the loin); a rheumatic affection of the muscles about the loins. A liniment of soap and spirit of turpentine has been found of great service in this complaint. It is, in general, to be treated as chronic rheumatism. See Rheumatism.

LUMBAR ABSCESS, or Psoas abscess; a species of *Arthropuosis*, that receives its name from the situation in which the matter is found, namely, upon the side of the psoas muscle, or betwixt that and the iliacus internus. Between these muscles there lies a quantity of loose cellular membrane, in which an inflammation often takes place, either spontaneously or from mechanical injuries. This terminates in an abscess that can procure no outlet but by a circuitous course, in which it generally produces irreparable mischief, without any violent symptoms occurring to alarm the patient.

All authors are agreed as to the disease being a termination of inflammation, but some differ materially as to the circumstances under which it takes place. Mr. Pott thinks this disorder originates in the lymphatic glands, near the receptaculum chyli, the vertebræ about which are generally diseased and carious in these cases. Mr. Justamond ascribes its origin wholly to caries of the vertebræ. Mr. Abernethy thinks that this abscess being frequently connected with, and often causing a caries of, the bodies of the vertebræ, is too prevalent an idea; because the cellular substance *interposed between the peritonæum and the loins* is the common seat of it. This substance is in greater quantity at the sides, where it connects that membrane to the psoas and quadratus lumborum muscles, than in the middle, where it attaches to the spine. Where this substance is most abundant, there most frequently these abscesses are formed; and this probably is the reason why we generally find them limited to either side of the vertebræ, and seldom extending across them. If matter were formed in the middle, opposite to the bodies of the vertebræ, Mr. Abernethy says, its gravity and the want of resistance would determine the descent to either side. As the peritonæum would readily yield to the protrusion of the matter collected behind it, the cellular substance connecting it to the vertebræ would be easily separated; but the pressure which the collected pus would make against these bones would be quite insufficient for the production of disease. The matter of such an abscess is perfectly mild, and could not stimulate, except by its mechanical properties. Therefore it is improbable that a caries of the bones should be the consequence of an ordinary lumbar abscess. Dr. Hunter has observed, that matter is sometimes lodged in this part at the crisis of a fever; and he also had seen instances of matter proceeding from the liver into this situation, after making its way through the peritonæum. As there is a great quantity of cellular membrane over the psoas muscle, and a considerable way toward the skin, the matter seldom points outwardly on the back, where it is formed; but running down, in the course of the muscle, makes its way into the groin, thigh, ham, the inner condyle of the os femoris, &c.: or when on the right side, it may penetrate the colon, which lies upon it, and thereby occasion a large discharge of matter per anum, and possibly a fistulous sore.

The symptoms in the beginning are a good deal similar to those of inflammation of the liver, except with regard to the situation of the pain; and the progress and termination of the disease too is like that of the liver. The pains are situated in the back, for the most part, rather lower down than the region of the kidneys. They are but slight; and so moderate are the symptoms for a time, that frequently it has not been at all attended to till suppuration has taken place. This circumstance should make us not a little attentive to such complaints from our patients; for when the inflammation is recent, it may be checked. Many a lumbar abscess might be prevented by the early use of bleeding, purging, and such other means as are proper in other inflammations; especially if aided by local applications, such as cupping, with scarifications, blisters, fomentations, setons in the loins, &c. which promise advantage by deriving inflammation to the surface.

After the abscess is formed, the pain often becomes greater than before; for, the pus accumulating in the cellular membrane, spreads itself, and produces a great degree of general inflammation by its pressure in all directions. Communicating with the cellular membrane in other parts, the pus sometimes makes its way through the peritonæum into the cavity of the abdomen, when a fatal hectic arises. Or the matter may pass down the psoas muscle, and make its exit externally, a little further than the inguinal glands; or it may pass further down the thigh, dissect the muscles, and there form sinuous abscesses. Sometimes the matter passes through the muscles of the back, but may take its course along the cavity of the back part of the pelvis. Thus it appears that the pus is capable of passing several different ways, and may communicate with all the parts at once; which renders it a dangerous abscess, not so much with regard to its size, as to the peculiarity of its circumstances, and the parts which it affects.

Usually the first symptom that the patient feels in these cases, is not where the disease originates, but a pain in the lower part of the thigh of the side affected. He stands more on his toes too, yet does not complain of the part for some time: but by attending to the history of the case from the beginning, and examining him by laying the person affected on his back, lifting up his thigh, and, between inspiration and expiration, carefully feeling the part, we shall probably feel the tumor, near, or in the region where, the disease originates. The leg of the affected side seems to be shorter than the other, but it is not really so. In some cases the disease proceeds rapidly, in others very slowly: but at length it appears in the groin, on the affected side; the muscles of the thigh become exceedingly emaciated, and the whole body wastes. When it proceeds thus far, the patient rarely, if ever, recovers; but the hectic fever that generally attends closes the scene.

This disease is often confounded with the abscess of the hip-joint; yet they are very distinct and different in their origin, seat, and progress. The lumbar abscess, as Mr. Pott has observed, originates often in the lymphatic glands, near the receptaculum chyli, the vertebræ about which are sometimes diseased and carious; though, in other instances, it originates in or about the loins, if not higher in the abdomen. The hip-joint abscess originates in the hip-joint; the leg of the affected side is shorter than the other; and the pain begins in the part where the disease originates, and about the great trochanter. A stone in the kidneys has also been taken for this disease; but there is this difference between them: the stone in the kidney will sometimes produce but slight inflammation, but at other times very considerable; besides, the pain reaches from the kidneys, down the groin, to the bladder; stony concretions pass, and sometimes there is blood with the urine; which symptoms do not exist in the lumbar abscess.

It has been said, that a symptomatic fever generally attends this complaint, and proves fatal; but, what is very remarkable, this fever does not come on during the time the pus is confined, nor to any great degree, for forty-eight hours even after it has been let out.

This circumstance is extraordinary, as it cannot arise from the absorption of matter, for that must have been greater before the opening; nor from a wasting in consequence of the evacuation of the matter, as that was before extravasated, and was an extraneous body with respect to the constitution. Without supposing it to arise from a change produced on the cavity of the abscess by the admission of air, we must, therefore, be at a loss to know why the symptomatic fever does not occur till after the discharge of the matter. This subject, however, more particularly belongs to the article Hectic; where the ingenious opinions of the late Mr. Hunter are fully expressed.

The lumbar abscess, whilst in its incipient state, is generally neglected or mistaken; otherwise it very probably would be cured, or rather prevented, by a vigorous application of the common means of resisting the progress of inflammation. Dr. G. Fordyce says, it should be treated in the same manner as hepatitis, except as far as regards the difference of situation, both in the state of inflammation and suppuration. In all internal suppurations, he says, the lungs become affected; whence hectic is produced, and thence it is necessary, if the patient resides in a large town, that he should remove into the country for the benefit of air. The late Dr. Wm. Hunter, as affording the most likely means to prevent a fatal termination of this disease, advises our endeavouring to keep up the patient's strength sufficiently to enable him to undergo the discharge; which is most likely to be accomplished by a nourishing diet, pure air, cinchona, with the acid of vitriol, &c. Mr. Benj. Bell, on the other hand, rejecting the idea of a natural cure, advises the earliest possible evacuation of the matter. He has usually given vent to matter here as in common abscesses, and no bad consequences have been observed. The matter, when long lodged, he says, has been found to destroy the soft parts and bones, and sometimes to make its way into the cavity of the abdomen; all of which might be prevented by an early evacuation. For this purpose, he advises, that a trocar should be used: this, indeed, was tried by Mr. Bell, in one case, with complete success.

Mr. Abernethy, surgeon to St. Bartholomew's hospital in London, has suggested a mode of treatment which seems to hold a middle rank between these extremes; and to this he was led by the following considerations. He observes, that whilst the condensed cellular substance, which forms the cyst of an abscess, remains entire, it continues free from inflammation, and the contained pus suffers no putrefaction, or evident alteration of quality; but whenever the abscess is opened, either by ulceration or the hand of the surgeon, a sudden and generally a very considerable inflammation extends itself over the whole cyst: this is followed by a copious discharge frequently of fœtid pus, circumstances that cannot but derange and greatly exhaust the constitution of the patient, which is generally irritable, and already much enfeebled by the effort attending the formation of the disease. It is well known, that when we evacuate fluids from the cavities of the body, if we immediately close the aperture through which they were discharged, we prevent the inflammation which would otherwise ensue; and also that if the matter of an abscess is discharged, its cavity becomes much diminished by the contraction of the cyst; which contraction will be greater in a chronic lumbar abscess than in those of a more phlegmonoid nature. From these observations, it occurred to him, that if, after the evacuation of a lumbar abscess, the aperture were directly closed, and its immediate union procured, no inflammation of the cyst would succeed, which being now relieved from pressure, would, by its contraction and rarefaction, greatly diminish the cavity. The pus, no doubt, would reaccumulate; yet, he thought, by repeatedly evacuating this fluid before a complete distension of the cyst could happen, that the cavity would be so much reduced, and the cyst rendered so much less extensive, that the future admission of air would be productive, comparatively, but of little consequence.

The practice founded on these principles, answered the intention of Mr. Abernethy in some instances, in which the treatment was pursued on the following plan. The pus was discharged by introducing a lancet through the integuments, then passing it obliquely for a small distance between the skin and the fascia, and by depressing the point of the lancet a puncture was made in the cyst. The matter should be drawn off in an uninterrupted current, if possible, and the abscess completely evacuated; after which, the aperture should be immediately and exactly closed, by dressing the orifice (made in a longitudinal direction with regard to the thigh) with lint, and bringing the edges into close contact with sticking plaster, as wounds made in bleeding are commonly treated. The second discharge of the pus was generally postponed for a fortnight: but if the cavity soon filled again, and the newly healed punctures were irritated by the pressure of the contained fluid, there was an absolute necessity for evacuating the contents of the abscess at an earlier period. And in this mode the matter was evacuated by Mr. Abernethy, from time to time, until the abscess became so superficial as to be treated in the method common on such occasions.

In aid of these means Mr. Abernethy gave some of his patients *emetics* of vitriolated zinc and copper; kept up an eruption of pimples on the skin covering the abscess, by rubbing it with a strong solution of tartarised antimony; and passed gentle electric vibrations daily from the loins through the front of the thigh, and also through the abscess. He always found that abscesses, evacuated in the foregoing manner, filled again to one half or two thirds of their original quantity in the space of a fortnight. He afterwards found no occasion for being extremely solicitous to puncture the tumor in such a manner that the *inner part of the aperture* might act like *a valve*, to prevent any matter from oozing out, so as to keep the orifice open. Great care in this respect proving to be quite unnecessary, "I now," says Mr. Abernethy, "make the opening with very little obliquity, and by using a broad abscess lancet, the wound is generally sufficient to give a discharge to those coagula which are so frequently found in the matter. I always completely empty the abscess, and then bring the lips of the orifice together by means of lint and sticking-plaster, as after the operation of phlebotomy; and over these a compress and bandage are applied. I dress the wounds every second day, and of late have found little difficulty in healing them, though many of them granulate before they completely unite. The only troublesome circumstance that has lately occurred to me, has been an enlargement of the lymphatic glands on the front of the thigh, at the place where the abscess has been opened.

"With regard to the *time of repeating the operation*, it must be regulated entirely by the circumstances of the case; the matter collecting much faster in some persons than in others. It is best, I think, to wait until the integuments are sufficiently elevated to allow of a puncture being made in them without any hazard of wounding the vessels underneath. Many patients bear even the first discharges without any loss of strength, notwithstanding the quantity of matter evacuated is very considerable: and almost all that I have seen, improved in health under the subsequent ones. The great disturbance that ensues, when, either by accident or design, a permanent opening is made in a lumbar abscess, should render surgeons extremely anxious to avoid such an occurrence altogether, if possible, or at least to delay it for a considerable time: and although the danger and the sufferings of the patient, when the abscess is opened, will be much greater where there is disease of the vertebræ; yet this caution cannot be disregarded with safety, even when there is no reason to suspect any morbid condition of the spine."

Mr. Abernethy says, where the vertebræ are sound, the disturbance excited by opening the abscess will in general subside gradually, and the wound will at last become indolent; in which state it may remain for a considerable time before it entirely heals, but without affecting the patient's constitution. Perfect *quietude* seems indispensably necessary in the irritable state of this disorder. He thought issues were very useful in some cases; but in others he could not perceive much advantage from them. A *solution of opium injected*, in one case, seemed beneficial, though it did not ascend above Poupart's ligament. From reflecting that the state of the constitution follows, and corresponds with, that of the abscess, it seems probable, that injections may be useful, in preventing the cyst, when exposed, from acquiring that morbid condition which induces hectic. In the records of former practice, we read of many extensive abscesses, into which irritating injections were daily thrown. According to the ideas which now prevail among surgeons, the additional irritation excited by these, would be supposed to create great mischief; yet, we are told that these patients recovered perfectly, and perhaps for the very reason Mr. Abernethy has suggested, viz. because the abscess was prevented from falling into the peculiar morbid state which induces hectic fever.

To inject the cavity of a lumbar abscess, a flexible pipe, or hollow bougie, must be introduced into it from beneath Poupart's ligament. In general, however, it will require a new opening to be made through the skin and fascia below Poupart's ligament, in order to effect the easy introduction of such a canula.

For the medical treatment of this disease, see the article Hectic.

LUMBA'RIS EXTERNUS. See Quadratus lumborum.

LUMBA'RIS INTERNUS. See Psoas magnus.

LUMBRICA'LES MANUS, (called *lumbricales*, from their resemblance to the *lumbricus*, or earthworm); the four small fingers of the flexors of the fingers which assist the bending of the fingers when the long flexors are in full action. They arise thin and fleshy from the outside of the tendons of the flexor profundus, a little above the lower edge of the carpal ligaments, and are inserted by long slender tendons into the outer sides of the broad tendons of the interosseal muscles, about the middle of the first joint of the fingers. These muscles have also been named *Fidicinales*.

LUMBRICA'LES PEDIS; four muscles resembling the former, that increase the flexion of the toes, and draw them inwards.

LUMBRICOI'DES, (from *lumbricus; à lubricitate*, from its slipperiness), *Ascaris lumbricoides*, or *Lumbricus teres;* a species of worm which inhabits occasionally the human intestines. In Vol. V. of Memoirs of the Med. Soc. of London, Dr. Hooper has given a full account of this and other intestinal worms.

When full grown, the *ascaris lumbricoides* is from twelve to fifteen inches in length; and in circumference equal to that of a goose quill. See Pl. XV. The *head* is to be distinguished from the tail by a small contraction, very obvious when the worm is lying down: it is trilobated, having three vesicles, and a triangular aperture, between which is the mouth. These three globose papillæ are joined together at their basis, and are of the same colour as the rest of the worm. The *tail* may be known from the head by its very acute termination, close to which is a large orifice, the extremity of the intestinal canal, which has been therefore termed the anus. The *body* is that part between the two extremities, forming nearly the whole of the worm: it puts on a rugose appearance, and has a line very apparent, running one ach side, and extending from one end to the other. Between these two lines are two other lines running parallel with the former, scarcely visible. Near the middle of the body (rather towards the head) is a circular depression of about the one-fourth of an inch in extent, in which is a very small punctiform aperture. This depressed band is regular in its appearance, when the body of the worm is distended, although it would appear to be wanting when collapsed, in which state it mostly is voided.

These worms generally are found in the small intestines, and of these more frequently in the course of the jejunum and ileum. Sometimes they are known to ascend through the duodenum into the stomach, and we have frequently seen them creep out at the mouth and nostrils. It happens but rarely, that they descend into the tract of the large intestines, and then only after the exhibition of vermifuges, or from other causes, which increase the peristaltic motion. They have also been detected *post mortem* in the ductus communis cholidochus; and instances are related, where they have remained a considerable time in the gall-bladder.

In general they are very numerous: Dr. Hooper speaks of a girl, eight years old, who voided *per anum*, upwards of two hundred in the course of a week; between thirty and fifty is a very common number. Nevertheless instances frequently occur of their being solitary. When recently excluded they are transparent, and appear as if they had been sucking water tinged with blood; this colour, however, soon disappears, and they become at length of a light and opaque yellow. When voided they are, in general, very feeble, and soon die in spite of all attempts to keep them alive. If, however, they are suddenly evacuated by a drastic purge, and immediately put into warm milk and water, then they sometimes survive, and appear very active. Their motion is serpentine, and in no respect resembles that of the lumbricus terrestris, or earth-worm, which has the power of considerably diminishing its length and again extending itself. Whereas that of the lumbricoid ascaris is never diminished, the head is always sent forward by the worm curling itself into circles, and suddenly extending it, with considerable force, to some distance.

It is said that the ascaris lumbricoides is not hermaphrodite, but that the male and female are distinct worms. The worm which is here described is considered as the female, and all the observations Dr. Hooper has given, are made from one of that sex. Nevertheless, he observes, though he examined a very considerable number of these animals, he never could see any other appearances than those related. The Doctor's anatomical account of this worm is exceedingly ingenious.

Fig. 1, in the plate, represents the worm as it appears when recently voided from the bowels. *a.* The head. *b.* The tail. *c*, The depressed band. *d.* The punctiform aperture. *e.* The line extending from the head to the tail. *f.* The gyrated apparatus, as it appears through the skin of the worm.

Fig. 2. represents the viscera of the worm in their natural situation; the sides of the skin being fixed close down by pins. *a.* The head. *b.* The œsophagus. *c.* The intestinal canal. *d.* The lines of the body of the worm. *e.* The uterus, and its convoluted appendices.

Fig. 3, represents the uterus, its bifurcation, and its appendices, as they appear when unravelled.

Fig. 4, represents a portion of the worm, as it sometimes escapes from the bowels: part of the convoluted apparatus protruding through the parietes of the abdomen.

Fig. 5, represents the head enlarged by the microscope, in which the three vesicles, and the triangular mouth, are seen very distinctly.

Fig. 6, represents the anus and termination of the perpendicular line.

In Vol. II. of the work already referred to, Mr. Church has supposed this worm to be viviparous; which Dr. Hooper says is a mistake, probably arising from his not having attended to the internal structure of the animal; for the thread-like appearances, which that gentleman has taken to be *the young worms*, are no more than portions of the gyrated apparatus, or Fallopian tubes, which Dr. Hooper has described; and which always protrude, when the skin of the worm is broken, as generally happens after an increased peristaltic motion of the intestines. But the most convincing proof of these animals being *oviparous*, he says, is the detection of ovula in the mucus surrounding them in the intestines, which do not differ, in any respect, from those in the uterus of the worm.

The long round worm of the human intestines has, for many centuries, been considered of the same species as the earth or lob-worm (*Lumbricus terrestris*, Linn.). This, Dr. Hooper alleges to be a fallacy, which he demonstrates in the following way: "The lumbricus terrestris has but *one vesicle* at its head, in the middle of which is its mouth; it is flat towards the tail, and is furnished with sharp bristles on its under surface, that serve it for feet, which the animal can erect or depress at pleasure; its annular muscles are very large and strongly marked, and its colour of a dusky red. Whereas the lumbricoid ascaris has none of these *phenomena*. As was before noticed, its colour is a pale yellow, its muscles too are very delicate, and its head furnished with *three vesicles*. Upon the under surface of the earth-worm there is a large semilunar fold in the skin, into which the animal can draw its head, or thrust it out at will; but there is no such form in the ascaris lumbricoides: the former also has an elevated belt in its middle, but in the latter there is a depressed band. On each side of the ascaris lumbricoides there is a longitudinal line very distinctly marked; on the earth-worm there are three lines upon its upper surface."

By way of contrast, we have given, in the plate, Dr. Hooper's delineations of the *Ascaris vermicularis*. (See Ascaris). Fig. 1, exhibits the worm in its natural size. Fig. 2, represents a very frequent appearance of this worm when viewed by the microscope. *a*, The head. *b*, the tail. *c*, The pistilliform stomach. *d*, A convoluted apparatus that surrounds the intestinal canal, which is here and there very obvious. *e*, Most probably the anus. *f*, The external part of the organs of generation. Fig. 3, exhibits another appearance of the vermicular ascaris, when enlarged by the microscope. *a*, A bladder-like appearance about the head. *b*, The external part of the organs of generation through which an immense number of ova and young worms have been observed to escape. For the method of expelling this and other worms, see Anthelmintica. See also the articles Trichuris and Worms.

LU'MBRICUS, the worm. The species named *terrestris* differs extremely in colour and external appearance in the different periods of its growth, which has occasioned people little acquainted with these variations, to make four or five different species of them. The general colour is a dusky red. They infest the human intestines, and sometimes prove fatal, by piercing them through. The winding progression of this worm is facilitated by the inequalities of its body, armed with small, stiff, sharp-pointed bristles. Worms were formerly used in medicine, but to very little purpose. This species, though occasionally found in the intestines, is said, nevertheless, to differ from the lumbricoides. See WORMS.

LU'MBUS VE'NERIS. See MILLEFOLIUM.

LU'NA, so named from its resemblance in brightness to silver; the old alchemical name for that metal. See SILVER.

LUNACY. See MANIA.

LUNAR CAUSTIC. See ARGENTUM NITRATUM and SILVER.

LUNGS; two large spongy bodies, of a reddish grey colour in adult and infant subjects, and bluish in old age. They fill the whole cavity of the chest, one portion being seated in the right side, the other in the left. These are parted by the mediastinum and heart. The figure of the lungs answers precisely to that of the cavity which contains them, that is, convex next the ribs, concave next the diaphragm, and irregularly flatted and depressed next the mediastinum and heart.

The lungs are distinguished into the right and left; and each of these into two or three *lobes*, of which the right lung has commonly three, or two and a half, and the left lung two. The right lung is generally larger than the left, answerably to that cavity of the chest, and to the obliquity of the mediastinum. At the lower edge of the left lung, there is an indented notch or sinus opposite to the apex of the heart, which is therefore never covered by that lung even in the strongest inspirations, and consequently the apex of the heart and pericardium may always strike against the ribs; the lungs not surrounding the heart in the manner commonly supposed.

The substance of the lungs is almost all spongy, being made up of an infinite number of membranous cells, and of different sorts of vessels spread amongst them, in innumerable ramifications. The whole mass is covered by a membrane which is no other than a continuation of the pleura.

The vessels which compose part of the substance of the lungs, are principally the air-vessels and blood-vessels. The air-vessels make the chief part, and are termed *bronchia.* These are conical tubes, composed of an infinite number of cartilaginous fragments, like so many irregular arches of circles, connected together by a ligamentary elastic membrane, and disposed in such a manner as that the lower easily insinuate themselves within those above them. They are lined on the inside by a very fine secreting membrane, from which there is continually discharged a mucous fluid; and in the substance of the membrane are a great number of small blood-vessels, and on its convex side many longitudinal lines, which appear to be partly fleshy, and partly made up of an elastic substance of another kind.

The bronchia are subdivided into an infinite number of ramifications, which diminish gradually in size; and as they become capillary, change their cartilaginous structure into that of a membrane. Besides these very small extremities of this numerous series of ramifications, all the subordinate trunks, from the greatest to the smallest, send out a vast number of short capillary tubes of the same kind; each of which is widened at the extremity, and thereby formed into a small membranous cell or follicle. These folliculi are chiefly connected together in bundles; each small branch producing a bundle proportionable to its extent and the number of its ramifications.

The small vesicular or cellulous bundles are termed *lobuli*; and as the great branches divide into smaller, so also the great lobules are divided into several small ones. The cells of each lobule have a free communication with each other, but the several lobules do not communicate so readily. The lobules appear distinctly to be parted by another cellulous substance, which surrounds each of them in proportion to their extent. This forms likewise loose irregular membranous cells.

The *blood-vessels* of the lungs are of two kinds; one common, called the *pulmonary arteries and veins;* the other proper, called *the bronchial arteries and veins.* The *pulmonary artery* emerges from the right ventricle of the heart; and its trunk having run directly upward as high as the curvature of the aorta, is divided into two lateral branches; one going to the right hand, called *the right pulmonary artery;* the other to the left, termed *the left pulmonary artery.* The right artery passes under the curvature of the aorta, and is consequently longer than the left. They both run to the lungs, and are dispersed through their whole substance by ramifications nearly like those of the bronchia, and lying in the same directions. The *pulmonary veins*, after being distributed through the lungs in the same manner, go out on each side, by two great branches which open laterally into the right auricle of the heart. The ramifications of the arteries are larger and more numerous than those of the veins, which in all other parts of the body exceed the arteries both in number and size.

The *bronchial arteries and veins*, which are very small, follow the bronchia through all their ramifications. They communicate with the pulmonary arteries and veins in many places; likewise with the arteries and veins of the œsophagus, and with branches of the coronary artery and vein. These are the nutrient vessels of the lungs.

Under that part of each lung which is formed by the subordinate trunk of the pulmonary artery, by the trunks of the pulmonary veins, and by the trunk of the bronchia, there is a pretty broad membranous ligament, which ties the posterior edge of each lung to the lateral parts of the vertebræ of the back, from that root all the way to the diaphragm.

The bronchia, as we have already said, are branches or ramifications of a large canal, partly cartilaginous, and partly membranous. This canal is called *trachea* or *aspera arteria*, but most commonly by the former name. It is situated anteriorly in the lower part of the neck, whence it runs down into the thorax between the two pleuræ, through the upper space left between the duplicature of the mediastinum, behind the thymus. After having reached as low as the curvature of the aorta, it divides into two lateral parts, one toward the right hand, the other toward the left, which enter the lungs, and are distributed through them in the manner already said. These two branches are called *bronchia;* and that on the right side is shorter than that of the left, whereas the right pulmonary artery is the longest.

The trachea is made up of segments of circles of cartilaginous hoops, disposed in such a manner as to form a canal, which is of a different texture on the back part, the cartilages not going quite round. This part of it consists of a soft glandular membrane, which completes the circumference of the canal; but this cannot be to give way to the œsophagus: for, instead of decending immediately upon the middle of that canal, the trachea inclines a little to the right side, and the same structure is found in the back part of the great bronchial vessels, which are at some distance from the œsophagus. Each circle is about the twelfth part of an inch in breadth, and about a quarter of that space in thickness. Their extremities are round; and they are situated horizontally one above another, small interstices being left between them, and the lower edge of the superior segments being turned toward the upper edge of those next below them. The rings of the trachea are all connected by a very strong elastic membranous ligament fixed to their edges.

The trachea is covered externally with a quantity of cellular substance, which unites it to the neighbouring parts, and it is lined on the inside by a particular membrane, which appears to be partly fleshy or muscular, and partly ligamentary, perforated by an infinite number of small holes more or less imperceptible, through which a mucilaginous fluid continually passes, to defend the inner surface of the trachea against the irritating qualities of the air in respiration. This fluid is secreted by small glandular bodies dispersed through the substance of the membrane, but especially from glands something larger than the former, which lie on the outer or posterior surface of that strong membrane by which the circumference of the canal is completed. The same structure is observable in the ramifications of the trachea from the greatest to the smallest.

All the vessels of which the lungs are chiefly composed, that is, the air-vessels or bronchia, and the blood-vessels, or the pulmonary and bronchial arteries and veins, accompany each other through their whole substance. They are disposed commonly in such a manner, even to the last ramifications, as that a subordinate trunk or branch of the bronchia lies between the like trunks or branches of the pulmonary artery and vein; the bronchial vessels being immediately joined to the bronchia. In some places these three kinds of vessels touch each other in such a manner as to leave a triangular space in the middle.

The bronchia are divided into a very great number of ramifications; and the extreme branches are the pedicles or footstalks of the small lobuli. All the lobuli are angular, oblong, broad, thin, &c. The footstalks send out other smaller membranous pedicles, which are very short, and terminate in the bronchial vesicles or cells, of which they are continuations. The subordinate trunks and rami detach a great number of these pedicles from their convex surface.

When we inflate the lungs, the bronchial cells nearest their outer surface appear like small portions of round vesicles; and from this appearance all the bronchial cells have got the name of *vesicles*, though they are all angular except those which are mentioned above. When we examine the substance of the lungs without blowing it up, we find the cartilaginous segments of the bronchia lying so near as to be engaged in each other; and in drawing out any portion of the bronchia by the two ends, these segments are parted; and the whole canal is increased in length; but it contracts again, by means of its elastic membrane, as soon as that force is taken off.

Upon opening lengthwise the pulmonary artery and vein in the lungs, Helvetius met with a great number of transverse rugæ, which are destroyed when these vessels are elongated. By virtue of this structure, all the ramifications both of the bronchia and pulmonary arteries and veins, have constantly the same direction, whether the lungs be inflated or collapsed; and they contract in length, without being either contorted or folded. In expiration these vessels are elongated, and they collapse again in inspiration.

These vessels lie in a sort of cellular vagina, which accompanies all their ramifications; and is a continuation of their interlobular cells. The pelliculæ which compose it, are, however, there disposed in a much more regular manner, and more longitudinally, than in other places, and thereby appear to form a true vagina.

The *Bronchial glands* are situated at the angle of the first ramification of the trachea. We find them on both the fore and back sides. They are soft, roundish, glandular bodies, of a bluish or blackish colour, but reddish in infants. In size they vary from that of a horse-bean to that of a millet-seed. Through these the lymphatics of the lungs pass in their way to the thoracic duct.

We have said that the trachea has several *coats*. The outermost, or common covering, surrounds that part of the trachea which lies in the thorax; but out of the thorax, this first coat is derived from the aponeurotic expansions of the muscles of the neck; and it is between this and the following covering that the bronchial glands are situated. The second is a proper coat, being a continuation of the cellular covering of the lungs; the pelliculæ of which, nearest the cartilaginous segments, serve them for an external perichondrium. The third membrane lies on the inside, adhering closely to the same cartilages, and supplying to these the place of an internal perichondrium. The fourth membrane is that which completes the circumference of the cartilaginous circles of the trachea. It consists chiefly of two laminæ or strata, partly muscular and partly tendinous, the external or posterior lamina being made up of longitudinal fibres; and the internal, or anterior, of transverse fibres. This membrane is perforated by the small ducts of the abovementioned glands, which discharge a fluid when pressed; and being examined through a microscope, they appear folliculous, much like that of the stomach.

The ligaments between the cartilaginous circles are very strong and elastic; and each of them is confined to two cartilages, without communicating with any of the rest; being fixed to the edges of these cartilages, much in the same manner as the intercostal muscles are inserted in the ribs. As the bronchia penetrate into the substance of the lungs, they gradually lose their cartilages, till at last they become truly membranous; but the muscular lines of Morgagni appear as much, and sometimes more than before. The two planes abovementioned continue likewise to be visible; and we observe very distinctly, sometimes even without a microscope, a great many small holes in the pellicles of the lobuli, and bronchial vesicles or cells which open from within outward.

The great and important uses of the lungs are well known to be respiration, and a certain change which they operate on the blood, &c. See the article Respiration.

LUNGWORT, SPOTTED. See Pulmonaria maculata.

LU'PIA, (of the Gr. λυπια: from λυπεω, *to molest)*; a genus of disease, including encysted humours, whose contents are very thick, and sometimes solid, as the *meliceris*, *atheroma*, *steatoma*, *ganglion*, &c.

LU'PINUS, (from λυπη, *grief*, or *dislike;* so called from its extreme bitterness). Under this term the white lupin is directed in some pharmacopœias. The seed, the ordinary food of man in the days of Galen and Pliny, is now neglected. Its farinaceous and bitter meal is occasionally exhibited to remove worms from the intestines, and made into poultices to resolve indolent tumors, or to stimulate them to suppuration.

LU'PINUS ALBUS; the systematic name of the white lupin. See Lupinus.

LU'PULUS, (from λυπη, *dislike*, so named from its bitterness); the hop. They are the floral leaves or bracteæ of this plant, the *humulus lupulus* of Linnæus, that are dried and used in various kinds of strong beer. Hops have a bitter taste, less ungrateful than most of the other strong bitters, accompanied with some degree of warmth and aromatic flavour, and are highly intoxicating. The hop flower also exhales a considerable quantity of its narcotic power in drying; hence those who sleep in the hop-houses are with difficulty roused from their slumber. A pillow stuffed with these flowers, is said to have the effect of laying those who are restless asleep when other remedies fail to do it.

LU'RIDÆ, the name of the 28th order in Linnæus's Fragments of a Natural Method.

LUSITA'NICUM, DECOCTUM; the Lisbon decoction, or diet-drink. See Lues venerea.

LUTE, or luting, in chemistry, a mixed, tenacious, ductile substance, which grows solid by drying; and, being applied to the juncture of vessels, stops them up so as to prevent the air from getting either in or out. See Crucible.

LU'TEA CORPORA. See Corporus luteum.

LUXATION. A bone is said to be *luxated*, when that part of it forming a joint, is removed out of its place. When the bone is forced entirely out of its cavity, the luxation is termed *complete:* when this is not the case, it is *partial* or *incomplete.* When there is also a wound of the soft parts communicating with the joint, it is called a *compound*, and when there is no wound, a *simple luxation.* The common signs of a dislocated bone are, inability to remove the injured limb; pain, tension, deformity in the part affected; and sometimes inflammation, subsultus tendinum, and fever; and these three last are greatest in partial dislocations. The swelling which first appears is always inflammatory; but afterwards a secondary swelling comes on, seemingly œdematous, and probably owing to the pressure of the lymphatics by the dislocated bone.

In judging of the practicability of reducing a luxation, we ought to attend to its nature and extent, the other circumstances with which it may be complicated, and the length of time which it has continued. When a bone is only partially dislocated, it is evident that it may be reduced with much more ease and certainty than where it is completely displaced. It is evident also that fracture attending dislocation must render reduction much more difficult and uncertain. Indeed, when both the bones forming the joint are broken, there is the greatest hazard of its remaining stiff during life, even when the greatest attention has been paid. Luxated bones are most easily reduced immediately after they are displaced: the difficulty indeed of reducing them is generally proportional to the time that has intervened since the accident happened. When a bone has been some time lodged among the contiguous muscles, it forms a socket for itself, and is firmly grasped by the surrounding soft parts. The cavity, too, from which it was dislodged, may be partially filled with some of the surrounding soft parts, or at least diminished by the constant action of the contiguous muscles on its cartilaginous brim. Dissections, however, show, that inspissated synovia does not, as was formerly supposed, fill up this cavity. In delicate constitutions and advanced periods of life, when the muscles give little resistance, dislocations are more easily reduced than in the vigour of youth or in robust constitutions.

1. In the treatment of a *simple luxation*, we ought, (1.) To remove the dislocation with as much ease and expedition as possible: (2.) Retain the bone in its situation till the parts have recovered their tone; and, (3.) Obviate all uneasy symptoms.

When the surrounding skin and muscles are much contused and inflamed, we should endeavour to remove the inflammation by local bleeding, saturnine applications, and laying the limb in an easy posture, before we attempt to reduce the bone, as considerable injury may be done by stretching a limb while the parts surrounding the joint are inflamed. The upper part of the limb should be kept steady while the surgeon endeavours to replace the under bone, which alone is commonly displaced. This is not easily done; for the contractile power of the muscles acts strongly against every attempt, and not only draws it beyond the contiguous bone against which it should be placed, but frequently forces it out of its natural situation, and fixes it firmly in some neighbouring cavity, from which it is with difficulty removed. To prevent this resistance as much as possible, the muscles ought to be put into a state of relaxation. If this is properly done, the force necessary for reducing a luxated bone may generally be obtained by assistants alone; sometimes, however, machinery is required, and various instruments have been invented for this purpose. Freke's machine is the most generally used. The force ought always to be applied in a gradual manner, and to the dislocated bone alone, and not to any more distant parts of the limb. After the end of the dislocated bone is brought into a line with that to which it is opposed, the reduction is easily completed, either by the action of the muscles alone, or, if that is not sufficient, by gentle pressure. After the reduction there is seldom any difficulty in retaining the bone in its place, unless it has often been dislocated before. All that is necessary is to place the limb in a relaxed posture, and to support the bone with a bandage till the parts have recovered their tone. The most urgent symptoms which accompany dislocations are, pain, inflammation, and swelling. These usually abate soon after the reduction. If any degree of inflammation remain, the application of leeches is the best remedy.

2. When dislocated bones are *accompanied with fracture near the joint*, the fracture must be allowed to heal before reduction be attempted. This, however, is not always necessary in very small bones, as those of the fingers. When the fracture is at a distance from the joint, the dislocation may generally be reduced immediately. Compound luxations are to be treated nearly as compound fractures. After the bone is replaced, leeches should be applied to abate the inflammation; after which the sore should be dressed with Goulard's cerate, or any other mild ointment, and the pain moderated by opiates and a low regimen: care ought also to be taken that no matter lodge about the joint. When luxations are produced by tumors or collections of matter in the neighbourhood of the joints, they may be considered as incurable: when they proceed from too great a relaxation of the ligaments and tendons of the joint, the bone can hardly be prevented from being now and then displaced; but the inconvenience may be somewhat obviated by supporting the limb with a proper bandage, by the use of the cold bath, and by electricity.

3. If the bones of the *cranium* be separated by external injury, all that can well be done is, to support the parts by a bandage, to prevent inflammation, to keep the patient quiet, and in a proper posture, during the cure. The bones of the nose are seldom luxated without fracture; when they are, the injury is easily discovered by the touch. When one of the bones is driven inwards, it may be raised and reduced by pushing a tube of a proper size, and covered with soft lint, into the nostril; which may afterwards be retained till there is is no danger of the bone being again displaced. If the bone be luxated outwards, it may be reduced by the fingers, and retained by a double-headed roller.

4. The *lower jaw* is luxated most frequently when the mouth is opened widely; it can only take place forwards and downwards, being there least surrounded by the neighbouring parts: both sides are generally luxated at once; and in that case the mouth is opened wide, the chin thrown forwards and towards the breast. When only one side is dislocated, the mouth is distorted, and widest on the sound side of the jaw, which is drawn a little towards the contrary side. The patient should be seated and his head supported. The surgeon should push his thumbs, protected by a covering of strong leather, as far as possible between the jaws, and then with his fingers, applied on the outside of the angle of the jaw, endeavour to bring it forward till it move a little from its situation. He should then press it forcibly down, and the condyles will immediately slip into their place. The thumbs ought to be instantly withdrawn, as the patient is apt to bite them involuntarily. The patient should for some time avoid much speaking or opening his mouth wide.

5. When *the neck* is luxated, the head commonly falls forward on the breast, the patient is instantly deprived of sense and motion, and soon dies if the luxation be not quickly reduced. In reducing the luxation, the patient should be placed on the ground, and supported by an assistant: the surgeon standing behind, should gradually pull up the head, while the shoulders are pressed down by the assistant till the bones are brought into their place, which is known by a sudden crack or noise. If the patient be not dead, he immediately recovers his faculties, at least in some measure. He should then be put to bed with his head elevated and retained in one posture. He should lose a quantity of blood, and live for some time on a low diet.

6. The *vertebræ* are sometimes partially, but hardly ever completely, dislocated without fracture. When these occur high up, they are attended with the same symptoms as dislocation of the head: when further down, besides distortion of the spine, paralysis ensues of every part of the body situated under the luxated bone: there is commonly also either a total suppression of urine, or it is discharged involuntarily together with the fæces. As luxations of this kind are generally owing to falls or violent blows, the vertebra is driven either forwards or to one side; it is therefore very difficult to reduce it. The best, as well as the simplest method, is to lay the patient on his face over a cylindrical body, as a large cask, and at the same time to attempt to replace the bone with the fingers. If the bone be very much displaced, there is very little reason to hope for success. The *os coccygis* is more liable to dislocation than any other part of the spine. It is sometimes forced outwards in laborious births. This is discovered by the great pain which is felt at the connection of the os coccygis with the sacrum, and by the bone appearing to be displaced when examined. It may generally be easily reduced by pressure with the fingers. The best support afterwards is a compress, with the T bandage. When the coccyx is luxated inwardly, the patient complains of severe pain, tenesmus, and a sense of fulness in the rectum; the

fæces are passed with difficulty, and in some cases a suppression of urine takes place. The injury is easily discovered by introducing the finger into the anus. In this case the bone should be pressed outwards by introducing the fore and middle fingers of one hand, dipped in oil, into the rectum, and supporting the parts which correspond with it, externally, till the reduction is accomplished. Dislocations of these bones are apt to excite inflammation, which often terminates in dangerous abscesses; it ought, therefore, to be guarded against by every means in our power.

7. The *clavicle* is most frequently luxated at its junction with the sternum; because the violence which produces the injury is generally applied to the shoulder. The luxation is discovered by pain in the part, by the projection of the bone, and by the immobility of the shoulder. It is easily reduced by pushing the bone into its place with the fingers, while an assistant draws back the arms and shoulders. It is not so easy to retain the bone in its place. When it is the inner extremity of the clavicle which has been dislocated, the shoulder should be kept in its natural situation, neither raised nor depressed: the fore-arm should be supported, as should also the head and shoulders, and a moderate pressure should be made upon the displaced end of the bone. For this purpose the machine represented in Plate IV. fig. 1, the invention of Mr. Park of Liverpool, answers best. But when the outer extremity of the clavicle has been dislocated, the shoulder must be considerably raised, the arm supported in a sling, and the bone kept in its proper situation by a small compress placed over its end, and secured by a roller forming the figure ∞; or it may be retained by the machine above mentioned. The bandage ought to be retained for a considerable time, till the parts have recovered their functions.

8. Luxations of the *ribs* are exceedingly rare. The symptoms are nearly the same as those arising from fracture, only that the pain is more severe at the articulation, and that no other spot but that will yield to pressure. All that can be done is to bend the body forward over a cask, or some such thing, in order to assist the viscera in pressing out the rib. Bandages are of little use. The patient should be kept quiet, and fed on a low diet: inflammation should be prevented, and opiates given if he have a troublesome cough.

9. In a luxation of the *shoulder* joint, the head of the os humeri is most frequently thrown forwards and downwards; sometimes downwards and backwards, but never upwards, without a fracture of that part of the scapula which is placed above the joint. The luxation is discovered by the patient's inability to raise his arm, by violent pain attending the attempt, by the luxated arm being of a different length from the other, by the head of the humerus being felt out of its natural situation, while a vacuity is perceived under the acromion, and by the flatness of the injured joint, while the sound one has its natural fulness. When the luxation is of long standing, the whole arm is apt to become œdematous.

The patient should be seated on a chair, and his body secured by a broad belt passed round it, and held by assistants. The elbow should be bent, in order to relax the muscles on the fore part of the luxated joint. A firm leather belt, four or five inches broad, with strong straps, and lined with flannel, is to be tied round the arm immediately above the elbow: assistants are to extend the arm gradually, by pulling these straps, while another assistant draws back the scapula. The surgeon stands on the outside of the arm, directs the assistants, and varies the direction of the extension, according to the situation of the head of the bone. As soon as the head of the bone has cleared the brim of the socket, the muscles draw it into its place, a crack is heard, the patient is relieved, and the inferior part of the shoulder acquires its usual fulness.

Various *other modes* of extending the arm have been proposed in difficult cases; as, suspending the patient by the luxated arm over the step of a ladder, or the top of a door, raising him up by the arm with ropes running over pullies, fixed in the ceiling of a room, &c. The jerk produced by the body being suddenly raised and let down again on a feather bed, has sometimes succeeded when other means have failed. A gentler method is, to lay the patient on the floor, while two or three men, standing on a table, lay hold of him by the arm and pull him up. But all these methods are in danger of lacerating the soft parts, by the suddenness with which the force is applied, and even sometimes of breaking the end of the humerus if it be pressed against the neck of the scapula. Mr. Freke's improvement on the ambé of Hippocrates, has been considered as the best machine for extending the arm. But machinery is very seldom necessary; even cases of long standing may, by proper management, be reduced by means of assistants, provided reduction be at all practicable. Inflammation after the operation, should be obviated by the usual remedies. If the bone be apt to slip out again, which sometimes happens after repeated dislocations, the arm should be supported in a sling till the parts have recovered their tone. Blisters, frictions, stimulating medicines applied to the shoulder, and cold water poured on it, have sometimes been useful in restoring the strength of the joint.

10. Luxation at *the elbow* most commonly happens upwards and backwards; and then the fore-arm is shortened, the end of the ulna projects behind, and is higher than usual, while the extremity of the humerus can be felt in the bend of the elbow. The surgeon should take hold of the wrist with one hand, and the upper part of the fore-arm (which must be moderately bent) with the other, and gradually pull the top of the fore-arm downwards, while at the same time he increases the curvature of the elbow to disengage the ends of the bones from each other. He should then pull the bones forward into their situation. When the luxation happens upwards and forwards, it should be reduced while the arm is extended. After the reduction, the muscles of the fore-arm should be kept relaxed, by bending the elbow a little, till the parts have recovered their tone. When the bones of the

fore-arm are dislocated from each other, which happens most frequently at the wrist, the rotatory motion of the hand is destroyed. After the reduction, the bones should be bound together by a tight flannel roller; or a couple of splints should be applied along the fore-arm, and the arm supported in a sling.

11. The bones of *the wrist* are not so often luxated as might be expected from the smallness of their size. When they are, great swelling and pain ensue, and the motion of the joint is entirely destroyed. Great attention is necessary, lest luxation should be mistaken for a sprain. The arm and hand should be supported by assistants, but not stretched; and then the bones should be pushed into their place, and afterwards retained by proper bandages and splints. The bones of the *metacarpus*, when they happen to be dislocated, which is very seldom, are to be reduced in the same way.

12. From the great strength of the *hip joint*, it was formerly believed, that the head of the thigh bone was never luxated by external violence; but it is now known that it happens by no means unfrequently. The ball, in starting from its socket, generally passes forwards and downwards into the foramen thyroideum. When this happens, the limb is considerably lengthened, the head of the bone is lodged near the under and fore part of the pelvis, the large trochanter is observed on the fore part of the thigh, a vacancy is perceived where the head of the bone and trochanter should be, and the toes are turned inwards. When the bone is dislocated upwards and backwards, the limb is shortened, the great trochanter higher than usual, the knee and foot turned inwards. When it is dislocated upwards and forwards, the leg is shortened, the ball of the bone is felt on the os pubis in the groin, and the great trochanter on the upper and lower part of the thigh; a vacancy is discovered on the corresponding part of the hip; the knee and toes are turned outwards. When the ball slips downwards and backwards, the leg is lengthened, the toes turned inwards, and the great trochanter is lower than that of the other limb. If the ball slip directly downwards, the leg is lengthened, but the knee and toes keep nearly their natural situation. It is sometimes difficult to distinguish between luxation and fracture of the neck of the bone. In fractures, the bone is most frequently pushed upwards, and the leg shortened, the knee and point of the toes are turned inwards, and may be moved much more readily outwards and inwards than when the bone is dislocated.

In attempting the reduction in this case, the patient should be laid on a mattress, on the sound side, and a woollen roller, covered with several folds of flannel, placed between his thighs, and fixed firmly by straps to the wall. A strong bandage of buff leather, or something similar, should be applied to the under end of the thigh, with straps fixed to it to make the extension. The trunk of the body should be properly secured, and the joint of the knee bent. The extension should be made at first gently, and increased gradually, while, at the same time, the thigh is made to roll in different directions. When the extension is sufficient, two assistants should lay hold of the roller, and attempt to raise the bone; the extending force should then be slackened, and the surgeon should push the head of the bone upwards and outwards, while an assistant presses the knee forcibly inwards. The muscles themselves will then commonly bring the bone into its place; and this is done with such a jerk and noise, that it is heard by the bystanders. If the reduction be not obtained, the extension must be repeated with greater force. Instead of the roller, a broad strap or table cloth is frequently used. The limb should not be used for some time after reduction, and inflammation should be prevented by the proper remedies.

13. The *patella* can neither be luxated upwards nor downwards, without rupture of the tendons of the extensor muscles, or of the strong ligament which fixes it to the tibia; but it may be luxated to either side. The luxation produces lameness, and much pain on attempting to move the joint. In recent cases the injury is easily discovered; but when the surgeon is not called immediately, the swelling may be so great as to render it more difficult. For reduction, the limb should be kept extended; the surgeon, by depressing the edge of the patella most distant from the joint, is enabled to raise the other, and push the bone into its place. It may be necessary to remain a day or two in bed till the knee recover its tone. Sometimes, after the bone has been displaced, returns of the same accident become frequent. In such cases, proper machinery applied to the side of the knee, where the bone is apt to start out, is used with advantage.

From the size of the joint, and the great strength of the ligaments, luxation of the tibia from the os femoris rarely occurs. When it does, it is easily discovered by the pain, lameness, and deformity of the limb. The patient should be laid on a table, the muscles relaxed, and the thigh secured by assistants; the limb should then be extended, and the bones cleared of each other, when they will be easily replaced. After the reduction, the limb should remain for some time perfectly at rest; and inflammation, which is very apt to ensue, and is attended with very bad consequences, should be assiduously guarded against.

14. If the *ankle-joint* be dislocated forwards, the fore part of the foot is lengthened; if backwards, the foot is shortened and the heel lengthened (this is the most common variety); if to either side, there is an uncommon vacancy on the one side, and a prominency on the other. Dislocation, however, can hardly take place outwardly without fracture of the end of the fibula. To effect the reduction, the limb should be firmly held by assistants, the muscles relaxed, and extension made till the bones are cleared of each other, when the astragalus will easily slip into its place. The same rules should be observed in reducing dislocations of the bones of the foot. Luxations of the *metatarsal bones* and toes are reduced exactly in the same manner as the bones of the metacarpus and fingers.

15. Dislocations of the *toes or fingers* are easily discovered. To reduce them, an assistant should hold the phalanx from which the dislocation happened, while the surgeon endeavours to elevate the bone from the one contiguous to it, and to pass it into its place.

LYCOPE'RDON, (λυκοπερδον; from λυκος, *a wolf*, and περδω, *to break wind;* so named because it was supposed to spring from the dung of the wolf), hence also named *Crepitus lupi;* the puff-ball: *Lycoperdon bovista*, Linn. It is a round or egg-shaped fungus; when fresh, of a white colour, with a very short or scarcely any pedicle, growing in dry pasture grounds. When young, it is sometimes covered with tubercles on the outside, and is pulpy within. By age it becomes smooth externally, and dries internally into a very fine, light, black or brownish dust, which is used as a styptic by the common people.

LYCOPE'RDON BOVISTA; the systematic name of the puff-ball. See Lycoperdon.

LYCOPE'RDON TUBER; the systematic name of the truffle. See Truffle.

LYCOPO'DIUM, (λυκοποδιον; from λυκος, *a wolf*, and πȣς, *a foot*, so called from its supposed resemblance), or *Muscus clavatus;* the club-moss, or wolf's-claw: *Lycopodium clavatum*, Linn. This plant affords a great quantity of pollen, which is used, in some places, to sprinkle on the nates and thighs of young children, to prevent chafing, or to cure parts which are excoriated. A decoction of the herb is said to be of service in the cure of the plica polonica.

LYCOPO'DIUM CLAVATUM; the systematic name of the club-moss. See Lycopodium.

LYCOPO'DIUM SELA'GO; the systematic name of the upright club-moss. See Muscus erectus.

LYMPH, *(lympha,* quasi *nympha*; from νυμφη, *water);* a pellucid, insipid fluid, found in the lymphatic vessels. As it resembles water in the circumstances of transparency and want of colour, the first discoverers of the lymph denominated the vessels containing it *ductus aquosi*, and seem to have concluded, that the lymph really was nothing but water. This opinion some of the succeeding physiologists, particularly Boerhaave, rendered more probable, by supposing that there were three series of arteries; the sanguiferous, the seriferous, and the lymphatic; and that the lymphatic vessels, properly such, were only veins corresponding to the lymphatic arteries, to restore their lymph to the heart. Thence the lymph seems to have been concluded the thinnest part of our fluids; into which opinion physiologists were farther led by Leeuwenhoek's theory, that the globules of lymph were smaller than those of the serum, or of the red part of the blood.

The fluids that moisten the different cavities of the body, viz. that of the abdomen, pericardium, &c. being suspected to be formed solely from the condensation of that steam which appears on opening an animal just killed, have thence been also considered as mere water by some anatomists; who were confirmed in this opinion by observing, that in dropsies, where a great quantity of fluid is let out from such cavities, it is commonly a mere water, seldom coagulating either when exposed to the air or to heat. And, agreeably to this notion, these dropsies are said to be occasioned by an increase of secretion, or an impeded absorption; which supposes that the fluids, naturally moistening these cavities, are the same as those let out from them in dropsical cases.

It appears, however, from the experiments of Mr. Hewson, that although these fluids are so transparent in living animals, and so watery in dropsies, yet in animals in health they differ so much from water, that they not only coagulate when exposed to heat, but also when merely exposed to the air; in which circumstance they agree most with that part of the blood called *coagulable lymph.* This is evident on collecting this fluid from the surface of the abdomen, thorax, or pericardium of an animal that has been recently killed; for if the fluid thus collected be suffered to rest, exposed to the air, it will jelly as the coagulable lymph of the blood does. From among those who concluded this fluid to be mere water, we should except Drs. Haller and Monro, who were of a different opinion.

If, immediately after killing an animal in health, a lymphatic vessel be tied up properly, and then cut out of the body and opened, so as to let out the lymph into a cup, and expose it to the air, it will jelly as the coagulable lymph of the blood does in the same circumstances: this experiment Mr. Hewson made and repeated several times, on dogs, asses, and geese. It therefore appears, that instead of being a mere water, the lymph, in healthy animals, is a coagulable fluid, and that the redundant accumulations found in cavities are probably composed of a mixture of the natural lymph with water; the proportions varying according to the dropsical habit: where the coagulable lymph is in a small, and the water in a great proportion, up to the rheumatic or inflammatory habit, where the lymph abounds, and the water is in less proportion. In some cases too, the lymph, in passing through inflamed vessels, is even converted into pus.

The most generally received opinions concerning the secretion of the lymph have been, that it was performed either by small exhalant arteries, or else by pores on the sides of the vessels, which pores were believed to be organized. But these were controverted by Dr. Hunter, in his Medical Commentaries. That eminent anatomist endeavoured to prove, that this secretion was not performed by exhalant arteries, or an effect of what is properly called *organization*, but merely by the thinner or more watery parts of the blood, filtrating or transuding through the inorganized interstices between the fibres of the vessels and membranes; so that, according to his idea, the texture of the blood-vessels was close enough to retain the serum, or red globules, but not close enough to prevent the water oozing out as through a sieve. He supports this theory on the following grounds: 1. The ready transudation of watery and other injections after death. 2. The transudation of blood after death, but not during life: for during life he supposes the blood to be uniformly thickened by the coagulable lymph; but when that lymph is jellied, he concludes the blood is thereby made thinner, and therefore more capable of oozing through the inorganized interstices, by which it could not pass before. 3. The transudation of bile, which he thinks takes place in the living body, because on opening a dead one we see all the neighbourhood of the gall-bladder tinged with this fluid.

Such are the arguments brought in favour of transudation; but, on a careful examination, they have not been thought so satisfactory as those which may be produced in defence of the opinion, that these secretions are by organized passages, as perhaps will appear from the following observations:

1. Although fluids do transude on being injected into the vessels of the dead body, yet we must not thence conclude that a similar effect would certainly take place in the living; for it is probable, that our fibres and vessels have a degree of tension which they may lose with life. Besides, if transudation took place in the living body, it would seem to defeat the principal purpose for which the blood-vessels were made, that is, the containing and conveying the fluids; and upon drinking a greater quantity than ordinary of watery liquors, instead of the liquors being carried to the kidneys or other emunctories, and thereby thrown out of the body as a redundancy, they would escape into the cellular membrane, and occasion an anasarca. That this would be the case will appear the more probable, when it is considered how small the fibres of our blood-vessels must be, and therefore what millions of pores (did they exist) the water would be exposed to from its entrance into the stomach, and its passage through the lacteals, the thoracic duct, the veins, the heart, the lungs, and the arteries, before it reaches the kidneys. So that, were we, in imagination, to follow a drop of these liquors, according to the idea of transudation, we should find it, first leaking through the stomach or through a lacteal, then being absorbed, then escaping a second time, and being again absorbed, &c. an idea by no means consistent with what we know of the works of Nature. It is more probable, therefore, that as the blood-vessels are made to contain and convey the fluids, Nature has taken care to construct them properly, to prevent this purpose being defeated.

2. To suppose that the fluids which moisten the different cavities of the body, as the pericardium, pleura, peritonæum, tunica vaginalis, &c. get into these cavities merely by transudation, is to suppose, not only that the small vessels in contact with these membranes have inorganized pores, but also that these membranes themselves have the same, just opposite to those of the vessels. Now, if we admit inorganized pores at one part of those membranes, we must admit them in all parts, and in the same degree; but as the blood-vessels are circular, and touch those membranes only by a small part of the circle, the parts touched by the vessels must be smaller than the interstices between the vessels, and the lymph must have fewer chances in favour of its leaking from the vesels into the cavities, than of its oozing again from these cavities into the interstices between the vessels or into the cellular membrane; so that, if these membranes admitted of transudation, there would be no such thing as a partial dropsy, for the water would run out at one part of the pleura, pericardium, peritonæum, &c. as fast as it ran in by the other, and an anasarca would always accompany an ascites; which not being a fact, leads us to believe, that those membranes do not admit of transudation in living bodies, and that the fluids get into them not by inorganical, but by organized passages.

3. To prove more satisfactorily that these fluids are not filtrated from the blood merely by inorganic transudation, let us recollect the experiments already related, concerning the properties of those fluids, which we found varied in different circumstances of health. For, in inflammatory affections of the parts from which they were secreted, they assumed the appearance of the coagulable lymph of the blood, and formed a tough jelly; in animals in health they formed a jelly of a weaker nature; and in dropsical cases they were almost a mere water, without the property of coagulation. Now if these fluids be so variable in their properties, it is manifest that the passages secreting them cannot be always unalterably the same, or inorganized; since at one time we find them secreting one fluid, and at another time secreting another; especially as we sometimes find them secreting a fluid very different from the blood; viz. pus. Which pus being found in cavities without any ulcer or erosion, we must conclude it formed by something more than a mere filtration; for we cannot suppose there should be filtrated from the blood a fluid that was not in it. And if pus, which passes from the same pores, can only be accounted for by supposing these pores to be organical, in like manner is it not probable, that the secretion of the natural lymph is not a straining through inorganical, but through organized passages?

4. It has been brought as an argument in favour of transudation in the living body, that blood transudes after death; and this has been explained on the supposition, that the blood was thicker before the coagulation of the lymph. This supposition appears ill-founded, when we speak of the living body; for, in former experiments, we have observed that this lymph, frequently at least, rather thins than thickens the blood. If, therefore, the blood transudes in the dead and not in the living body, we should rather attribute it to a change in the vessels than in the blood; as is probable from a careful examination of that very fact which has been brought as the principal argument in favour of transudation, viz. the parts adjacent to the gall-bladder being tinged with bile; for any one who will take the trouble of standing by a butcher whilst he kills a sheep, will find, contrary to Doctor Hunter's conclusion, that upon opening the animal immediately, there is no appearance of the gall having transuded, for none of the parts surrounding the gall-bladder are tinged. But let the animal continue a day or two unopened, and then the gall will be found to have transuded, and to have tinged the neighbouring parts; as is the case in the human body by the time that we inspect it.

Since, then, the gall-bladder so readily allows of transudation after death, and not during life, is it not probable that there is in our membranes and our blood-vessels a degree of tension, or a power of preventing the fluids oozing out of them, which power is lost with life?

Upon the whole, then, it appears, that the intersticial lymph, or the fluid which moistens the different cavities of the body, being different from mere water, cannot be produced simply by transudation through inorganical interstices; but, that there are small exhalant arteries, or organized passages, which not only transmit it from the blood, but change its properties, and adapt it to the office of lubrication, and likewise make it assume very different appearances in different circumstances of health.

For an account of the vessels by which the lymph is conveyed, see Lymphatics.

LYMPHATIC GLANDS; *Glandulæ lymphaticæ*. See Conglobate glands.

LYMPHATICS, or lymphatic vessels; a part of the absorbent system. See Absorbents. The lymphatics arise from the skin, from the surface of the cells of the cellular membrane, from the surfaces of the urinary and gall bladders, and indeed of all other parts. They carry the lymph, a pellucid liquor (See Lymph) towards the receptaculum chyli and thoracic duct, in which they all terminate. The coats of these vessels are thin and transparent, they are much crowded with valves, which are very irregularly distributed. They frequently anastomose, and in their way pass through the lymphatic glands. Before they enter a gland they ramify, and afterwards unite again.

The absorbent system consists of the *lacteals*, the *lymphatics*, the *conglobate glands*, and the *thoracic duct*.

The lacteals begin from within the intestinal tube. The lymphatic vessels arise, as has been said, from most parts of the body. The course of the lymph and of the chyle is from the extreme parts of the body towards the centre. The lymphatics commonly lie close to the large blood-vessels of the extremities. All the lacteals, and most of the lymphatics, open into the thoracic duct, which lies upon the spine, and runs up towards the neck, where it commonly opens into the angle between the jugular and subclavian veins of the left side; and thus both the chyle and the lymph are mixed with the blood.

The lacteals, the lymphatics, and the thoracic duct, all agree in having their coats more thin, and more pellucid than those of the blood-vessels. But, although their coats are so thin, they are very strong. Mr. Sheldon says, that both the lacteals and lymphatics have a dense internal coat, which is smooth and polished on the inside; it is connected, by a reticular substance on its outside, to the internal surface of the middle coat. 'This fine internal membrane prevents the transudations of the lymph and chyle, and produces certain duplicatures internally, which form the valves found in every part of this system, and it is exactly similar to the internal coat of the veins. The second coat Mr. Sheldon thinks consists chiefly of muscular fibres, running in every possible direction; the greater number take the circular direction, and surround the internal membrane. He adds, that an outward coat may also be separated, which is made of a membrane similar to the pleura, or peritonæum.

The coats of the lacteal and lymphatic vessels have, in common with all other parts of the body, nutrient arteries and veins. They have also nerves. They are subject to inflammation, and, from their numerous supply of nerves, are as irritable as any system of vessels in the body. The lymphatics abound more with valves, than the veins do; these valves are generally two in number, and are of a semilunar shape. In most parts of the body the valves are so numerous, that there are three or four pair in the space of one inch, but sometimes there is no more than one pair.

The lymphatic system, in different parts of its course, has the glands called *conglobate*, or *lymphatic*. These glands are so placed, that the vessels come in on one side, and pass out on the other, in their way to the thoracic duct.

1. The *lymphatics of the upper and lower extremities* consist of those that are superficial, and those that are more deeply seated. The superficial ones lie between the skin and the muscles, and belong to the surface of the body or the skin, and to the cellular membrane which lies immediately under it; one branch of the superficial ones runs upon the top of the foot, another is generally found just under the inner ankle. The branch on the foot runs up on the outside of the tendon of the tibialis anticus; until it has got above the ankle; and running over the shin bone, it divides and forms a plexus, still ascending in the cellular membrane to the inside of the knee, from whence it still advances up the inside of the thigh under the skin, and, arriving at the groin, enters the lymphatic glands situated there. These glands are six, seven, or eight in number; of which, some lie in the very angle between the thigh and the abdomen, and others lie a few inches down on the fore part of the thigh. It is into these upper glands alone that the lymphatic vessels of the genitals enter, so that the venereal bubo, which arises in consequence of an absorption of matter from these organs, is always seated in those upper glands; and the lower glands are never affected, except by the regurgitation of the matter, or from their vicinity to the glands first diseased, which very rarely happens. And as the upper glands are affected from the genitals, so the lower are usually first affected from the absorption of the acrid matter of an ulcer, &c. in the parts below them. The lymphatics of the genitals having joined those of the thigh, a network is formed, which enters the abdomen under the edge of the tendon of the external oblique muscle, called Poupart's ligament: some branches of this plexus embrace the iliac artery. These superficial lymphatics, probably, are the trunks of those vessels which absorb from the skin and the cellular membrane immediately under it; and as no considerable branches can be distinguished on the outside of the leg or thigh, it is probable that all the lymphatics of those parts bend towards the inside. Upon these vessels, from the foot to the groin, there is commonly not one lymphatic gland; but to this there are sometimes exceptions. Besides these superficial lymphatic vessels which lie above all the muscles, or in the cellular membrane under the skin, there is a set deeper seated that lie amongst the muscles, and accompany the crural artery. Of these, the principal trunk can be dis-

covered by cutting down to the posterior tibial artery, near the inner ankle. From this ankle the vessel passes up along with the posterior tibial artery, being hid amongst the muscles on the back part of the tibia. About the middle of the leg it enters a small gland which is met with in most subjects. Having passed through this gland, it runs up to the back part of the ham, still lying close to the artery, and in the ham it usually passes through three glands. Hitherto this lymphatic has been a single trunk; but after it has passed these glands, it commonly divides into two or three branches, which still accompany the crural artery, and pass with it through the perforation in the triceps muscle. Having passed the muscle, they go up with the artery and enter a gland which is deeper seated than those which appear on the groin; from this gland they pass into the superficial gland, as may be seen in the delineations in Pl. XVI.

As in the lower extremity, so *each arm* has two sets of lymphatic vessels: one that lies immediately under the integuments, belongs to the skin and the cellular membrane connecting it to the muscles; the other accompanies the larger arteries, and belongs to the parts deeper seated.

2. The lymphatics of the lower extremities having reached the trunk of the body, and passed under Poupart's ligament, appear upon the sides of the ossa pubis, near the pelvis. A part of them passes up, along with the iliac artery, upon the brim of the pelvis; and another part dips down into the cavity of the pelvis, and joins the internal iliac artery near the sciatic notch. At this place they are joined by the lymphatics from the contents of the pelvis. Besides those lymphatics which dip down into the cavity of the pelvis, on the inside of the external iliac artery, there are others which keep on the outside of that artery upon the psoas muscle: of these, one part passes up to the loins, and goes under the aorta in different branches, getting from the left side to the right, and joining the thoracic duct. Another part passes under the iliac arteries, and appears upon the os sacrum, making a beautiful net-work, joining the lymphatics of the right side, and passing under the iliac artery, to form the net-work upon the upper part of the right psoas muscle. The lymphatics of the right side, joined by some from the left, having reached the right lumbar region, appear there in the form of a plexus of large vessels, and pass through several glands. At this part they receive likewise large branches under the aorta, from the plexus on the left side of the loins; and having at last got up as high as the second lumbar vetebra, they all join, and form a single trunk called the thoracic duct: at this part they are likewise joined by the lacteals. See LACTEALS and THORACIC DUCT.

Into the thoracic duct likewise enters the lymph of the other abdominal viscera. This is brought by a number of vessels; a plexus of which may be traced from each kidney, lying principally behind the emulgent artery, and opening into large lymphatic vessels near the aorta: with these also go the lymphatics of the glandulæ renales, or renal capsulæ. The *lymphatics of the spleen* pass from the concave side of that viscus, along with the splenic artery in the sinuosity of the pancreas, by the lymphatic vessels of which they probably are joined.

3. To *the stomach* belong two sets of lymphatic vessels, the one running upon its lesser, and the other upon its greater curvature. Of these, the former accompanies the coronary artery, and passes through some lymphatic glands that lie by its side. The other set passes from the great curvature of the stomach, through some lymphatic glands that lie close to the arteria gastrica dextra. Descending by the pylorus, it meets the plexus that accompanied the coronary artery, and near the lesser curvature of the duodenum, forms a considerable net-work. Into this, not only the lymphatics from the spleen enter, but likewise those from the gall-bladder, together with those of the liver, which are very numerous, both in its convex and on its concave side. Several branches proceed from this net-work, some running under the duodenum, and others over it; which all open into the thoracic duct.

4. The *Lymphatics of the larger Viscera*, (such as the liver, the spleen, and the kidneys) are generally in two sets; one of which lies upon the surface of the organ, and the other accompanies the large blood-vessels in its centre. In the liver, these two sets have been found to communicate with each other: so that, by injecting mercury into the lymphatic vessels which lie upon its convex surface, Mr. Hewson has filled those which accompany the pori biliarii and vena portæ in its centre. Most of the lymphatic vessels, which lie upon the convex surface of the liver, run towards its falciform ligament, and pass down by the side of the vena cava. But some of them run towards the right ligament of the liver, where they pass down upon the diaphragm to get to the thoracic duct. The lymphatics on the concave surface run towards the porta, where they join those which come from the centre of the liver, along with its large blood-vessels. The lymphatic vessels of the stomach enter with others into the thoracic duct.

5. The *Lymphatics of the Lungs* are in two sets. One set passes on the posterior part of each lobe by its root, into the thoracic duct, near the middle of the thorax; the other passes from the fore part of each lobe up towards the jugular and subclavian veins. Some of the lymphatics, on the posterior part of the left lobe, pass under the aorta to get to the thoracic duct. Those from the anterior part of the left lobe pass into the angle between the jugular and subclavian veins of the same side, joining the thoracic duct at its termination; while those from the fore part of the right lobe do not communicate with the thoracic duct, but pass into the angle between the right jugular and the right subclavian veins.

6. The *Lymphatics of the Head and Neck* are as follow. By the side of each internal jugular vein is a large lymphatic vessel, which is the trunk of those of one side of the head and neck. Smaller lymphatics are seen near the branches of the external carotid artery. From various circumstances, it is highly probable, that

there are lymphatic vessels on the external parts of the head; and though none have been discovered on the brain, it is very probable that it is not destitute of them. The small lymphatics which accompany the branches of the external carotid artery unite upon the neck, and form a large trunk, which accompanies the internal jugular vein, passing through some lymphatic glands, near the termination of this trunk, in the angles between the jugular and subclavian veins. The glandula thyroidæa has many lymphatic vessels which can sometimes be inflated by blowing air into the cells of the gland; these vessels pass on each side of the trachea, one part going into the angle of the right subclavian and jugular, and the other joining the thoracic duct upon the left side.

The lymphatic vessels delineated by anatomists are, in general, only to be considered as the trunks of the lymphatics; since it is probable, that every, even the smallest, part of the body, has one or more of these vessels adapted to absorption. That this is the case, seems to be proved by the experiments made with variolous matter: for at what part soever that matter is inserted, the lymphatics take it up and carry it into the body, as can be traced by its inflaming the conglobate glands through which these vessels pass. Besides, it is well known, that by the action of the absorbent system, many noxious matters are introduced into the blood; as may be instanced in the bite of a mad dog, the inoculation of variolous or vaccine matter, or the syphilitic virus; the miasmata of fevers, &c.

The principle by which this absorption takes place is a power inherent in the mouths of these vessels, a vis insita, dependent on the high degree of irritability of their internal membrane by which the vessels contract and propel the fluids forwards. Hence the use of this function appears to be of the utmost importance, viz. to supply the blood with chyle; to remove the superfluous vapour of circumscribed cavities; otherwise dropsies, as hydrocephalus, hydrothorax, hydrocordia, ascites, hydrocele, &c. would constantly be taking place: to remove the superfluous vapour from the cells of the cellular membrane dispersed throughout every part of the body, that anasarca may not take place: to remove the hard and soft parts of the body, and to convey into the system, medicines which are applied to the surface of the body.

The lymphatics, as delineated by Mr. Hewson, are shown in Pl. XVI. of which the following is a description:

Fig. 1. Is a *back view of the fore-arm and hand*:—a, The hand, b, The lower extremity of the radius. c, The lower extremity of the ulna. d, The muscles on the back of the fore-arm, turned aside to exhibit a deep-seated lymphatic vessel, which perforates the interosseous ligament to get to the fore-part. e, The olecranon. *a a a*, Lymphatics appearing on the back of the fore-arm, immediately under the skin. *b*, Some of the lymphatics bending over the upper extremity of the radius to get to the fore-part of the arm. *c*, A lymphatic passing over the ulna, immediately under the olecranon, and under the inner condyle of the os humeri, to get to the fore-part of the arm. *d*, A lymphatic which has penetrated the muscles, perforates the interosseous ligament, and gets to the fore-part of the arm, near the radial artery.

Fig. 2. *A fore view of the upper extremity*:—a, The scapula. b, The clavicle. c, The extremity of the brachial artery. d, The muscles lying on the inside of the arm. e, The inner condyle of the os humeri. f, The lower extremity of the radius. *a*, A lymphatic vessel which lies in the cellular membrane, immediately under the skin, and passes up on the inside of the arm to the axillary glands. *b*, Superficial lymphatic vessels passing over the muscles from the back of the fore-arm, and likewise over the biceps to the glands in the axilla. *c*, A superficial lymphatic from the back of the fore-arm. *d*, A gland through which it passes. *e*, The lymphatics from the anterior and the posterior part of the fore-arm uniting. *f f*, Lymphatic glands in the axilla. They are common both to the superficial and the deep-seated lymphatic vessels. *g*, A deeper-seated lymphatic vessel lying close to the radial artery, which it accompanies all the way to *(h)*. *h*, The deep-seated lymphatic vessel passing under the interosseous and ulnar arteries, and appearing again on the arm, at *(i)*. *i*, The deep-seated lymphatic vessel lying close to the brachial artery. *k k*, Two small lymphatic glands, through which it passes. *l*. The same vessel, now become much larger, and passing under a branch of the artery and some cellular membrane, and appearing at *(m)*. *m*, The trunk of the deep-seated lymphatic vessels passing upwards to the axilla, where it enters the glands *f f*.

Fig. 3. Is a *back view of the lower extremity*, dissected so as to show the deeper-seated lymphatics, which accompany the arteries:—a, The os pubis. b, The tuberosity of the ischium. c, That part of the os ilium which was articulated with the os sacrum. d, The extremity of the iliac artery appearing above the groin. e, The knee. f f. The two cut surfaces of the triceps muscle, divided to show the lymphatic vessels that pass through its perforation along with the crural artery. g, The edge of the gracilis muscle. h, The gastrocnemius and soleus, much shrunk by being dried, and by the soleus being separated from the tibia to expose the vessels. i, The heel. k, The sole of the foot. l, The superficial lymphatic vessels passing over the knee, to get to the thigh. m, The posterior tibial artery. *a*, A lymphatic accompanying the posterior tibial artery. *b*, The same vessel crossing the artery. *c*, A small lymphatic gland, through which this deep-seated lymphatic vessel passes. *d*, The lymphatic vessel passing under a small part of the soleus which is left attached to the bone, the rest being removed. *e*, The lymphatic vessel crossing the popliteal artery. *f*, *g*, *h*, Lymphatic glands in the ham, through which the lymphatic vessel passes. *i*, The lymphatic vessel passing with the crural artery through the perforation of the triceps muscle. *k*, The lymphatic vessel, after it has passed the perforation of the triceps, dividing into branches which embrace the artery *l*. *m*, A lymphatic gland belonging to the deep-seated lymphatic vessel. At this place those vessels pass to the fore

part of the groin, where they communicate with the superficial lymphatic vessels. *n*, A part of the superficial lymphatic vessels appearing on the brim of the pelvis.

Fig. 4. Shows *the more superficial lymphatics of the lower extremity*:—a, The spine of the os ilium. b, The os pubis. c, The iliac artery. d, The knee. e e, f, Branches of the crural artery. g, The musculus gastrocnemius. h. The tibia. i, The tendon of the musculus tibialis anticus. *a*, A lymphatic vessel belonging to the top of the foot. *b*, Its first division into branches. *c c c.* Other divisions of the same lymphatic vessel. *d*, A small lymphatic gland. *e*, The lymphatic vessels which lie between the skin and the muscles of the thigh. *f f*, Two lymphatic glands at the upper part of the thigh, below the groin. *g g*, Other glands. *h*, A lymphatic vessel which passes by the side of those glands without communicating with them; and, bending towards the inside of the groin at *i*, opens afterwards into the lymphatic gland *h*. *l l*, Lymphatic glands in the groin, which are common to the lymphatic vessels of the genitals, and those of the lower extremity. *m*, *n*, A plexus of lymphatic vessels passing on the inside of the iliac artery.

Delineations of the lymphatics within the trunk may be seen in the plate annexed to the article Thoracic duct.

LYPO'MA. See Lipoma.

LY'RA, (from λυρα, *a lyre*, or *musical instrument*), also named *Psalterium;* the triangular medullary space, between the posterior crura of the fornix of the brain, and which is marked with prominent medullary fibres that give the appearance of the strings of a lyre.

LYSIMA'CHIA NUMMULA'RIA; the systematic name of the money-wort. See Nummularia.

LYSIMA'CHIA PURPU'REA, (from *Lysimachus*, who first discovered it), the *Lythrum salicaria* of Linnæus. The herb, root, and flowers of this plant, possess a considerable degree of astringency, and were formerly used medicinally in the cure of diarrhœa and dysentery, leucorrhœa, hæmoptysis, &c.

LY'THRUM SALICA'RIA, (from λυθρον, *blood*, so called from its resemblance in colour; and *salicaria*, from *salix*, a willow, from the resemblance its leaves bear to those of the willow); the systematic name of the common or purple willow herb. See Lysimachia purpurea.

M.

M. in medical prescription. This letter has two significations. When herbs, flowers, chips, or such like substances are ordered, and M. follows the article set down, it signifies *manipulus*, a handful; and when any quantity of other ingredients is directed, it is a contraction of *misce;* thus M. F. *Haust.* signifies, mix and make a draught.

MACE, the second coat or covering of the kernel of the nutmeg, is a thin and membranaceous substance, of an oleaginous nature, and a yellowish colour; being met with in flakes of an inch or more in length, which are divided into a multitude of ramifications. It is of an extremely fragrant, aromatic, and agreeable flavour; and of a pleasant, but acrid oleaginous taste. Mace is carminative, stomachic, and astringent; and possesses all the virtues of nutmeg, but has less astringency. The oils of mace and nutmegs, whether prepared by distillation or expression, are so much of the same nature, that they may be indiscriminately used for one another on all occasions. They give ease in colics, and often in nephritic cases, taken internally, from one drop to five or six of the distilled oil, or an equal quantity of the expressed oil. Externally, they are of use to rub paralytic limbs; they also assist digestion; and will often stop vomitings and hiccoughs, only by being rubbed on the region of the stomach. The nurses have a custom of applying oil of mace by expression, to children's navels to ease their gripes, and that often with success; and we are assured, by authors of credit, that when rubbed on the temples it promotes sleep.

MACEDONIAN PARSLEY. See Petroselinum macedonicum.

MA'CER, (μακερ; from *masa*, Heb.) the Grecian macer. The root imported from Barbary under this name, is supposed to be the simarouba.

MA'CERATION, (from *macero*, to soften by water), in pharmacy, a protracted infusion either with or without heat. It is used when the ingredients are intended to be almost wholly dissolved in order to extract their virtues.

MACHA'ON, a celebrated physician among the ancients, son of Æsculapius and brother to Podalirius. He went to the Trojan war with the inhabitants of Trica, Ithome, and Œchalia. According to some, he was king of Messenia. He was physician to the Greeks, and healed the wounds which they received during the Trojan war. Some suppose he was killed before Troy by Euripilus the son of Telephus. He received divine honours after death, and had a temple in Messenia.

MA'CIES, a consumption or wasting of the body. See Atrophia and Tabes.

MA'CIS; mace. See Mace.

MACROCE'PHALUS (compounded of μακρος, *great*, and κεφαλη, *head*), a term denoting a person with a head larger or longer than the common size. Macrocephali, or Long-heads, is a name given to a certain people, who, according to the accounts of authors, were famous for the unseemly length of their heads: yet instead of looking on it as a deformity, they esteemed it a beauty, and, as soon as the child was born, moulded and fashioned its head, with their hands, to as great a length as possible, and afterwards used all such rollers and bandages as might seem most likely to determine its growing long. The greater part of the islanders in the Archipelago, some of the people of Asia, and even some of those of Europe, still press their children's heads out lengthwise. We may observe also, that the Epirots, many people of America, &c. are all born with some singularity in the conformation of their heads; either a flatness on the top, two extraordinary protuberances behind, or one on each side; singularities which we can only regard as an effect of an ancient and strange mode, which at length is become hereditary in the nation. According to the reports of many travellers, the operation of compressing the skull lengthwise, while it is yet soft, is with a view insensibly to enlarge the interval between the two eyes, so that the visual rays turning more to the right and left, the sight would embrace a much larger portion of the horizon; the advantage of which they are well acquainted with in their constant exercise of hunting. The free negroes and Maroons, although Africans, have adopted this practice, since they have been established among the Caribs. These do it solely with the view of distinguishing their children, which are born free, from those who are born in slavery. The Omaquas, a people of South America, according to P. Veigh, press the heads of their children so violently between two boards, that they become sharp at the top, and flat before and behind. They do this to give their heads a greater resemblance to the moon.

MACROPI'PER, (*μακροπιπερ*; from *μακρος*, *long*, and *πιπερις*, *pepper)*. See PIPER LONGUM.

MA'CULA; a permanent discolouration of some portion of the skin, often with a change in its texture, but not connected with any disorder of the constitution. Macula are the spots popularly named *freckles.*

MA'CULA VENE'REA, a name for the venereal eruption. See LUES VENEREA.

MAD-APPLE; the oblong egg-shaped fruit of the *Solanum melongena*, Linn. In the countries which produce them, they are often boiled in soups and sauces, in the same way as the love-apple. They are not only accounted very nutritive, but are much sought after by the votaries of Venus, as a provocative.

MADARO'SIS, (*μαδαρωσις*; from *μαδος*, *bald*, without hair); a defect or loss of the eyebrows, or eyelashes, causing a disagreeable deformity, and great inconvenience to the eyes, in a strong light.

MADDER. See RUBIA.

MADNESS. See the articles MANIA, MELANCHOLIA, &c.

MA'DOR; a sweating. See EPHIDROSIS.

MAGELLA'NICUS CORTEX. See WINTERANUS CORTEX.

MAGISTE'RIUM, (from *magister*, a master); or *Magisteris*, a word used by the ancient chemists, to signify a peculiar and secret method of preparing any medicine, as it were by a masterly process. It implied a subtle preparation, as a precipitate, or solution by a menstruum. The term in many cases is synonimous with precipitate.

MAGISTRA'NTIA, (from *magistro*, to rule; so called by way of eminence, as exceeding all others in virtues). See IMPERATORIA.

MA'GNES, (from *Magnes*, its inventor), the magnet or loadstone; a muddy iron ore, in which the iron is modified by nature in such a manner as to become magnetic. The magnet exhibits certain phenomena which we cannot explain. It is known by its property of attracting steel filings, and is found in Auvergne, in Biscay, in Spain, in Sweden, and Siberia.

MAGNE'SIA, (from *magnes*, a loadstone, in allusion to its wonderful properties when first discovered), a kind of earth only known to us since the beginning of the last century. It first began to be famous at Rome, under the name of the *Count de Palma's powder*, which a canon there offered as a general remedy for all disorders. It was by many considered as a mere calcareous earth; but F. Hoffman showed it to be essentially different. The same was afterwards done by Dr. Black of Edinburgh and M. Margraaf of Berlin, though unknown to each other at the time. When pure, it is extremely white, loose, and light; the specific gravity about 2.330. It is one of the most infusible substances in nature; neither melting, nor even hardening or contracting much, in the focus of the most powerful burning-glass. Bergman informs us, that magnesia, unless precipitated by the volatile alkali, or that by the neat alkalised tartar, always contains some siliceous or calcareous earth. Almost the same thing happens when it is separated by calcination from the remaining lixiviations of the nitrous and marine acids; in which case, by such a violent fire, it adheres together, and even shows a tendency to vitrify.

Notwithstanding this extreme refractoriness of magnesia by itself, it melts easily with borax, though scarce affected by alkalies or the calces of lead. When mixed with other earths it produces hard masses of various kinds: when mixed with calcareous, argillaceous, or siliceous earths, it melts in the fire; and if four times its weight of green glass be added to it, the mass forms a kind of porcelaine so hard as to strike fire with steel. But neither an equal part of the above earths, nor of ponderous earth, glass of lead, vegetable alkali, or vitriolated tartar, added separately to magnesia, will melt in the fire: however, when mixed with common argillaceous earth, it melts into a hard mass. Magnesia differs from calcareous earth in having a much smaller attraction for carbonic gas. In this respect it is inferior even to fixed alkaline salts; so that it will not render any of these caustic, though it will do so to the volatile alkali. It also parts very readily with its own carbonic gas by mere heat; and it was by making experiments on this substance that Dr. Black made his first discoveries concerning this gas. In its calcined state, however, it does not show any of the causticity of lime, but may be safely taken internally; and is even preferred by some to that which contains fixed air. In this state it is much less soluble than when combined with fixed air, and does not effervesce with any acid. When mixed with water, a very small degree of heat is excited, and in about 7962 times its weight of water it totally dissolves. It dissolves also very readily in aërial acid, by which means it is frequently united with fresh water. For the same reason, when we mix a solution of perfectly mild alkali, either fixed or volatile, with a solution of magnesia, no precipitation follows; because the great quantity of fixed air extricated by the union of the acid and alkali, instantly dissolves the precipitate as fast as it is formed. But if we put this mixture over the fire, it will grow thick, and coagulate as soon as it is heated to a certain degree; because the magnesia is unable to retain, in any considerable heat, as much fixed air as is necessary for its solution.

On putting magnesia into water, and afterwards drying it, it is found to retain $\frac{18}{1170}$ of its weight of aqueous fluid; but when fully saturated with aërial acid, it will absorb and retain $\frac{66}{100}$ of the same. When fully saturated with aërial acid, it is more soluble in cold than in hot water; because the heat of the latter dissipates part of the fixed air, as was observed concerning the alkaline salts.

Magnesia, when combined with different acids, forms salts exceedingly different from those produced by calcareous earth under similar circumstances. It is usually prepared either from the bittern of the sea salt, or from the salt prepared from that liquid under the name of *Epsom salt.* The magnesia prepared directly from the bittern, however, is by no means equal in purity to that produced from the finer kinds of Epsom salt. Hence, in order to have pure magnesia, Bergman gives the following directions: "Let Epsom salt, in well-formed crystals, be dissolved in distilled water; and from this the magnesia is to be precipitated by mild volatile alkali. Some of this earth that remains suspended in the solution, by means of aërial acid, may be easily precipitated by a simple ebullition. An hundred parts of this magnesia, when rightly prepared, contains near twenty-five parts of fixed air, thirty of water, and forty-five of pure earth. Its specific gravity is then 2.155." This method of preparation may answer very well for having a very pure magnesia; but when it is required to have it very light and spongy, which, by those who use it, is looked upon to be the only criterion of its goodness, we must use separate solutions of Epsom salt, and of half the quantity of kali; adding them when nearly cold, and stirring them together. The whole, largely diluted with water, must afterwards be boiled in a copper kettle, with constant stirring, over a moderate fire, and the powder washed and dried on chalk stones in the usual manner. This magnesia will be found exceedingly white, light, and spongy, though its medicinal properties remain unchanged.

Magnesia is a good absorbent; and undoubtedly to be preferred to the testaceous powders, on account of its purgative quality when united with an acid, which the other has not. It has been esteemed hurtful in bilious habits where there is a disposition in the stomach contrary to acidity. This, however, according to Mr. Henry, of Manchester, is doubtful: and where putrid bile is to be corrected, he thinks good purposes may be answered by taking magnesia with an acid, in a state of effervescence; as the fixed air, thus extricated, will correct the putridity of the contents of the intestines, while they are at the same time evacuated downwards. He is also of opinion, that in cutaneous diseases it may enter the circulation in form of a neutral salt, and, by acting as a diaphoretic and diuretic, prove an excellent alterative.

The magnesia prepared as above is, however, only a *carbonate of magnesia:* but, for some medical purposes, it is used in a *calcined* state; in which case it is deprived of its carbonic acid, and then it proves nearly as aperient as a double quantity of that in an uncalcined state. Mr. Henry is of opinion, that this may be useful in distensions of the bowels arising from flatus; that it may be successfully employed as a cathartic with patients labouring under the stone, who are using the alkaline lixivium; and that, joined with warm aromatics, it may be of service in correcting the great flatulency which so much afflicts people of a gouty disposition. From several experiments made by the same author, it also appears that magnesia has a considerable antiseptic power. The like virtue he ascribes to all kinds of testaceous powders: whence he concludes, that medicines of this kind are by no means improper in fevers of a putrescent type; that where bile is suspected to be the cause of any putrid disease, those antiseptics should be prescribed which particularly impede its corruption; that, as calcined magnesia is a more powerful antiseptic than most other absorbents, it merits a preference to these; and that where an acid cacochymy prevails, magnesia or other absorbents, taken immediately before or after mealtime, may, by increasing the putrefactive fermentation of animal food, be of very great service. He also found, that magnesia has a power of promoting the solution of resinous gums in water; and thus we have an elegant and easy method of preparing aqueous tinctures from these substances. Such tinctures, however, are calculated only for extemporaneous prescription; as most of them deposit a sediment when they have been kept a week or two.

In the preparation of *pure*, or *calcined magnesia*, the colleges direct carbonate of magnesia to be put into a crucible, and kept in a red heat for two hours. It is then put up in close stopt glass vessels, because it attracts, though slowly, the carbonic acid of the atmosphere.

By this process the carbonate of magnesia is freed of its acid and water; and, according to the late Dr. Black's experiment, loses about $\frac{7}{12}$ of its weight. A kind of opaque foggy vapour is observed to escape during the calcination, which is nothing else than a quantity of fine particles of magnesia, buoyed off along with a stream of the disengaged gas. About the end of the operation, the magnesia exhibits a kind of luminous or phosphorescent property, which may be considered as a pretty exact criterion of its being deprived of its acid.

Magnesia is given as an absorbent, antacid, and eccoprotic, in cardialgia, spasms, convulsions, and tormina of the bowels of infants: pyrosis, flatulencies, and other diseases of the primæ viæ; obstipation, leucorrhœa, rickets, scrofula, crusta lactea, and podagra.

MAGNE'SIA CALCINA'TA. See MAGNESIA.

MAGNE'SIA U'STA. See MAGNESIA.

MAGNE'SIA VITRIOLA'TA, formerly called *Sal catharticus amarus*, and *Sal Epsomensis;* the very common purging salt, obtained in great abundance from the mineral waters at Epsom, in Surrey. It is a sulphate of magnesia, and therefore called *sulphas magnesiæ* in the new chemical nomenclature. It is mostly given as a cathartic in saburra of the primæ viæ, constipation, &c. Its nauseous taste is completely overcome by rubbing two or three bitter almonds to an ounce, and mixing them. Vitriolated magnesia is sometimes also employed to obtain magnesia.

MAGNETISM; the singular property which iron possesses of being attracted by the magnet.

MAGNETISM, ANIMAL; a sympathy lately supposed, by some persons, to exist between the magnet and the human body; by means of which the former became capable of curing many diseases in an unknown way, somewhat resembling the performances of the old magicians.

The fanciful system, to call it by no worse name, of animal magnetism, appears to have originated, in 1774, from a German philosopher, named *Father Hehl*, who greatly recommended the use of the magnet in medicine. M. Mesmer, a physician of the same country, by adopting the principles of Hehl, became the direct founder of the system: but, afterwards deviating from the tenets of his instructor, he lost his patronage, as well as that of Dr. Ingenhousz, which he had formerly enjoyed. Mesmer had already distinguished himself by "A Dissertation on the Influence of the Stars upon the Human Body," which he publicly defended in a thesis before the university of Vienna; but he was so unable to stand before the opposition of Hehl and Ingenhousz, that his system fell almost instantly into disrepute. Mesmer appealed to the Academy of Sciences at Berlin; but they rejected his principles as destitute of foundation, and unworthy the smallest attention. He then made a tour through Germany, publishing every where the great cures he performed by means of his animal magnetism, while his enemies every where pursued him with detections of the falsehood of his assertions.

Mesmer, still undaunted by so many defeats, returned to Vienna; but meeting there with no better success than before, he retired to Paris in the beginning of the year 1778. Here he met with a very different reception. He was first patronised by the author of the *Dictionaire des Merveilles de la Nature;* in which work a great number of his cures were published. Mesmer himself received likewise an ample testimony of his candour and *solid reasoning*. Our physician soon collected some patients; and in the month of April, 1778, retired with them to Creteil, from whence he in a short time returned with them perfectly cured. His success was now as great as his disappointment had been before. Patients increased so rapidly that the doctor was soon obliged to take in pupils to assist him in his operations. These pupils succeeded equally well as Mesmer himself; and so well did they take care of their own emolument, that one of them, named M. Deslon, realized upwards of 100,000l. sterling. In 1779, Mesmer published a memoir on the subject of Animal Magnetism, promising afterwards a complete work upon the same, which should make as great a revolution in philosophy as it had already done in medicine.

The new system now gained ground daily; and soon became so fashionable, that the jealousy of the faculty was thoroughly awakened, and an application concerning it was made to government. In consequence of this, a committee was appointed to inquire into the matter, consisting partly of physicians and partly of members of the Royal Academy of Sciences, with Dr. Benjamin Franklin at their head. This was a thunderstroke to the supporters of the new doctrine. Mesmer himself refused to have any communication with the committee; but his most celebrated pupil, Deslon, was less scrupulous, and explained the principles of his art in the following manner: 1. Animal magnetism is an universal fluid, constituting an absolute plenum in nature, and the medium of all mutual influence between the celestial bodies and betwixt the earth and animal bodies. 2. It is the most subtile fluid in nature; capable of a flux and reflux, and of receiving, propagating, and continuing all kinds of motion. 3. The animal body is subjected to the influences of this fluid, by means of the nerves, which are immediately affected by it. 4. The human body has poles and other properties analogous to the magnet. 5. The action and virtue of animal magnetism may be communicated from one body to another, whether animate or inanimate. 6. It operates at a great distance, without the intervention of any body. 7. It is increased and reflected by mirrors; communicated, propagated, and increased by sound; and may be accumulated, concentrated, and transported. 8. Notwithstanding the universality of this fluid, all animal bodies are not equally affected by it; on the other hand, there are some, though but few in number, the presence of which destroys all the effects of animal magnetism. 9. By means of this fluid, nervous disorders are cured immediately, and others mediately; and its virtues, in short, extend to the universal cure and preservation of mankind.

From this extraordinary theory, Mesmer, or M. Deslon, had fabricated a paper, in which he stated that there was in nature but one disease and one cure, and that this cure was animal magnetism: and, lastly, M. Deslon engaged, 1. To prove to the commissioners that such a thing as animal magnetism existed: 2. To prove the utility of it in the cure of diseases: after which he was to communicate to them all that he knew upon the subject. The commissioners accordingly attended in the room where the patients underwent the magnetical operations. The apparatus consisted of a circular platform made of oak, and raised about a foot and a half from the ground; which platform was called the *baquet*. At the top of it were a number of holes, in which were iron rods with moveable joints, for the purpose of applying them to any part of the body. The patients were placed in a circle around, each touching an iron rod, which he could apply to any part of the body at pleasure; they were joined to one another by a cord passing round their bodies, the design being to increase the effect by communication. In the corner of the room was a piano forte, on which some airs were played, occasionally accompanied with a song. Each of the patients held in his hand an iron rod, ten or twelve feet long; the intention of which, as Deslon told the commissioners, was to concentrate the magnetism in its point, and thus to render its effects more sensible. Sound is another conductor of this magnetism; and in order to communicate the magnetism to the piano-forte, nothing more is necessary than to bring the iron rod near it. Some magnetism is also furnished by the person who plays it; and this magnetism is transmitted to the patients by the sounds. The internal part of the platform was said to be so contrived as to concentrate the magnetism, and was the reservoir whence the virtue diffused itself among the patients. Its structure, however, is not mentioned; but the committee satisfied themselves, by means of a needle and electrometer, that neither common magnetism nor electricity were concerned.

Besides the different ways of receiving the magnetism already mentioned, viz. by the iron, cord, and piano-forte, the patients also had it directly from the doctor's finger, and a rod which he held in his hand, and which he carried about the face, head, or such parts of the patient as were diseased; observing always the direction of what he called the poles. The principal application of magnetism however, was by pressure of the hands or fingers on the hypochondria or lower regions of the stomach.

The effects of these operations upon Deslon's patients were very different. Some felt nothing, neither had the magnetism any effect whatever upon them. Some spit, coughed, sweat, and felt, or pretended to feel, extraordinary heats in different parts of the body. Many women, but very few men, had convulsions, which Deslon called their crisis, &c. The commissioners at last found that they could come to no satisfactory conclusion while they attended in this public way, and therefore determined to try the experiments themselves privately. As the fluid itself, however, was totally imperceptible by any of the senses, they could only ascertain themselves of its existence, by ultimately curing diseases, or by its observable effects upon the human body. Being well assured, however, that though many diseases were cured, it would not amount to any proof of the existence of animal magnetism, they determined to observe its effects on the animal economy. For this purpose they made the following experiments: 1. They tried it upon themselves, and felt nothing. 2. Seven of Deslon's patients were magnetised at Dr. Franklin's house, four of whom felt nothing; three felt, or affected to feel, something. 3. Several persons in a higher sphere of life were magnetised, and felt nothing. 4. The commissioners, now determined to discover what share imagination had in this business, blindfolded several of the common people, and made them sometimes think that they were magnetised, at other times they magnetised them without letting them know that they did so: the consequence was, that when they supposed themselves magnetised, the patients likewise thought they felt something, and *vice versa*. 5. A magnetised tree was said to produce convulsions: a young man, blindfolded, fell into convulsions when he imagined himself near the tree, though he was really at a considerable distance from it. Deslon accounted for this on the principle of all trees being magnetic: but, in this case, every one susceptible of magnetism would be seized with convulsions when he approached a tree. The same influence of imagination was observed in a woman accustomed to have convulsions when magnetised. They came on when nothing was done to her, on being told, when blinded, that she was magnetised.

Other instances are given, from which is was evident, either that the patients were impostors, or in such a most wretched state of debility, both of mind and body, that the most trifling effects of the former had the most powerful effects on the latter. The commissioners, therefore, entirely disapproved of the whole. The touch, imitation, and imagination, they concluded, were the great causes of the effects produced by Mr. Deslon's operations; and by means of these they supposed that convulsions, which in themselves are a very violent disorder, might be spread much farther than could be wished, even through a whole city. It was observed that the operator sometimes pressed strongly, and for a length of time, upon different parts of the body, particularly the hypochondria and pit of the stomach; and it is well known that a strong pressure on these parts will produce disagreeable sensations on those who enjoy perfect health.

It is needless to add more on this subject, than that Mesmer complained of the report of the commissioners, petitioned parliament, was by them commanded to discover the mysteries of his doctrine; and that it is now exploded by every man of sense. The conclusion of the academicians concerning it was, that it is not entirely useless, even to philosophy; as it is one *fact* more to be consigned to the history of the errors and illusions of the human mind, and a signal instance of the power of imagination.

MA'GNUM OS, the name of the third bone of the lower row of the bones of the carpus, reckoning from the thumb towards the little finger.

MAHO'GANI, the *Swietenia mahogani* of Linnæus. The tree whose wood bears this name, is very well known. Its bark, when dried, has an astringent bitter taste, like that of cinchona, but stronger. For this indeed it appears to have been substituted, in the cure of fevers and other diseases.

MAIDEN-HAIR. See Adiantuum.

MAIDEN-HAIR, CANADA, *Adianthum Canadense;* the *Adianthum pedatum*, Linn. It is commonly used in France for the same purposes as the common adianthum in this country, and appears to be superior to it in its sensible qualities. See Adianthum.

MAIDEN-HAIR, ENGLISH. See Adianthum.

MAIDEN-HAIR TREE; the *Ginkgo*, or *Ginan Itsio*, of China and Japan. Where this tree grows, the fruit acquires the size of a damask plum, and contains a kernel like that of our apricot. These kernels make part of the desert at all public feasts and entertainments. They are said to promote digestion, and to strengthen the stomach and bowels; but they are little known with us.

MAIZE, or Mays; the grain popularly named Indian corn. See Zea.

MAJA'NTHEMUM. See Lilium convallium.

MAJORA'NA, (corrupted from *majorano*, *quod mense Maia floreat;* because it flowers in May), sweet marjoram; the *Origanum majorana*, Linn. *Origanum foliis ovatis obtusis, spicis subrotundis compactis pubescentibus.* Class, *Didynamia.* Order, *Gymnospermia.* This plant is cultivated in gardens, and frequently used for culinary purposes. The leaves and tops have a pleasant smell, and a moderately warm, aromatic, bitterish taste. The medicinal qualities of this are similar to those of the wild plant (see Origanum); but being much more fragrant, it is thought to be much more cephalic. It is an ingredient in the *pulvis sternutatorius* of the Pharmacopœias; more, however, with a view to the agreeable odour which it gives to the asarabacca, than to its errhine power, which is inconsiderable. In its recent state it is sometimes applied to scirrhous tumors of the breast.

MAJORA'NA SYRI'ACA. See Marum syriacum.

MALABAR PLUM, a fruit which is the produce of the *Eugenia jambos.* It smells, when ripe, like a rose. In Malabar, where the trees grow plentifully, these plums are in great esteem. They are not only eaten fresh off the trees, but preserved in sugar, in order to have them all the year. Of the flowers a conserve is prepared, which is used medicinally as a mild astringent, but their properties in this way are inconsiderable.

MALABA'THRUM, (*μαλαϐαθρον*, from *Malabar*, in India, whence it was brought, and *betre*, Ind. a leaf); the leaf of the tree whose bark is called cassia. See Cassia lignea.

MALA'CCA BEAN. See Anacardium orientale.

MALACHI'TES, (of *μαλαχη*, *the mallow*, from its resemblance in colour to the mallow), *malachite;* a species of copper ore found in Siberia.

MALACO'STEON, (*μαλακοϛεον*; from *μαλακος*, *soft*, and *οϛεον*, *a bone).* See Mollities ossium.

MA'LÆ OS, (from *malas*, so called from its roundness); the cheek bone. See Jugale os.

MA'LATES, or malats; salts formed by a union of the malic acid with different bases. These salts are little known, having been examined, and that superficially, only by Scheele. The malates of potass, soda, and ammonia are deliquescent. Malates of lime, barytes, and magnesia, are very insoluble. Malate of potass, soda, ammonia, lime, or barytes, may be formed by dissolving these alkalies in malic acid, and evaporating the solutions.

MALE FERN. See Filix.

MALE ORCHIS. See Satyrion.

MALE SPEEDWELL. See Veronica.

MALIC ACID, a peculiar acid found in the juice of unripe apples, and in that of barberries, elder-berries, gooseberries, plums, and the common house-leek. It cannot be obtained in a crystalline form, but appears always in the liquid state. Its taste is an unpleasant sour. If left exposed to the air it gradually undergoes a spontaneous decomposition. Nitric acid converts it into oxalic acid. Mr. Accum describes the three following methods of obtaining malic acid.

1. Take the juice of apples, saturate it with potass, and then add a solution of acetite of lead, till it no longer occasions a precipitate; wash this precipitate, which is malate of lead; pour over it sulphuric acid, till the liquor acquires an acid taste without any mixture of sweetness, and filter the whole, in order to separate the malic acid from the sulphate of lead which is formed.

2. Malic acid is also obtained by adding to the expressed juice of house-leek, a solution of acetite of lead, till no farther precipitate ensues. The precipitate, after being washed, may be decomposed by sulphuric acid as before.

3. Malic acid may likewise be produced by distilling equal quantities of nitric acid and sugar, till the solution acquires a brown colour. The sugar is thus partly converted into oxalic, and partly into malic acid. The oxalic acid may be separated by mingling the solution with lime-water, until no farther precipitate ensues; the malic acid is then left behind. In order to obtain it in a pure state, neutralize it with lime, filter the solution, and mix it with alkohol. A coagulation now takes place, for the water separates, and the malic acid, united to the lime, may be obtained by filtration. Having done this, let it be dissolved in water, and add to it a solution of acetite of lead until no farther precipitate ensues. This precipitate, which is malate of lead, may be decomposed by sulphuric acid, as before directed. See Malates.

MALIGNANT; an epithet which may be applied to any disease whose symptoms are so aggravated as to threaten the destruction of the patient. It is frequently used to signify a dangerous epidemic, as the yellow fever, &c.

MA'LIS, a disease of the skin, produced by an insect which is lodged underneath. It is very common in Persia, where the disease is produced by the worm called *Gordius medinensis*, or *Dracunculus Persicus;* in America, by the *Pulex*; and it is sometimes produced in Europe by the *Pediculus.*

MALLEABILITY, (from *malleus*, a hammer), the property which several metals possess of being extended under the hammer, into thin plates, without cracking. The most malleable of all the metals is gold.

MA'LLEI ANTE'RIOR. See Laxator tympani.

MA'LLEI EXTE'RNUS. See Laxator tympani.

MA'LLEI INTE'RNUS. See Tensor tympani.

MALLE'OLUS, (of *malleus*, a mallet; so called from its supposed resemblance to a mallet); the ankle. This is distinguished into external and internal, or *malleolus externus* and *internus.*

MA'LLEUS, (*quasi molleus*, from *mollio*, to soften;

so called from its likeness to a little hammer), the name of a bone of the internal ear. It has its head, neck, and manubrium. The *head* is round, and encrusted with a thin cartilage, and annexed to another bone of the ear, the incus, by ginglymus. Its *neck* is narrow, and situated between the head and manubrium or handle; from which a long slender process arises, adheres to a furrow in the auditory canal, and is continued as far as the fissure in the articular cavity of the temporal bone. The *manubrium* is terminated by an enlarged extremity, and connected to the membrana tympani by a short conoid process. See EAR.

MALLOW, COMMON. See MALVA.

MALLOW, ROUND-LEAVED. See MALVA ROTUNDIFOLIA.

MALLOW VERVAIN. See MALVA ALCEA.

MALOUIN (Paul-Jacques), born at Caen in 1701, was professor of medicine in the Royal College of Paris, physician in ordinary to the queen, and a member of the Royal Society of London, and of the Academy of Sciences of Paris. These stations were a proper reward for his very extensive information in medicine and chemistry; and his amiable and steady character procured him many friends and protectors. He was very unlike some modern physicians, who put little trust in medicine; on the contrary, he is said to have believed the certainty of his art as firmly as a mathematician does that of geometry. He was a stranger to the infirmities of age; and died at Paris of an apoplexy, in 1778, in his 77th year. His principal works are, 1. *Traité de Chimie*, 1734, 12mo. 2. *Chimie medicinale*, 2 vols. 12mo. 1735; a book full of curious observations. 3. Some papers in the Collection published by the Academy of Sciences on the arts and professions. 4. He was likewise the author of the chemical articles in the French *Encyclopédie*.

MALPIGHI (Marcellus), an eminent Italian physician and anatomist in the 17th century. He studied under Massari and Mariano. The duke of Tuscany invited him to Pisa, to be professor of physic there. In this city he contracted an intimate acquaintance with Borelli, to whom he ascribed all the discoveries he had made. He went back to Bologna, the air of Pisa not agreeing with him. Cardinal Antonio Pignatelli, who had known him while he was legate at Bologna, being chosen pope in 1691, under the name of Innocent XII. immediately sent for him to Rome, and appointed him his physician. But this did not hinder him from pursuing his studies, and perfecting his works, which have immortalized his memory. He died in 1694; and his works, with his life written by himself prefixed, were first collected and printed at London, in folio, 1667.

MALPI'GHIA GLA'BRA; the systematic name of the tree which affords an esculent cherry. See BARBADOES CHERRY.

MALT; barley roasted, and otherwise prepared, to fit it for making potable liquors, under the denomination of *beer* or *ale*. Malt liquors have different names as well as different virtues, properties, and uses, both from the different manners of preparing the malt, whence they are distinguished into *pale* and *brown;* and from the different manners of preparing or brewing the liquors themselves, whence they are divided into *beer* and *ale*, *strong* and *small*, *new* and *old*. Malt liquors are, in general, the more wholesome for being small; or at most of such a strength as to excite a small degree of warmth in the stomach, but not so great as to prevent their being proper diluters of the food. Indeed, in robust people, or those who labour hard, the viscidities of this liquor may supply convenient nourishment; but in persons of a different way of living, they rather promote obstructions and bring on chronic diseases. The age of malt liquor is very material, to render it more or less wholesome. It seems to do nearly the same thing as hops; for those liquors which are longest kept are certainly the least viscid.

MA'LUM, (of the Gr. μαλὸν), the Latin term for the apple, as is *pomum*. In inflammatory and other febrile complaints apples are allowed as food when roasted. Sliced and infused in boiling water, they make a pleasant diluting drink. When thoroughly roasted the soft pulp is applied to the eye in the form of a cataplasm, without any intervening substance, in cases of ophthalmia, if the parts be not too irritable.

MA'LUM MO'RTUUM; the name of a peculiar disease appearing in the form of a pustule, which soon forms a dry, brown, hard, and broad crust. It is seldom attended with pain, and remains fixed for a long time before it can be detached. It is mostly observed on the tibia and os coccygis, and sometimes on the face, in which last situation it sometimes degenerates into a carcinoma.

MA'LVA, *(quasi molva*, from *mollis*, soft; named from the velvet softness of its leaves); the *Malva vulgaris*, or common mallow. *Malva sylvestris*, Linn. *Malva caule erecto herbaceo, foliis septemlobatis acutis, pedunculis petiolisque pilosis.* Class, *Monadelphia.* Order, *Polyandria.* This indigenous plant has a strong affinity to the althæa, both in its botanical and medicinal character. See ALTHÆA. It is principally used in decoction, for fomentations, cataplasms, and emollient clysters.

MAL'VA ALCE'A; vervain mallow. The leaves and flowers of this plant are used medicinally in some countries. This plant is the least mucilaginous of all the mallow tribe.

MA'LVA ARBO'REA, the mallow-tree. This beautiful tree is the *alcea rosacea*, Linn. The flowers are somewhat astringent and mucilaginous, but they are seldom used medicinally in this country.

MA'LVA ROTUNDIFO'LIA; the round-leaved mallow. The leaves and root possess similar virtues to, and may be substituted for, the common mallow. See MALVA.

MA'LVA SYLVE'STRIS; the systematic name of the common mallow. See MALVA.

MA'LVA VULGA'RIS. See MALVA.

MALVERN WATER, a mineral spring in Worcestershire. This is classed among the simple cold waters. Its contents, as well as that of Holywell in the county of Flint, are some carbonic acid, a very small portion of earth, either lime or magnesia, united with the carbonic and marine acids; perhaps a little neutralised alkaline salt, and a very large proportion of simple water. Malvern water is principally employed *externally* in scrofulous inflammations of the eyes, and in various cases of cutaneous eruption. *Internally*, it is prescribed in painful affections of the kidneys and bladder, attended with bloody, purulent, or fetid urine, irritating sores of the internal surface, and fistulas of long standing.

MAMI'LLÆ, (dim. of *mamma*, the breast). The breasts of men are so termed. It is also applied sometimes to the nipple. See MAMMÆ.

MA'MMÆ, two eminences more or less round, situated in the anterior, and a little toward the lateral parts of the thorax, their centre or middle part lying almost opposite to the bony extremity of the sixth true rib on each side. They are commonly called the *breasts*. Their size and figure vary in different sexes and different ages. In children of both sexes, and in males of all ages, they are commonly no more than cutaneous tubercles, or soft verrucæ of a reddish colour, called *papillæ* or *nipples;* each of them being surrounded by a small, thin, and pretty broad circle or disk, more or less of a brownish colour and uneven surface, termed *areola.*

In females come to the age of puberty, which is sometimes sooner, sometimes later, a third part is joined to the two former, which is a convex protuberance, more or less round, of about five or six fingers in breadth; the papilla and areola being situated near the middle of its convex surface. This is what is properly termed *mamma;* and it may be termed the *body of the breast*, when compared with the other two parts. It increases with age, and is very large in women with child, and in those that give suck. In old age it decreases and becomes flabby, losing its natural consistence and solidity.

The body of the mamma is partly glandular, and partly made up of fat; or it is a gland of the conglomerate kind, surrounded on all sides with cellular substance and fat. The glandular part is divided into little masses, separated also by fat, and which are divided into small granulæ, from which the lactiferous ducts arise. The cellulous pelliculæ support a great many blood-vessels, lymphatics, and serous or lactiferous ducts, together with the small glandular moleculæ already mentioned; all of them being closely surrounded by two membranes continued from the pelliculæ.

The innermost of these two membranes, which is in a manner the basis of the body of the mamma, is thick and almost flat, adhering to the musculus pectoralis major. The second or external membrane is thinner, forming a particular integument for the body of the mamma, more or less convex, and adhering closely to the skin.

The corpus adiposum of the mamma in particular, is a spongy cluster, more or less interlarded with fat, or a collection of membranous pelliculæ, which, by the particular disposition of their outer sides, form a kind of membrane in shape of a bag, in which all the rest of the corpus adiposum is contained. The anterior or outer portion of this bag, or that which touches the skin, is very thin; but that side next the pectoralis major is thick.

The glandular body contains a white mass, which is merely a collection of membranous ducts, narrow at their origin, broad in the middle, and which contract again as they approach the papilla, near which they were supposed by some to form a circle of communication; but from the observations of the latest anatomists, the ducts have little or no communication with each other at this place. They are named *ductus lactiferi;* and, in their course, are accompanied by a ligamentous elastic substance, which terminates with them in the nipple. Both this substance, and the ducts it contains, are capable of considerable extension and contraction; but in their natural state are moderately corrugated, so as to prevent an involuntary flow of milk, unless the distending force be very great, from the accumulation of too great a quantity.

The *areola*, or coloured disk already mentioned, is formed by the skin; the inner surface of which sustains a great number of small glandular moleculæ, of that kind which Morgagni calls *glandulæ sebaceæ.* They appear very plainly all over the areola, even on the outside, where they form little flat heights or eminences at different distances quite round the circle. These tubercles are perforated by small holes, through which a kind of sebaceous matter, more or less liquid, is poured out to defend the areola and nipple. Sometimes one or more of the lactiferous ducts have been found to terminate upon the surface of the areola; from which it would appear Morgagni was led to think that the glands there are of the lactiferous kind.

The tubercle which lies in the centre of the areola, is termed *papilla*, or the *nipple.* See NIPPLE.

The arteries and veins distributed through the mammæ, are ramifications of the arteriæ and venæ mammariæ; of which one kind comes from the subclaviæ, and are named *mammariæ internæ;* the others from the axillaries, called *mammariæ externæ.* These vessels communicate with each other, with those near them, and with the vasa epigastrica. The nerves come chiefly from the costales, and, by means of these, communicate with the great nervi sympathetici. The mamma has numerous lymphatic vessels, which Wrisberg observes run in two sets; and that most of these vessels gradually collect into a great plexus, which go to the axillary glands; but others enter the thorax, through the interstices of the ribs, near the sternum, and communicate with the glands behind the mammary vessels.

The use of the mammæ, in the nourishment of children, is too well known to require a particular description; but it is not certainly known what the papillæ and areolæ in males can be designed for. Milk has been observed in them in children of both sexes; and this happened to one of Winslow's brothers when he was about two years of age. The secretion of the milk in the breasts of women is sometimes interrupted, in which case, fever and abscess are apt to be produced. See MILK FEVER and MILK BREAST. But the most dreadful of all afflictions of this part is cancer. See CANCER.

MAMMILLA'RES ARTERIÆ, the mammary arteries. The internal mammary artery is a branch of the subclavian, and gives off the mediastinal, thymal, and pericardiac arteries. The external mammary is a branch of the axillary artery. See ARTERIES.

MAMMILLA'RES VENÆ; the mammary veins. These vessels accompany the arteries, and evacuate their blood into the subclavian vein.

MA'MMEA AMERICA'NA; the systematic name of the tree on which the mammee fruit grows. See MAMMEE.

MAMMEE; a delicious fruit, the produce of the *Mammea Americana*, Linn. The mammee fruit has a very grateful flavour when ripe. This tree is much cultivated in Jamaica, where the fruit is generally sold in the markets.

MAN, the head of the animal creation; a being who feels, reflects, thinks, contrives, and acts; who has the power of changing his place upon the earth at pleasure; who possesses the faculty of communicating his thoughts by means of speech; and who has dominion over all other creatures on the face of the globe. Animated and enlightened by a ray from the Divinity, he surpasses in dignity every material being. He spends less of his time in solitude, than in society and in obedience to those laws which he himself has framed.

In the "*Systema Naturæ*" MAN *(Homo)* is ranked as a distinct genus of the order *Primates* or "Chiefs," belonging to the *Mammalia* class of animals, or those which nourish their young by means of lactiferous teats or paps. Of this genus he is the only species; and denominated *Sapiens*, as being endowed with wisdom far superior to, or rather in exclusion of, all other animals. The difference of climate, education, and habits, have produced several varieties, which are enumerated by Linnæus; but which are less perspicuous than those of Gmelin. They are as follow:

1. *White*:—Formed by the rules of symmetrical elegance and beauty; or at least what we consider as such. This division includes almost all the inhabitants of Europe; those of Asia on this side of the Oby, the Caspian, Mount Imaus, and the Ganges; likewise the natives of the north of Africa, of Greenland, and the Esquimaux.

2. *Brown*:—Of a yellowish brown colour; has scanty hairs, flat features, and small eyes. This variety takes in the whole inhabitants of Asia not included in the preceding division.

3. *Black*:—Of black complexion; has frizzly hair, a flat nose, and thick lips. The whole inhabitants of Africa, excepting those of its more northern parts.

4. *Copper-coloured*:—The complexion of the skin resembles the colour of copper not burnished. The whole of the inhabitants of America, except the Greenlanders and Esquimaux.

5. *Tawny*:—Chiefly of a dark blackish-brown colour; having a broad nose, and harsh coarse straight hair. The inhabitants of the Southern islands, and of most of the Indian islands.

Man differs from the other animals in his erect posture and naked skin, having a hairy scalp, being furnished with hair on the eye-brows and eye-lashes, and having, when arrived at puberty, the pubes, breast, arm-pits, and the chin of the males, covered with hair. His brain is larger than that of any other animal, even the most enormous; he is provided with an *uvula*, and has organs of speech. His face is placed in the same parallel line with his body: he has a projecting compressed nose, and a prominent chin. His feet, in walking, rest on the heel. He has no tail: and lastly, the species is distinguished from other animals by some peculiarities of the female constitution, to wit, the menstrual evacuation.

Anatomists have employed much pains in the study of the material part of man, and of that organization which determines his place in the animal creation. From tracing and combining his different external parts; from observing that his body is in some places covered with hair; that he can walk upon his hands and his feet at the same time, in the manner of quadrupeds; that, like certain animals which hold their food in their paws, he has two clavicles; that the female brings forth her young alive, and that her breasts are supplied with milk: from these circumstances we might be led to assign man a place in the class of viviparous quadrupeds. But, in our opinion, such an arrangement would be defective, arbitrary, and absurd. Man is not a quadruped: of all the animals, he alone can support himself, continually and without restraint, in an erect posture; that is, with his head and body in a verticle line upon his legs. In this majestic and dignified attitude, he can change his place, survey this earth which he inhabits, and turn his eyes towards the vault of heaven. By a noble and easy gait, he preserves an equilibrium in the several parts of his body, and transports himself from one place to another with different degrees of celerity. To man alone nature has denied a covering; but still he is her master-piece, the last work which came from the hands of the Almighty Artist; the sovereign and the chief of animals, a world in miniature, the centre which connects the universe together. The form of his body, the organs whereof are constructed in such a manner as to produce a much greater effect than those of other animals, announces his power. Every thing demonstrates the excellence of his nature, and the immense distance placed by the bounty of the Creator between man and beast. Man is a reasonable being; brute animals are deprived of that noble faculty. The weakest and most stupid of the human race is able to manage the most sagacious quadruped; he commands it, and makes it subservient to his use. The operations of brutes are purely the effect of mechanical impulse, and continue always the same; human works are varied without end, and infinitely diversified in the manner of execution. The soul of man is free, independent, and immortal. He is fitted for the study of science, and the cultivation of art; he has the exclusive privilege of examining every thing which has existence, and of holding communication with his fellow-creatures by language, by particular motions of the body, and by marks and characters mutually agreed upon. Hence arises that physical pre-eminence which he enjoys over all animals; and hence that power which he possesses over the elements, and (so to speak) over nature itself. Man, therefore, is unequalled in his kind; but the individuals thereof differ greatly from one another in figure, stature, colour, manners, and disposition. The globe which man inhabits is covered with the productions of his industry, and the works of his hands: it is his labour, in short, which gives a value to the whole terrestrial mass.

The history of man is an object of attention highly interesting, whether we consider him in the different periods of his life, or take a view of the varieties of the species, or examine the wonderful organization of his frame. To attempt, however, even a short sketch of him in these different points of view, would carry us far beyond our prescribed limits, we therefore refer the reader to the writings of Linnæus and Buffon for whatever may be wanting to complete this account.

The latter writer draws a striking picture of man's weakness, in the condition of an *infant* immediately after birth. Incapable of employing its organs, it needs assistance of every kind. In the first moments of our existence, we present an image of pain and misery, and are more weak and helpless than the young of any other animal. At birth, the infant passes from one element to another: When it leaves the gentle warmth of the tranquil fluid by which it was completely surrounded in the womb of its mother, it becomes exposed to the impressions of the air, and instantly feels the effects of that active element. The air acting upon the olfactory nerves, and upon the organs of respiration, produces a shock something like sneezing, by which the breast is expanded, and the air admitted into the lungs. In the mean time, the agitation of the diaphragm presses upon the viscera of the abdomen, and the excrements are thus, for the first time, discharged from the intestines, and the urine from the bladder. The air dilates the vesicles of the lungs, and, after being rarefied to a certain degree, is expelled by the spring of the dilated fibres reacting upon this rarefied fluid. The infant now respires; and articulates sounds, or cries. See INFANCY.

The life of man, and of other animals, is measured only from the moment of birth: both enjoy existence, however, previous to that period, and begin to live in the state of a fœtus. The period of infancy extends from the moment of birth to about twelve years of age.

Adolescence, together with puberty, begin at the age of twelve or fourteen, and commonly end in girls at fifteen, and in boys at eighteen, but sometimes not till twenty-one, twenty-three, and twenty-five years of age. According to its etymology (being derived from the Latin word *adolescentia)*, it is completed when the body has attained its full height. Thus, puberty accompanies adolescence, and precedes youth. This is the spring of life; though, alas! the smiling season is of short duration. Hitherto Nature seems to have had nothing in view but the preservation and increase of her work: she has made no provision for the infant, except what is necessary to its life and growth. It has lived, or rather enjoyed a kind of vegetable existence, which was shut up within itself, and which it was incapable of communicating. In this first stage of life, reason is still asleep: but the principles of life soon multiply, and man has not only what is necessary to his own existence, but what enables him to give existence to others. The redundancy of life, this source of health and vigour, can no longer be confined, but endeavours to diffuse and expand itself.

The age of *puberty* is announced by several marks. The first symptom is a kind of numbness and stiffness in the groins, accompanied with a new and peculiar sensation in those parts which distinguish the sexes. There, as well as in the arm-pits, small protuberances of a whitish colour appear, which are the germs of a new production of a kind of hair, by which these parts are afterwards to be veiled. The voice, for a considerable time, is rough and unequal; after which it becomes fuller, stronger, and graver, than it was before. This change may easily be distinguished in boys; but less so in girls, because their voices are naturally sharper. These marks of puberty are common to both sexes: but there are marks peculiar to each, such as the discharge of the menses, and the growth of the breasts, in girls; the beard, and the emission of semen, in boys; in short, the feeling of venereal desire, and the appetite which unites the sexes. Among all races of mankind, the females arrive at puberty sooner than the males; but the age of puberty is different in different nations, and seems partly to depend on the temperature of the climate and the quality of food. In all the southern countries of Europe, and in cities, the greatest part of girls arrive at puberty about twelve, and boys about fourteen years of age. But in the northern parts, and in the country, girls scarcely arrive at puberty till they are fourteen or fifteen, and boys not till they are sixteen or seventeen. In our climate, girls, for the greatest part, have attained complete maturity at eighteen, and boys at twenty years of age.

At this age, the body commonly attains its full height. About that time, young people shoot out several inches almost at once. But there is no part of the human body which increases more quickly and more perceptibly than the organs of generation in both sexes. In males, this growth is nothing but an unfolding of the parts, an augmentation in size; but in females, it often occasions a shrinking and contraction, which have received different names from those who have treated of the signs of virginity.

At the age of puberty, or a few years after, the body attains its full stature. Some young men grow no taller after fifteen or sixteen, and others continue to grow till the age of twenty or twenty-three. At this period they are very slender: but by degrees the members swell, and begin to assume their proper shape; and before the age of thirty, the body in man has attained its greatest perfection with regard to strength, consistence, and symmetry. Adolescence ends at the age of twenty or twenty-five, and at this period youth (according to the division which has been made of the years of man's life into different ages) begins. It continues till the age of thirty or thirty-five.

The common stature of men is about five feet and three, four, five, six, or seven inches; and of women about five feet and two, three, or four inches. Men below five feet are of a small stature. The Laplanders do not exceed four feet and a half; and the natives of some other countries are still smaller. Women attain their full height sooner than men. Haller computes, that in the temperate climates of Europe, the medium stature of men is about five feet and five or six inches. It is observed by the same author, that in Switzerland the inhabitants of the plains are taller than those of the mountains. It is difficult to ascertain, with precision, the actual limits of the human stature. In surveying the inhabited earth, we find greater differences in the stature of individuals than in that of nations. In the same climate, among the same people, and sometimes in the same family, there are men whose stature is either too tall or too diminutive. See the articles GIANT and DWARF.

The body having acquired its full height during the period of adolescence, and its full dimensions in youth, remains for some years in the same state, before it begins to decay. This is the period of manhood, which extends from the age of thirty or thirty-five, to that of forty or forty-five years. During this stage, the powers of the body continue in full vigour, and the principal change which takes place in the human figure arises from the formation of fat in different parts. Excessive fatness disfigures the body, and becomes a very cumbersome and inconvenient load.

The body of a well-shaped man ought to be square, the muscles ought to be strongly marked, the contour of the members boldly delineated, and the features of the face well defined. In women, all the parts are more rounded and softer, the features are more delicate, and the complexion brighter. To man belongs strength and majesty; gracefullness and beauty are the portion of the other sex. The structure essential to the several parts of the human body, is considered under the different heads to which they belong.

Physiologists give the name of old age to that period of life which commences immediately after the age of manhood, and ends at death; and they distinguish green old age from the age of decrepitude. But, in our opinion, such an extensive signification of the word ought not to be admitted. We are not old men at the age of forty or forty-five; and though the body then gives signs of decay, it has not yet arrived at the period of old age. M. Daubenton observes, that it would be more proper to call it the *declining age*, because nature then becomes retrograde, the fatness and good plight of the body diminishes, and certain parts of it do not perform their functions with equal vigour.

The age of decline extends from forty or forty-five to sixty or sixty-five years of age. At this time of life, the diminution of the fat is the cause of those wrinkles which begin to appear in the face and some other parts of the body. The skin, not being supported by the same quantity of fat, and being incapable, from want of elasticity, of contracting, sinks down and forms folds. In the decline of life, a remarkable change takes place also in vision. In the vigour of our days, the crystalline lens, being thicker and more diaphanous than the humours of the eye, enables us to read letters of a very small character at the distance of eight or ten inches. But when the age of decline comes on, the quantity of the humours of the eye diminishes, they lose their clearness, and the transparent cornea becomes less convex. To remedy this inconvenience, we place what we wish to read at a greater distance from the eye: but vision is thereby very little improved, because the image of the object becomes smaller and more obscure. Another mark of the decline of life is a weakness of the stomach, and indigestion, in most people who do not take sufficient exercise in proportion to the quantity and quality of their food.

At sixty, sixty-three, or sixty-five, the signs of decline become more and more visible, and indicate *old age*. This period commonly extends to the age of seventy, sometimes to seventy-five, but seldom to eighty. When the body is extenuated and bent by old age, it then becomes crazy. The eyes and stomach become weaker and weaker; leanness increases the number of the wrinkles; the beard and the hair become white; the strength and the memory begin sensibly to fail. After seventy, or at most eighty, years of age, the life of man is nothing but labour and sorrow: such was the language of David near three thousand years ago. Some men of strong constitutions, and in good health, enjoy old age for a long time without decrepitude; but such instances are not very common.

The signs of *decrepitude* form a striking picture of weakness, and announce the approaching dissolution of the body. The memory totally fails; the nerves become hard and blunted; deafness and blindness take place; the senses of smell, of touch, and of taste are destroyed; the appetite fails; the necessity of eating, and more frequently that of drinking, are alone felt; after the teeth fall out, mastication is imperfectly performed, and digestion is very bad; the lips fall inwards; the edges of the jaws can no longer approach one another; the muscles of the lower jaw become so weak, that they are unable to raise and support it: the body sinks down; the spine is bent outward; and the vertebræ grow together at the anterior part; the body becomes extremely lean; the strength fails: the decrepid wretch is unable to support himself; he is obliged to remain on a seat, or stretched in his bed: the bladder becomes paralytic; the intestines lose their spring; the circulation of the blood becomes lower; the strokes of the pulse no longer amount to the number of eighty in a minute, as in the vigour of life, but are reduced to twenty-four, and sometimes fewer: respiration is slower; the body loses its heat; the circulation of the blood ceases; death follows; and the dream of life is no more.

Man, says Haller, has no right to complain of the shortness of life. Throughout the whole of living beings, there are few who unite, in a greater degree, all the internal causes which tend to prolong its different periods. The term of gestation is very considerable; the rudiments of the teeth are very late in unfolding; his growth is slow, and is not completed before about twenty years have elapsed. The age of puberty, also, is much later in man than in any other animal. In short, the parts of his body being composed of a softer and more flexible substance, are not so soon hardened as those of inferior animals. Man, therefore, seems to receive at his birth the seeds of a long life: if he reaches not the distant period which Nature seemed to promise him, it must be owing to accidental causes, foreign to himself. Instead of saying that he has finished his life, we ought rather to say that he has not completed it.

The natural and total duration of life is in some measure proportioned to the period of growth. If it is true, that the life of animals is eight times longer than the period of their growth, we might conclude that the boundaries of human life may be extended to a century and a half. See Life, and Longevity. Long life is certainly very rare; but, as has been already observed, we must distinguish between what is natural to the constitution of man, and that which is the consequence of his condition. By the former he is made to be long-lived; but nature is arrested in her course by local and unavoidable causes. Of a thousand infants, an account of which Haller has extracted from the London bills of mortality, twenty-three died almost as soon as they came into the world: teething carried off fifty, and convulsions two hundred and seventy-seven: eighty died of the small-pox, and seven of the measles. Among the adult females, eight at least died in child-bed: consumption and asthma, diseases more frequent in England than in France, carried off an hundred and ninety-one of the same sex, and almost a fifth part of the full-grown men. An hundred and fifty died of fevers. At a more advanced age, twelve died of apoplexy, and forty-one of dropsy; without mentioning those to whom diseases of little importance in themselves became mortal. There only remained seventy-eight whose death could be ascribed to old age; and of these twenty-seven lived to the age of eighty and upwards. Among the different diseases of which medical men continually see the fatal effects, and which carry off more than nine-tenths of mankind, not one, it must be allowed, is natural to the constitution. The inhabitants of this island are, in general, but little subject to disease, excepting the small-pox and the measles; and many of them enjoy uninterrupted health to old age.

What are the most prevalent diseases in other countries, which prove equally fatal to the duration of human life? In northern climates, scurvy, the colic of the Laplanders, and diseases of the lungs, most frequently occasion death. In temperate climates, dropsy carries off a great many at the beginning of old age, which is the boundary of life in the greatest part of both sexes, when they have escaped the acute diseases, such as putrid fever, &c. Acute diseases are most common in warm countries. In some places, the rays of the sun kill, in a few hours, those who are exposed to its burning heat. The air of Egypt and of Asia Minor engenders the plague, by which one half of their inhabitants are carried off. Between the tropics men are subject to dysenteries and violent fevers. The cold of the night, in warm climates, occasions sometimes violent diseases, such as palsy, quinsey, and a swelling of the head. Damp and marshy places give rise to fevers of a different kind, but also very dangerous. The life of sailors has a great tendency to produce scurvy. How many professions prove fatal to health, and in most men hasten that period which Nature would have brought on by slow degrees! Miners, stone-cutters, gilders, persons employed in emptying privies, &c. are subject to diseases of the lungs, and become paralytic. Other professions of life bring on other accidents, of which it would carry us too far to give a particular account.

MANDI'BULA, (from *mando*, to chew), the mandible, or lower jaw. See Maxilla inferior.

MANDRA'GORA, (*μανδραγορας*, from *μανδρα*, *a den*, and *αγειρω*, *to collect*, because it grows about caves and dens of beasts; or from the German *man dragen*, bearing man), mandrake; *Atropa mandragora*, Linn. The boiled root has been employed in the form of poultice, to discuss indolent tumors, but is now little, if at all, in use.

MANDRAKE. See Mandragora.

MANGANESE; a metallic substance, which seems, after iron, to be the most frequently diffused metal through the earth. Hence its ores are very common in the different countries of Europe. As a peculiar metal, it was first noticed by Gahn and Scheele, in the years 1774 and 1777. It is always found in the state of an oxid, varying in the degree of its oxidation. La Peyrouse affirmed that he had found manganese in a metallic state; but Mr. Accum supposes there was some mistake in his observation. They are distinguished into *grey oxid of manganese*, *black oxid of manganese*, and *carbonate of manganese*. All these combinations have an earthy texture; they are very ponderous; they occur both amorphous and crystallized; and generally contain a large quantity of iron. Their colour is black, blackish-brown, or grey, seldom white. They soil the fingers like soot. They are sometimes crystallized in prisms, tetrahedral, rhomboidal, or striated.

Manganese is of a whitish grey colour. Its fracture is granulated, irregular, and uneven. It is of a metallic brilliancy, which it, however, soon loses in the air. Its specific gravity is about 6.850. It is very hard, and extremely brittle. It is one of the most refractory metals, and most difficult to fuse; requiring at least 160° of Wedgwood's pyrometer. Its oxidability is so rapid, that exposure to the air is sufficient to render it red, brown, black, and friable, in a very short time: it can, therefore, only be kept under water, oil, or ardent spirit. It is the most combustible of all the metals. It decomposes water by heat very rapidly, as well as the greater part of the metallic oxids. It decomposes sulphuric acid. It is soluble in nitric acid. It is fusible with earths, and colours them brown, violet, or red, according to its state of oxidation. It discolours glasses tinged by iron. It does not appear to unite with sulphur. It combines with phosphorus. It unites with gold, silver, and copper, and renders them brittle. It unites to arsenic in close vessels, but does not enter into union with mercury. It forms three differently coloured oxids by combining with different portions of oxigen.

This metal is obtained by mixing the black oxid, finely powdered, with pitch; making it into a ball, and putting this into a crucible, with powdered charcoal, $\frac{1}{10}$ of an inch thick at the sides, and $\frac{1}{4}$ of an inch deep at the bottom. The empty space is then to be filled with powdered charcoal; a cover is to be luted on; and the crucible exposed, for an hour, to the strongest heat that can be raised. Or, digest the black oxid of manganese repeatedly, with the addition of $\frac{1}{16}$ of sugar, in nitric acid; dilute the mixture with three times its bulk of water, filter it, and decompose it by the addition of potass; collect the precipitate, form it into a paste with oil, and put it into a crucible, well lined with charcoal. Expose the crucible for at least two hours to the strongest heat of a forge. Manganese may also be obtained in the following manner: Prepare a saturated solution of sulphate of manganese, bring it to a boiling heat, and add to it, gradually, a solution of tartrite of potass, until no further precipitate ensues; then filter the solution, and wash the precipitate in water, and when dry, make it into a paste with oil, and proceed as before. The sulphuric acid unites to the potass, and forms sulphate of potass, and the tartarous acid joins to the manganese, and forms a tartrite of manganese, which is decomposeable by heat.

As this substance contains oxygen in very large quantity, it is chiefly employed in medicine to obtain that air for respiration in diseases of debility, &c. See Pneumatic Medicine.

MANGET, (John James), an eminent physician, born at Geneva in 1652. The elector of Brandenburg made him his first physician in 1699; in which post he continued till his death, which happened at Geneva in 1742. He wrote many works; the most known of which are, 1. A collection of several Pharmacopœias, in folio. 2. *Bibliotheca pharmaceutico-medica.* 3. *Bibliotheca anatomica.* 4. *Bibliotheca chemica.* 5. *Bibliotheca chirurgica.* 6. A *bibliotheca* of all the authors who have written on medicine, in 4 vols. folio. All these works are in Latin. Daniel le Clerc, the author of a History of Physic, assisted him in writing them.

MANGI′FERA I′NDICA; the systematic name of the mango tree. See Mango.

MANGO; the fruit of the *Mangifera Indica*, Linn. This tree is cultivated all over Asia. When ripe, the mangoes are juicy, of a good flavour, and so fragrant as to perfume the air to a considerable distance. They are eaten either raw or preserved with sugar. Their taste is so luscious, that they soon pall the appetite. The unripe fruits are pickled in the milk of the cocoa nut that has stood until sour, with salt, capsicum, and garlic.

MANHOOD, that stage of life which succeeds puberty or adolescence. See Man.

MANI′PULUS, in prescription, is used to signify a handful of herbs or leaves, or so much as a man can grasp in his hand at once; which quantity is frequently denoted by the abbreviature, *M.* or *m.*

MANGOSTA′NA, the *Mangostan*, or *Mangosteen*, a fruit about the size of an orange, which grows in great abundance, on the tree called *Garcinia Mangostana* by Linnæus, in Java and the Molucca islands. All writers concur in their praises of this fruit. Rumphius observes, that the mangostan is universally acknowledged to be the best and wholesomest fruit that grows in India; that its flesh is juicy, white, almost transparent, and of as delicate and agreeable a flavour as the richest grapes; the taste and smell being so grateful, that it is scarce possible to be cloyed with eating it. He adds, that when sick people have no relish for any other food, they generally eat this with great delight; but, should they refuse it, their recovery is no longer expected. "It is remarkable (says he) that the mangostan is given with safety in almost every disorder. The dried bark is used with success in the dysentery and tenesmus; and an infusion of it is esteemed a good gargle for a sore mouth or ulcers in the throat. The Chinese dyers use this bark for the ground or basis of a black colour, in order to fix it the firmer." Captain Cook, in his Voyage round the World, says, the mangostan is peculiar to the East Indies. It is about the size of the crab-apple, and of a deep red wine colour. On the top of it is the figure of five or six small triangles joined in a circle; and at the bottom several hollow green leaves, which are remains of the blossom. When they are to be eaten, the skin or rather flesh must be taken off; under which are found six or seven white kernels, placed in a circular order; and the pulp with which these are enveloped is the fruit, than which nothing can be more delicious. It is a happy mixture of the tart and the sweet, which is no less wholesome than pleasant; and, as well as the sweet orange, is allowed in any quantity to those who are afflicted with fevers either of the putrid or inflammatory kind.

MANGOSTEEN. See Mangostana.

MA′NIA, (*μανια*, from *μαινομαι, to rage*), raving or furious madness. It is a genus of disease in the class *neurosis* and order *vesaniæ* of Cullen; characterized by a conception of false relations, and an erroneous judgment, arising from imaginary perceptions or recollections, exciting the passions, and producing unreasonable actions or emotions, with a hurry of mind in pursuing a train of thought, and in running from one train of thought to another; attended with incoherent and absurd speech, called raving, and violent impatience of either contradiction or restraint.

Frequently the different kinds of madness, those which some writers have considered as distinct genera, are changed into each other by the casual excitement of some passion. Thus, an idiot may become furiously mad, by being put in a violent passion; though this does not so often happen as the change of melancholy into the raving madness, and *vice versa*.

It is a very surprising circumstance, that mad people are not only less liable to be seized with infectious disorders than those who are in perfect health; but even when labouring under other diseases, if the patients chance to be seized with madness, they are sometimes freed from their former complaints. Of this kind Dr. Mead relates two very remarkable instances. On the other hand, it has been known, that an intermittent fever, supervening madness of long standing, has proved a cure for the madness; the senses having returned when the fever terminated. Dr. Monro saw two instances of this himself; and mentions it as an observation of his predecessor in the care of Bethlem hospital. Another remarkable circumstance is, that immoderate joy, long continued, as effectually disorders the mind as anxiety and grief. For it was observable in the famous South-Sea year, when so many immense fortunes were suddenly gained, and as suddenly lost, that more people had their heads turned, from the prodigious flow of unexpected riches, than from the entire loss of their whole substance.

Mad people, especially of the melancholic kind, sometimes obstinately persevere in doing things which must excite great pain; whence it should seem as if their minds were troubled with some distracting notions, which made them patiently bear the present distress, lest more severe tortures should be inflicted; or possibly they may think, that, by thus tormenting the body, they render themselves more acceptable to the divine Being, and expiate the heinous sins of which they may imagine themselves to have been guilty.

It is, however, also highly probable, that their feelings differ exceedingly from what they are in a natural state; at least they are every day observed to endure, apparently without the smallest uneasiness, watching, hunger, and cold, to an extent which in a state of health would not only be highly distressing, but to the greater part of individuals would even prove fatal. And this resistance of hunger, cold, and sleep, affords perhaps the best test for distinguishing cases of real insanity, from cases where the disease is only feigned, and appearances of it put on, to answer particular purposes; at least where this power of resistance is present we have good reason to conclude that the affection is not feigned.

Although we are well acquainted with many of the remote causes of this disease, some of the principal of which have already been mentioned, yet we are still so ignorant of the influence of these upon the system, as giving a derangement of the mental faculties, that no general principles on which the cure may be conducted, can with any confidence be pointed out.

It may, however, be observed, that while some remedies seem to operate by producing an artificial termination of this complaint, many others have effect only as aiding a natural termination. And where a recovery from this disease does take place, it most frequently happens in consequence of a natural convalescence. All the species and degrees of madness which are hereditary, or grow up with people from their early youth, are out of the power of physic; and so, for the most part, are all maniacal cases of more than one year's standing, let them arise from what source soever. Very often mere debility, the consequence of some particular disease, such as an ague, the small-pox, or a nervous fever, shall occasion different degrees of foolishness or madness. In these cases, the cure must not be attempted by evacuations; but, on the contrary, by nourishing diet, clear air, moderate exercise, and the use of wine: whereas, in almost all the other maniacal cases, which arise from different sources, and which come on in consequence of intemperate living, violent passions, or intense thinking, it is generally held, that evacuations of every kind are necessary, unless the constitution of the patient be such as absolutely to forbid them.

Blood is most conveniently drawn either from the arms or jugulars; but if the weakness be such as renders it improper to take away much blood, we may apply cupping glasses to the occiput.

Vomiting, in weakly people, must be excited by the vinum ipecacuanhæ; but in the more robust by antimon. tartar. or vin. antimon. tartar. The most efficacious cathartics are the infusion, or tincture, of black hellebore, or infusion of senna quickened with the tincture of jalap; but if there be suppression of the menses, or of an hæmorrhoidal discharge, aloëtic purges will be more proper; and in some instances, cooling saline purgatives, such as tartarised kali, are of great service. In general, maniacs require very large doses, both of emetics and cathartics, before any considerable operation ensues.

Dr. Monro assures us, that the evacuation by vomiting is infinitely preferable to any other; the prodigious quantity of phlegm with which the patients in this disease abound, he says, is not to be got the better of but by repeated emetics; and he observes, that the purges have not their right effect, or do not operate to so good purpose, until the phlegm be broken and attenuated by frequent emetics. He mentions the case of a gentleman who had laboured under a melancholy for three years, from which he was relieved entirely by the use of vomits and a proper regimen. Increasing the discharge by urine, is also of the greatest moment, especially when any degree of fever is present. The cutaneous discharges are also to be promoted, for which purpose the hot bath is of the highest service in maniacal cases. Hoffman asserts, that he has seen numerous instances, both of inveterate melancholy and raging madness, happily cured by means of warm bathing; bleeding and nitrous medicines having been premised. Camphor has been highly commended in maniacal cases. For Dr. Cullen's opinion of it see his Mat. Med. Vol. II. p. 300. If we can believe Dr. Locker of Vienna, the praises bestowed on this remedy have not been well deserved. Having found very good effects from a solution of this medicine in vinegar, he took it for granted that all the success was owing to the camphor; therefore, in order to give it a fair trial, he selected seven patients, and gave it in large doses of half a drachm twice a-day. This was continued for two months, and the doctor was surprised to find that only one of his patients received any benefit. He then returned the other six back to the camphorated julep made with vinegar, and in a few weeks four of them recovered the use of their reason. This inclined him to think that the virtue depended solely on the vinegar, and accordingly he began to make the trial. Common vinegar was first given; but after a little while he fixed on that which had been distilled, and gave about an ounce and a half of it every day; the patients having been previously prepared by bleeding and purging, which was repeated according as it was found necessary. He gives a list of eight patients who were cured by this method: some in six weeks, others in two months, and none of them took up more than three months in perfecting the cure. He does not, indeed, give the ages of the patients, nor mention the circumstances of the cases; he only mentions the day on which the use of the vinegar was begun, and the day on which they were discharged; and he adds, that they all continued well at the time of his writing. Dr. Locker informs us, that this medicine acts chiefly as a sudorific; and he observed, that the more the patients sweated, the sooner they were cured. It was also found to promote the menstrual discharge in such as had been obstructed, or had too little of that salutary evacuation.

Dr. Willis, in some maniacal cases, prescribes the extracts of cicuta, hyoscyamus, and other narcotic vegetables; employing the camphorated mixture at the same time. The *stramonium* has been much recommended, in mania, by Dr. Storck. See STRAMONIUM.

Both reason and experience show the necessity of confining such as are deprived of their senses; and no small management consists in preventing any hurt to themselves or mischief to other persons. It had formerly been usual to chain and to beat them; but this is both cruel and absurd; since the contrivance called the *strait waistcoat*, answers every purpose of restraining the patients without hurting them.

These waistcoats are made of ticken, or some such strong stuff; are open at the back, and laced on like a pair of stays; the sleeves are made tight, and long enough to cover the ends of the fingers, where they are drawn close with a string like a purse, by which contrivance the patient has no power of his fingers; and, when laid on his back in bed, and the arms brought across the chest, and fastened in that position by tying the sleeve-strings round the waist, he has no use of his hands. A broad strap of girth web is then carried across the breast, and fastened to the bedstead, by which means the patient is confined on his back; and if he should be so outrageous as to require further restraint, the legs are secured by ligatures to the foot of the bed; or they may be secured by being both put into one bag not very wide, which may be more easily fixed than the feet themselves, at least without giving pain.

It is of great use in practice, to bear in mind, that all mad people are cowardly, and can be awed even by the menacing look of a very expressive countenance; and when those who have charge of them once impress them with the notion of fear, they easily submit to any thing that is required. The physician, however, should never deceive them in any thing, but more especially with regard to their distemper: for as they are generally conscious of it themselves, they acquire a kind of reverence for those who know it; and by letting them see that he is thoroughly acquainted with their complaint, he may very often gain such an ascendant over them, that they will readily follow his directions.

It is a more difficult matter to manage those whose madness is accompanied either with excessive joy or with great dejection and despondency, than those who are agitated with rage: and all that can be done is to endeavour to excite contrary ideas, by repressing the immoderate fits of laughter in the one kind, by chiding or threatening (taking care, however, not absolutely to terrify them, which can never be done without danger, and has often added to the misery of the unhappy sufferer), and dispelling the gloomy thoughts in the other, by introducing pleasing concerts of music, or any other species of entertainment, which the patients have been known to delight in while they had the use of their reason.

Though blistering the head has generally been directed, Dr. Mead says he has oftener found it to do harm than service; but he recommends issues in the back; and advises to keep the head always close shaved, and to wash it from time to time with warm vinegar. Opium has by many been forbidden in maniacal cases, as supposing that it always increases the disturbance; but there are instances where large doses of this medicine have been found to prove a cure, and perhaps if it were tried oftener, we should find powerful effects from it. There certainly cannot much harm ensue from a few doses, which may be immediately disused if they should be found to exasperate the disease.

The diet of maniacal patients ought to be perfectly light and thin; their meals should be moderate; but they should never be suffered to live too low, especially while they are under a course of physic. They should be obliged to observe great regularity in their hours: even their amusements should be such as are best suited to their disposition; and after the disease appears to be subdued, chalybeate waters and the cold bath will be highly proper to strengthen their whole frame and secure them against a relapse.

MA'NNA, (μαννα, from *mana*, Syr. a gift; it being the food given by God to the children of Israel in the wilderness); the concrete juice of the flowering ash, *Fraxinus ornus*, Linn. *Fraxinus foliis ovato-oblongis serratis petiolatis, floribus corollatis.* Hort. Kew. Class, *Polygamia.* Order, *Dioecia.* This tree is a native of the southern parts of Europe, particularly Sicily and Calabria. Many other trees and shrubs likewise emit a sweet juice, which concretes upon exposure to the air, and may be considered of the manna kind, especially the *Fraxinus rotundifolia* and *excelsior.* In Sicily these three species of fraxinus are regularly cultivated for the purpose of procuring manna, and with this view are planted on the declivity of a hill with an eastern aspect. After ten years growth, the trees first begin to yield the manna, but they require to be much older before they afford it in any considerable quantity. Although the manna exudes spontaneously upon the trees, yet in order to obtain it more copiously, incisions are made through the bark by means of a sharp crooked instrument; and the season thought to be most favourable for instituting this process is a little before the dog-days commence, when the weather is dry and serene. Manna is generally distinguished into different kinds, viz. the manna in tears, the canulated and flaky manna, and the common brown or fat manna. All these varieties seem rather to depend upon their respective purity, and the circumstances in which they are obtained from the plant, than upon any essential difference of the drug. The best manna is in oblong pieces, or flakes, moderately dry, friable, very light, of a whitish or pale yellow colour, and in some degree transparent: the inferior kinds are moist, unctuous, and brown. Manna is well known as a mild and agreeable laxative; usually given to children, or pregnant women. It operates so weakly, that it does not produce the full effect of a cathartic; and hence it is rarely given by itself. It may be commodiously dissolved in the purging mineral waters, or joined to the cathartic salts, senna, rhubarb, or the like. Geoffroy recommends acuating it with a few grains of antim. tartar. by this management, he says, bilious serum will be plentifully evacuated, without any nausea, gripes, or other inconvenience. It is remarkable, that the efficacy of this drug is greatly promoted (if the account of Vallisnieri is to be relied on) by a substance which is itself very slow of operation, viz. cassia. See Cassia fistularis.

MA'NNA BRIGANTI'ACA; a species of manna brought from Brianconois in Dauphiné.

MAPLE, or Mapple. See Saccharum canedense.

MARA'NTA, Indian arrow root; a genus of the *Monogynia* order, belonging to the *Monandria* class of plants, and in the natural method ranking under the eighth order, *Scitaminea.* The corolla is ringent and quinquefid, with two segments, alternately patent. There are three species, the *Arundinacea*, *Galanga*, and *Comesa*, all of them herbaceous, perennial exotics of the Indies, kept here in hot-houses for curiosity; they have thick, knotty, creeping roots, crowned with long, broad, arundinaceous leaves, ending in points, and upright stalks half a yard high, terminated by bunches of monopetalous, ringent, five-parted flowers. They are propagated by parting the roots in spring, and planting them in pots of light rich earth, and then plunging them in the bark-bed. The root of the *Maranta galanga* is used by the Indians to extract the virus communicated by their poisoned arrows, from whence it has obtained its name of arrow-root. The *Maranta arundinacea*, or starch plant, rises to two feet, has broad pointed leaves, small white flowers, and one seed. It is cultivated in gardens and provision grounds in the West-Indies; and the starch is obtained from it by the following process: The roots, when a year old, are dug up, well washed in water, and then beaten in a large deep wooden mortar, to a pulp; this is thrown into a large tub of clean water: the whole is then well stirred, and the fibrous part wrung out by the hands and thrown away. The milky liquor being passed through a hair sieve, or coarse cloth, is suffered to settle, and the clear water drained off. At the bottom of the vessel is a white mass, which is again mixed with clean water, and drained: lastly, the mass is dried on sheets in the sun, and is pure starch. A decoction of the fresh roots makes an excellent ptisan in acute diseases.

MARA'NTA GALA'NGA; the systematic name of the officinal galangal. See Galanga.

MARA'SMUS, (of the Gr. *μαϱαςμος*, from *μαραινω. to grow lean.*); emaciation, or a wasting away of the flesh.

MARATHROPHY'LLUM, (*μαραθϱοφυλλον*; from *μαϱαθϱον*, *fennel*, and *φυλλον*, *a leaf*; so named because its leaves resemble those of fennel). See Peucedanum.

MA'RATHRUM, (*μαραθρον*, from *μαραινω*, *to wither*; so called because its stalk and flowers wither in the autumn). See Fæniculum.

MA'RATHRUM SYLVE'STRE. See Peucedanum.

MARCASI'TA, (from *marcasite*, Germ.). See Bismuth.

MA'RCASITE. See Bismuth.

MARCHA'NTIA POLYMO'RPHA; the systematic name of the liver-wort. See Hepatica terrestris.

MA'RCORES, (from *marceo*, to become lean); a universal emaciation. It is the first order in the class *cachexiæ* of Cullen's Nosology.

MARE'S-TAIL. See Equisetum.

MARGARI'TA, (*μαργαριτης*, from *margalith*, Rab.), the pearl; a small calcareous concretion, of a bright transparent whiteness, found on the inside of the shell *Concha margaritifera* of Linnæus, or mother-of-pearl fish. Pearls were formerly exhibited as an antacid remedy, but less expensive drugs, possessing the same quality, suffice for the moderns.

MARGARI'TA, a name given to a species of tumor upon the eye, resembling a pearl.

MARGINA'TUS, (from *margo*, a margin), in botany, *bordered.* The seeds of plants which have a thin leafy border round them are said to be marginated, as those of the stock-gilly-flower, &c.

MARIGOLD, MARSH; the *Caltha palustris*, Linn. The flower-buds of this very common plant are pickled, and serve as a good substitute for capers. Its properties as a medicine are trivial.

MARIGOLD, SINGLE. See Calendula.

MARINE SALT, called by the different names of *Sal commune*, *Sal fontium*, *Sal gemmæ*, *Sal fossile*; the *Murias sodæ* of the new chemical nomenclature; common culinary salt, a substance remarkably abundant in nature. It is found in prodigious masses in the internal parts of the earth, in Calabria, in Hungary, in Muscovy, and more especially Weilieska, in Poland, near Mount Capax, where the mines are very large, and afford immense quantities of salt. It is also obtained by several artificial means from sea-water, and afterwards refined for the use of our tables. See Salt, and Murias sodæ.

MARIOTTE (Edme), an eminent physician and mathematician, was born in Burgundy, and was made a member of the academy of sciences. He died in 1684. His works, which are much esteemed, were printed at Leyden, in 1717, 2 vols. 4to.

MARJORAM, SWEET. See Majorana.

MARJORAM, WILD. See Origanum.

MARMALADE; the pulp of quinces, oranges, or any other fruit, boiled to a proper consistence with sugar or honey. Oranges, quinces, &c. are frequently reduced to this state.

MARROW, a fat substance which is secreted by the small arteries of its proper membrane, and contained in the medullary cavities of the long cylindrical bones. Its use is not correctly known. See Medulla.

MARROW, SPINAL. See Medulla spinalis.

MARRU'BIUM, (from *mar rob*, Heb. a bitter juice); the *Marrubium album*, or common white horehound. *Marrubium vulgare, dentibus calycinis setaceis uncinatis*, Linn. Class, *Didynamia*. Order, *Gymnospermia*. This indigenous plant has a moderately strong smell, of the aromatic kind, but not the most agreeable. This, however, is improved by drying; and, in keeping for some months, is in great part dissipated. The taste of the leaves is very bitter, penetrating, diffusive, and durable in the mouth. That horehound possesses some share of medicinal power may be inferred from its sensible qualities, but its virtues do not appear to be clearly ascertained, though it has long been a favourite remedy, with the common people, in coughs and asthmas. Dr. Cullen says, that in several cases of pulmonic affection "it has been judged hurtful," and the virtue attributed to it in the cure of indurations of the liver is without foundation.

MARRU'BIUM ALBUM. See Marrubium.

MARRU'BIUM VULGA'RE; the systematic name of the common horehound. See Marrubium.

MARS, a name given by the alchemists to iron, and designated thus ♂.

MARSEILLES HART-WORT. See Seseli massiliense.

MARSH-MALLOW. See Althea.

MARSH-TREFOIL. See Trefolium paludosum.

MARSH MIA'SMATA; the unwholesome effluvia arising from the putrefaction of vegetable substances in wet soils. See Miasma.

MARSUPIA'LIS, (from *marsupium*, a purse; so named from its resemblance). See Obturator internus.

MA'RTAGON LILY, the *Lilium martagon* of Linnæus; who informs us, that the root makes part of the daily food of the Siberians.

MA'RUM SYRI'ACUM (*marum*, of the Gr. *μαρον*; from *mar*, Heb. bitter), *Majorana Syriaca*, or *Marum verum;* the Marum germander, or Syrian herb mastich. This shrub is the *Teucrium marum*. Linn. *Teucrium, foliis interrimis ovatis acutis petiolatis, subtus tomentosis, floribus racemosis secundis*. Class, *Didynamia*. Order, *Gymnospermia*. It grows plentifully in Greece, Ægypt, Crete, and Syria. The leaves and younger branches, when recent, if rubbed betwixt the fingers, emit a volatile aromatic smell, which readily excites sneezing. To the taste they are bitterish, accompanied with a sensation of heat and acrimony. Judging from these sensible qualities of the plant, we should suppose it possessed of very active powers. It is recommended as a stimulant, aromatic, and deobstruent; and Linnæus, Rosenstein, and Bergius, speak highly of its utility. At present, however, marum is solely used as an errhine. It is an ingredient in the *pulvis asari compositus* of the London Pharmacopœia.

MA'RUM VERUM. See Marum Syriacum.

MA'RUM VULGARE, the common mastich; *Thymus mastichina*, Linn. It is a low shrubby plant, a native of Spain, and is merely employed in medicine as an errhine. It has a strong agreeable smell like mastich.

MASLACH, the name of a medicine of the opiate kind, used by the Turks.

MA'SSA, (of the Gr. *μαζα*; from *μασσω*, *to blend together*); a term generally applied to the compound out of which pills are to be formed. This term, however, is applied figuratively to the fluids of the body; in which case we speak of the *mass* of blood, &c.

MA'SSA CA'RNEA JACOBI SYLVII. See Flexor longus digitorum pedis.

MA'SSETER, (*μασσητηρ*; from *μασσαομαι*, *to chew*, because it assists in mastication); a muscle of the lower jaw, situated on the side of the face. It is short and thick, and arises, by fleshy and tendinous fibres, from the lower edge of the malar process of the maxillary bone, the lower horizontal edge of the os malæ, and the lower edge of the zygomatic process of the temporal bone, as far back as the eminence belonging to the articulation of the lower jaw. From an observable interruption of the fibres of this muscle, at their origin, some anatomists have described it as arising by two, and others by three, distinct heads. The two layers of fibres of which it seems to be composed, cross each other as they descend, the external layer extending backwards, and the internal one slanting forwards. It is inserted into the basis of the coronoid process, and into all that part of the lower jaw which supports the coronoid and condyloid processes. The use of this muscle is to raise the lower jaw, and, by means of the abovementioned decussation, to move it a little forwards and backwards in the act of chewing.

MASSOY, CORTEX. See Cortex massoy.

MASTER-WORT. See Imperatoria.

MASTICATION, (*masticatio;* from *mastico*, to chew), the act of chewing the food; a natural function. The mixing together and dividing of the particles of the food in the mouth, by the action of the jaws, tongue, lips, and cheeks, is necessary to our subsistence. By means of this function the food is lacerated and bruised, mixed with the saliva and the mucus of the mouth and fauces, and thus made of such a consistence as to be formed into a convenient size for swallowing. See Deglutition.

MASTICATORIES, (*masticatoria*, from *mastico*, to chew); such medicines as are intended for chewing. This form is now disused.

MASTICH, or Mastiche, (*μαστιχη*; from *μασσω*, *to express);* also named *Mastix;* mastich. The tree which affords this resin is the *Pistachia lentiscus; foliis abrupte pinnatis, foliis lanceolatis*, Linn. Class, *Dioecia*. Order, *Pentandria*. It is a native of the south of Europe. In the island of Chio the officinal mastich is obtained most abundantly, as Tournefort says, by making transverse incisions in the bark of the tree, from whence the mastich exudes in drops. These are suffered to collect on the ground, and after sufficient time is allowed for their concretion, they are collected for use. Mastich is imported in small, yellowish, transparent, brittle tears or grains; it has a light agreeable smell, especially when rubbed or heated. On being chewed it first crumbles, soon after sticks together, and becomes soft and white, like wax, without impressing any considerable taste. As a medicine, mastich is considered to be a mild corroborant and astringent. Possessing a balsamic power, it has been recommended in hæmoptysis, proceeding from ulceration; leucorrhœa, debility of the stomach, and in diarrhœas and internal ulcerations. It is, however, in the present practice, seldom used either externally or internally. The wood abounds with the resinous principle, and a tincture obtained from it, is esteemed in some countries as a topic, in the cure of hæmorrhages, and internally in dysenteries, gout, &c.

MASTICH TREE. See Lentiscus.

MASTICH HERB, COMMON. See Marum vulgare.

MASTICH HERB, SYRIAN. See Marum Syriacum.

MASTICH WOOD. See Lentiscus.

MA'STIX, (of the Gr. μαϛιξ). See Mastich.

MASTODY'NIA, (μαϛοδυνια; from μαϛος, *a breast*, and οδυνη, *pain)*, inflammation of the breast in women. It is characterized by all the symptoms of acute inflammation, and mostly terminates in abscess, called the milk abscess. See Milk abscess.

MASTOIDE'US, (from μαϛος, *a breast*, and ειδος, *resemblance);* mastoid. Those processes of bones are termed *mastoid*, that are shaped like the nipple of the breast. The same term is also applied, by anatomists, to any thing inserted into, or belonging to the mastoid process. See Sterno-cleido-mastoideus.

MATALI'STA, RADIX; a root said to be imported from America, where it is given as a purgative; its action being rather milder than that of jalap.

MA'TER, (of the Gr. ματηρ, *a mother*). The two membranes of the brain had this epithet given to them by the Arabians, who thought they gave origin to all other membranes of the body. See Dura mater and Pia mater. It is also a name for the herb mugwort, because of its virtue in disorders of the uterus.

MA'TER, DU'RA. See Dura mater.

MA'TER, PI'A. See Pia mater.

MATE'RIA ME'DICA, an expression comprehending every substance, whether natural or artificial, which is employed in the cure of diseases. In many Pharmacopœias the materia medica is confined to simples, and to those preparations which are not supposed to be prepared by the apothecary himself, but to be purchased by him as articles of commerce from druggists and others.

Cartheuser, Neumann, Lewis, Gleditsch, Linnæus, Alston, Vogel, and other writers on the materia medica, have bestowed much pains in contriving scientific arrangements of these articles. Some have arranged them according to their natural resemblances; others according to their active constituent principles; and others according to their real or supposed virtues. Each of these arrangements has its peculiar advantages. The first will probably be preferred by the natural historian, the second by the chemist, and the last by the physiologist. But no arrangement has yet been proposed which is not liable to numerous objections. Accordingly, in the pharmacopœias published by the Colleges of Physicians of London, Dublin, and Edinburgh, the articles of the materia medica are arranged in alphabetical order; and the same plan is now also adopted in almost every pharmacopœia published on the Continent of Europe. It is more conformable, however, to the object of our work, to arrange the substances used in medicine according to their several characters.

Dr. Cullen has supplied us with a materia medica, the most judiciously arranged of any extant. "As the study of the materia medica," says he, "is truly the study of the medicinal virtues; so the plan that arranges the several substances, according to their agreeing in some general virtues, will be the best adapted to acquiring the knowledge of these, and will most readily inform the practitioner what different means he can employ for his general purpose. It will also inform him how far the several similar substances may differ in their degree of power, and how far, from the different qualities assigned to each, he may be directed, or limited, in his choice. As it seems proper that every practitioner ought, as far as possible, to practise upon general indications, so it is evident that his study of the materia medica is, especially to know the several means that can answer these. Such a plan must be most proper for giving instruction; and, if while medicines are arranged, according as they answer general indications, the particulars be likewise thrown together, as far as possible, according to their sensible qualities and botanical affinities, this plan will have the advantage of any other that has been proposed for presenting together the subject, that ought to be considered at one and the same time, and give the best means of recollecting every thing that relates to them." Hence the whole of the substances are arranged under different heads, making the materia medica consist of:

- Nutrients, which are,
  - Food
  - Drinks
  - Condiments.
- Medicines, which act on the
  - *Solids*,
    - *simple*, as the
      - Astringents
      - Tonics
      - Emollients
      - Corrosives.
    - *living*, as the
      - Stimulant
      - Sedatives,
        - narcotic
        - refrigerant
      - Antispasmodics.
  - *Fluids*,
    - Producing a change by
      - Fluidity:
        - Attenuants
        - Inspissants.
      - Mixture:
        - Correctors of Acrimony
          - Demulcents
          - Antacids
          - Antalkalines
          - Antiseptics.
    - Evacuants, viz.

Errhines
Sialogogues
Expectorants
Emetics
Cathartics
Diuretics
Diaphoretics
Menagogues.

I. ACRID SUBSTANCES.

1. *Aromatic acrids.*
Acorus calamus
Andropogon nardus
Angelica archangelica
—sylvestris
Aristolochia serpentaria
— trilobata
Arnica montana
Asclepias vincetoxicum
Athamanta cretensis
— oreoselinum
Capsicum annuum
— baccatum
Carlina acaulis
Carum carui
Caryophillus aromaticus
Centaurea behen
Cistus creticus
Coriandrum sativum
Croton cascarilla
Cuminum cyminum
Fagara pterota
Ferula assafœtida
Imperatoria ostruthium
Juniperus sabina
Laurus camphora
— cassia
— nobilis
— sassafras
Ligusticum levisticum
Origanum creticum
— dictamnus
Phellandrium aquaticum
Pimpinella saxifraga
Seseli tortuosum
b. Balsamics
c. Resins.
2. *Fixed acrids.*
a. Achillea ptarmica
Aconitum anthora
— cammarum
— napellus
Aloëxyllum verum
Anacardium occidentale
Anagallis arvensis
Anemone memorosa
Anemone pratensis
Anthemis pyrethrum
Artemisia santonica
Asclepias asthmatica
Atropa belladonna
— mandragora
Avicennia tomentosa
Boletus laricinus
Bryonia alba
— dioica
Cachrys odontalgica
CeanothusAmericanus
Clematis recta
— vitalba
Conium maculatum
Cicuta virosa
Convolvulus jalappa
— scammonia
— sepium
— soldanella
— turpethum
Croton tiglium
Cuscuta Europæa
Cyclamen Europæum
Daphne gnidium
— laureola
— mezereum
— thymelæa
Datura stramonium
Delphinium staphisagria
Digitalis purpurea
Drosera rotundifolia
Eupatorium cannabinum
Euphorbia canescens
— esula
— officinarum
— lathyris
— palustris
Gambogia gutta
Gummi resina ammon.
— — bdellium
— — galbanum
— — sagapenum
Jatropha curcas
— manihot
Inula dysenterica
Lactuca scariola
— virosa
Momordica elaterium
Nerium antidysenter.
Nicotiana tabacum
Onopordium acanthium
Polygala senega
Penæa sarcocolla
Phytolacca decandra
Psychotria emetica
Callicocca ipecacuanha
Pulsatilla nigricans
Plumbago Europæa
Rhus vernix
— toxicodendron
Ranunculus abortivus
— acris
— alpinus
— arvensis
— bulbosus
— flammula
— illyricus
— lingua
— thora
Sambucus ebulus
Strychnos colubrina
— nux vomica
— volubilis
Viola ipecacuanha
Vitex agnus castus
3. *Volatile acrids.*
Allum cepa
— sativum
— scorodoprasum
— victorialis
Arum maculatum
Asarum Europæum
Brassica eruca
— rapa
Cardamine pratensis
Cochlearia armoracia
— officinalis
Colchicum illiricum
— autumnale
Convallaria majalis
Crambe orientalis
Dentaria pentaphyllos
Erigeron acre
Erysimum alliaria
— barbarea
— officinale
Iris Florentina
— fœtida
— Germanica
— pseudacorus
— tuberosa
Lepidium iberis
— sativum
Petivera alliacea
Raphanus sativus
Saxifraga granulata
Scilla maritima
Sedum acre
Sempervivum tectorum
Sinapis alba
— nigra
Sysimbrium nasturtium
— sophia
— Tenuifolium
Thlaspi arvense
4. *Animal acrids.*
Carabus chrysocephalus
Carabus ferrugineus
Chrysis ignita
Chrysomela populi
— sanguinolenta
Coccinella bispunctata
— septem punctata
Coccus cacti
— ilicis
Curculio antiodontalgicus
— bacchi
— jaccæ
Formica rusa
Lytta vesicatoria.
Lumbricus terrestris
Meloë majalis
— proscarabæus
Oniscus asellus

II. ASTRINGENTS.

1. *Astringents properly so named.*
Æsculus hypocastan.
Agrimonia eupatoria
Alchemilla vulgaris
Arbutus uva ursi
Asplenium ceterach
— scolopendrium
— trichomanoides
Calamus rotang
Capparis spinosa
Cinchona officinalis, ejusque species
Cortex pocgerebæ
Cupressus sempervirens
Cynomorium coccin.
Cytinus hypocistis
Datisca cannabina
Dracæno draco
Equisetum arvense
— hyemale
Fragaria vesca
Fraxinus excelsior
Galium aparine
— verum
Garcinia mangostana
Geranium Robertianum
Geum rivale
— urbanum
Hæmatoxylum camp.

Hedera helix
Ilex aquifolium
Juglans regia
Kino
Lawsonia inermis
Lichen cocciferus
— plicatus
Lonicera symphoricarpos
Lycoperdon bovista
Lysimachia nummularia
Lythrum salicaria
Mespilus Germanicus
Mimosa catechu
— nilotica (succus)
Morus nigra
Myrtus communis
— caryophyllata
Osmunda regalis
Peziza auricula
Phyllanthus emblica
Plantago major
— media
— lanceolata
Polygonum bistorta
Potentilla reptans
Poterium sanguisorba
Prunella vulgaris
Prunus spinosa
Pterocarpus draco
Punica granatum
Pyrola rotundifolia
Pyrus communis
— cydonia
Quassia simaruba
Quercus cerris
— robur
— suber
Rheum rhaponticum
Rhodiola rosea
Rhododendron chrysanthum
Rhus coriaria
— typhinum
Rosa alba
— canina
— centifolia
— damascena
— gallica
Rubia tinctorum
Rumex acetosa
— acutus
— alpinus
— crispus
— hydrolapathum
— patientia
— sanguineus
— scutatus
Ruscus aculeatus
— hypoglossum
Salix alba
— amygdalina
— caprea
— fragilis
— pentandria
— vitulina
Sanguisorba officinalis
Sanicula Europæa
Sorbus aucuparia
— domestica
Spiræa filipendula
— ulmaria
Stachis annua
— recta
Statice limonium
Swietenia febrifuga
— mahogani,
Tamarix Gallica
Thea bohea
— viridis
Tormentilla erecta
Ulmus campestris
Vaccinium myrtillus
Verbena officinalis
Viscum album

2. *Bitter astringents.*
Vide *Bitter Styptics.*

3. *Animal astringents.*
Coccus lacca
Cynips quercus
— rosæ

4. *Metallic and other astringents.*
a. Oxydum arsenici
— cupri
— ferri
— plumbi
— zinci
— bismuthi
b. Acetis ferri
— zinci
c. Sulphas cupri
— ferri
— zinci
d. Tartris ferri
e. Vinum rubrum
Alkohol
f. Acida.
Acidum acetosum
— Gallicum
— sulphuricum dilut.
— muriaticum oxygenatum
g. Alumen
h. Aquæ minerales ferruginosæ
Sedimentum earundem
i. Aqua frigida
Glacies
Balnea frigida
Fotus frigidi
Embrocationes frigidæ
Affusio frigida

III. Alexipharmics.

I. AGAINST VEGETABLE POISONS.

1. *Against narcotic poisons.*
a. Acidum citri
Acida mineralia aqua diluta
Acidum muriatic. oxygenatum
Murias hyperoxygenatus potassæ
Coffeæ infusum saturatum
b. Emetica
c. *Externally*
Emetica epigastrio frictione adplicata
Enemata irritantia

2. *Against acrid poisons.*
a. Emetica
b. Diluentia
Aqua tepida
c. Mucilaginosa
d. Oleosa
Lac
Ova
e. Acida
f. Alkalina

3. *Against poisonous funguses.*
a. Emetica
b. Cathartica
c. Haustus aquæ gelidæ
d. Æther

II. AGAINST ANIMAL POISONS.

1. *Against the bite of poisonous serpents.*
a. Aristolochia anguicida
— serpentaria
Ophyoxylum serpentinum
Polygala senega
Strychnos colubrina
Nux vomica
Fraxinus excelsior (succus foliorum)
Atropa belladonna
Gentiana lutea
b. Carbonas ammoniæ
c. Oxygenantia
d. *Externally*
Excisio
Sectio
Adustio
Oxygenantia
Causticum
Lotio alkalina
Oleum olivæ
Saccharum

2. *Against the bite of rabid animals.*
Internally
Hydrargyri præparata ad ptyalismum
Litta vesicatoria
Meloë majalis
— proscarabæus
Oxygenantia
Alkalina
Externally
Excisio
Adustio
Oxygenantia
Murias stibii oxygenatus
Potassa
Vesicans
Inspiratio gazis, acidi carbonici, azoti, vel hydrogeni

3. *Against the sting of insects.*
Adustio
Excisio
Ammoniaca
Acidum acetosum
Oleum olivæ
— camphoratum
Alkohol camphoratum
Acetis plumbi liquidus

4. *Against animal poisons taken into the stomach.*
a. Emetica
b. Succus citri
Acetum
Acidum nitricum dilut.
— muriaticum oxygenatum
Murias hyperoxygenatus potassæ
c. Involventia

III. AGAINST MINERAL POISONS.

1. *Against mercurial, antimonial, arsenical oxids and salts.*
a. Decoctum cinchonæ, quercus, aliarumque

plantarum principio astringente fœtarum
b. Opium
c. Oleosa et mucilaginosa
Lac butyrum
Oleum ricini
Enemata oleosa
d. Emetica
e. Cathartica
f. Sales alkalina
Aquæ min. alkalinæ
g. Sulphureta alkalina
Thermæ sulphureæ
IV. ANTIMEPHITIC ALEXIPHARMICS.
1. *Against putrid vapours.*
Externally
Vapor acidi acetici
— — acetosi
— — muriatici
— — — oxygenati
— ætheris acetosi
Gas oxygenium inflatum
Internally
Acidum nitricum
— muriaticum oxygenatum
Murias hyperoxygenatus potassæ
Alkohol
Vinum
2. *Against acid vapours.*
Odor ammoniæ aut succinatis ammoniæ
Internally
Antacida
3. *Against the vapour of hydrogen, azotic, or carbonic gases.*
a. Respiratio aut inflatio aeris oxygenio abundantis
b. Odor ammoniæ
c. Frictiones corporis calidæ

IV. Alterants.

a. Vegetables.
Antirrhinum linaria
Arctium lappa
Carex arenaria
Carina acaulis
Ceanothus Americanus
Cissampelos pareira
Daphne mezereum
Eupatorium cannabin.
Gelium aparine
Guaiacum officinale
Inula helenium
Juglans regia
Juniperus communis
Ledum palustre
Lepidium iberis
Lichen caninus
Phellandrium aquatic.
Prunus padus
Rhododendron chrysanthum
Rubia tinctorum
Scrophularia nodosa
Sium nodiflorum
Smilax China
— sarsaparilla
Solanum dulcamara
Ulmus campestris
Viola tricolor
Xanthium strumarium
Zostera marina
b. Animals.
Coluber vipera
— blerus
Lacerta agilis
— iguana
Diæta ex cancris, ostreis, ranis, testudinibus
c. Minerals.
Carbonas ammoniæ
— potassæ
— sodæ
Sulphureta alkalina
Arsenici præparata
Hydrargyri præparata
Stibii præparata
Murias barytæ
— calcis
Sales nutri
Sulphur
d. Antiscorbutica
e. Antisyphilitica
f. Deobstruentia
g. Oxygenantia
h. Deoxygenantia
i. Aqua marina
k. Balneum marinum
Balnea calida
— fervida
Balneum vaporis
l. Aquæ min. acidulæ
— — alkalinæ
— — ferruginosæ
— — salinæ
Thermæ simplices
— alkalinæ
— sulphureæ.

V. Bitters.

a. Pure bitters.
Aloë perfoliata, spicata, &c.
Bilis taurina
Calendula officinalis
Carduus marianus
Centaurea benedicta
— calcitrapa
Chærophyllum sylv.
Cichorium intybus
Columbo radix
Cucumis colocynthis
Fulmaria bulbosa
— officinalis
Gentiana amarella
— asclepiadea
— centaurium
— cruciata
— lutea
— purpurea
Globularia alypum
Hieracium pilosella
Humulus lupulus
Leonurus cardiaca
Lupinus albus
Menyanthes trifoliata
Myrica gale
Ophiorhiza mungos
Ophioxylum serpentinum
Polygala amara
Physalis alkekengi
Quassia amara
Sapindus saponaria
Serratula amara
Sophora heptaphylla
b. Styptic bitters.
Achras sapota
Ajuga pyramidalis
Brucea ferruginea s. antidysenterica
Capparis spinosa
Cinchona angustifolia
— Caribæa
— corymbifera.
— floribunda
— officinalis
— Tecamez
Cortex Chinæ flavus
— — ruber
— — Surinamensis
Croton cascarilla
Cupressus sempervir.
Ilex aquifolium
— cassine
Lichen islandicus
— pulmonarius
Polypodium filix mas
— vulgar
Quassia simaruba.
Rhamnus frangula
Rheum palmatum
— rhaponticum
— undulatum
Rhododendron chrysanthum
Swietania mahogani
— febrifuga
c. Aromatic bitters.
Achillea millefolium
— ageratum
— atrata
— moschata
Anthemis cotula
— nobilis
Citrus aurantium
— medica
Costus arabicus
Aristolochia clematitis
— longa
— rotunda
— odoratissima
— serpentaria
— trilobata
Artemisia abrotanum
— absynthium
— campestris
— dracunculus
— maritima
— rupestris
— vulgaris
Hyssopus officinalis
Matricaria chamomilla
— parthenium
Hedera helix
Mentha auricularis
— crispa
Santalum album
Santolino chamæcyparissus
Spilanthus acmella
Sigesbeckia orientalis
Tanacetum balsamita
— vulgare
Teucrium capitatum
— chamædrys
— chamæpitys
— creticum
— marum
— polium
— scordium
d. Acrid bitters.
Allamanda cathartica
Aloëxylum verum
Anagyris fœtida
Artemisia santonica
Coris Monspelliensis
Cucumis colocynthis
Momordica elaterium
Nerium antidysenteric.

Polygala senega
Strychnos colubrina
— nux vomica
— volubilis
Cassine peragua
Gratiola officinalis
Laserpitium latifolium
Cheledonium majus
Eupatorium cannabin.
Scutellaria galericulata
Menispermum cocculus.

VI. ANALEPTICS.

a. Vinum
Alkohol
Æther
— alkoholisatus
Bromelia ananas
Choccolada
Epidendrum vanilla
Laurus cinnamomum
Panax quinquefolium
Sium ninsi
b. Odorifera grata
Acetum
Æther acetosus
c. Aromatica
d. Cardiaca
e. Nervina
f. Nutrientia eupepta
g. Fructus acido dulces, eorumque præparata
h. Saccharum, et saccharina
i. Syrupus aceti rubri idæi.

ANODYNES, vide *SEDATIVES*

VII. ANTACIDS.

a. Earths:
Calx
Aqua calcis
Conchæ aut testæ calcinatæ
Magnesia
Carbonas magnesiæ
— calcis
Cancrorum lapides
— chelæ
Ostrearum conchæ
Ovorum testæ
Creta
Marmor album
Corallia alba
— rubra
Os sepiæ officinalis
b. Alkalis:
Ammonia
Potassa
Soda
Carbonas ammoniæ
— potassæ
— sodæ
Borax
Sapo
Salsolæ species
Spongia offic. usta
Xanthium strumarium
Zostera marina
Balnea cum potassa aut soda
Thermæ alkalinæ
c. Amara
Aloë
Cinchona cum aqua calcis
Rheum
d. Ferri præparata
Aquæ min. ferruginosæ
e. Antizymica
Acidum sulphuricum
f. Acria volatilia
g. Diæta animalis, præcipue ex piscibus, avibus, feris
h. Vinum generos. Hungaricum, Hispanicum
i. Abstinentia ab acescentibus; vinis acidulis; acidis

VIII. ANTHELMINTICS.

a. Vegetables.
Allium cepa
— sativum
Aloë perfoliata
Aloëxylum verum
Amygdalus amara
— persica
Artemisia santonica
Banksia Abyssinica
Bryonia alba
— dioica
Cambogia gutta
Chenopodium ambrosioides
— anthelminticum
Conferva s. fucus helminthochorton
Convolvulus jalappa
Cortex angelinæ
Cucumis colocynthis
Cyclamen Europæum
Daucus carota
Delphinum staphisagria
Dictamnus albus
Dolichos
Ferula assa fœtida
Geoffroya inermis
— Surinamensis
Gratiola officinalis
Helleborus niger
Hypericum perforatum
Inula helenium
Juglans regia
Juniperus sabina
Kaempferia rotunda
Labradia pruriens
— urens
Laurus camphora
Lichen aphthosus
Marrubium vulgare
Menyanthes trifoliata
Nepeta cataria
Nigella sativa
Polypodium filix mas
Pteris aquilina
Punica granatum
Rhamnus frangula
Rheum palmatum
Ricinus communis
Ruta graveolens
Santolina chamæcyparissus
Saponaria officinalis
Scrophularia nodosa
Senecio vulgaris
Sisymbrium sophia
Spigelia anthelmia
— Marilandica
Strychnos colubrina
— nux vomica
— volubilis
Tanacetum vulgare
Teucrium scordium
Valeriana celtica
— officinalis
— phu
Veratrum album
— nigrum
— sabadilla
b. Minerals.
1. Murias hydrargyri
Sulphuretum hydrargyri nigrum
2. Sulphas ferri
Aquæ min. ferruginosæ
3. Stannum rasum, aut semi-oxydatum
c. Externally:
Frictiones ventris cum anthelminticis
Enemata cum anthelminticis
— cum muriata sodæ
Concussio electrica.

ANTICACHECTICS, vide *ALTERANTS.*
ANTIDOTES, vide *ALEXIPHARMICS.*

IX. ANTISCORBUTICS.

a. Acrids.
Allium cepa
— sativum
— scordoprasum
— victorialis
Brassica eruca
— rapa
Cardamine pratensis
Cochlearia armoracia
— officinalis
Crambe orientalis
Dentaria pentaphyllos
Erigeron acre
Erysimum alliaria
— barbarea
— officinale
Gallium aparine
Lepidium iberis
— sativum
Petivera alliacea
Raphanus sativus
Saxifraga granulata
Scilla maritima
Sinapis alba
— nigra
Sisymbrium nasturtium
— tenuifolium
Thlapsi arvense.
b. Acids and acescents.
Acidum citricum
— oxalicum
— tartarosum
Succus citri
Fructus acidi
Omphacium
Brassica oleracea fermentata
Oxalis acetosella
Rumex acetosa
Cerevisia fermentans
Vinum Campaniæ fermentans
— Rhenanum, Mosellanum
Turiones pini

Aqua picea
Diæta vegetabilis
c. *Sweets, and acid sweets.*
Saccharum
Mel
Fructus horæi
Decoctum malti
d. *Bitters.*
Menyanthes trifoliata
Cinchona officinalis, etc.
e. *Oxygenants.*

X. ANTISEPTICS.

a. Arnica montana
Camphora
Cinchona
Daucus carota
Fraxinus excelsior
Geum urbanum
Ruta graveolens
Teucrium scordium
b. Acida mineralia
— vegetabilia
Plantæ acidulæ
Oxalis acetosella
Rumex acetosa
Fructus acidi et acidodulces
Berberis vulgaris
Vaccinium myrtillus
Citrus medica
— aurantium, etc.
c. Dulcia
Fructus dulces
Mel
Oxymel
Saccharum
Infusum malti
d. Liquida fermentata
Vinum
Cerevisia
Alkohol
e. Oxygenantia
f. Amara
g. Acria volatilia
h. Balsamica et resinosa
i. Aromatica
k. Adstringentia
l. Sales neutri
m. Diæta acidula vegetabilis.

XI. ANTISPASMODICS.

a. *Vegetables.*
1. Anagyris fœtida
Anthemis cotula
— nobilis
Chenopodium vulvaria
Citrus aurantium
Cuminum cyminum
Cymicifuga fœtida
Cardamine pratensis
Convallaria majalis
Eryngium fœtidum
Galium mollugo
— verum
Hyosciamus niger
Iris fœtida
Matricaria chamomilla
— parthenium
Malaleuca leucadendron
Pæonia officinalis
Papaver somniferum
Paris quadrifolia
Prunus lauro-cerasus
Radix cassumaniar
Ruta graveolens
Tilia Europæa
Teucrium marum
Valeriana celtica
— officinalis
— phu
Viscum album
2. Gummi-resinæ fœtidæ
Ferula assafœtida
Bubon galbanum
Sagapenum
3. Camphora
Opium
Crocus
b. *Animals.*
Ambragrisca
Castoreum
Moschus
Zibethum
Olea empyreumatica
Oleum animale diplii
— cornu cervi volatile
e. *Minerals.*
1. Æther acetosus
— muriaticus
— nitricus
— sulphuricus
Æther alkoholisatus
— — camphoratus
Acido mineralia alkoholisata
2. Oleum petrolei
— succini
3. Acidum sulphuricum
4. Carbonas ammoniacæ
5. Ferri præparata varia
Aquæ minerales ferruginosæ
6. Oxydum zinci
— bismuthi
Sulphas zinci
d. Refrigerantia

e. Emetica
f. Cathartica
g. Anthelmintica
h. Deobstruentia
i. Roborantia
k. *Externally.*
1. Odorifera fœtida
Assafœtida
Castoreum
Olea empyreumatica
Fumus plumarum aut ossium accensorum
2. Acetum concentrat.
Æther acetosus
3. Venæsectio
4. Oleum camph. cum opio
Linimentum ex opio et æthere
5. Balnea calida
Semicupia
Pediluvia
Vapor aquæ genitalibus admissus
Fotus emollientes
6. Frictiones aromaticæ
7. Enemata varia
8. Injectiones ex antispasmodicis et emollientibus
9. Balnea frigida
10. Vesicantia.

XII. ANTISYPHILITICS.

a. *Vegetables.*
Agave Americana
Arundo phragmitis
Astragalus exscapus
Bubon Macedonicum
Buxus sempervirens
Ceanothus Americanus
Clematis recta
Coris Monspelliensis
Daphne Mezereum
— laureola
Echitis syphilitica
Euphorbia candescens
— parvula
Geum rivale
Gratiola officinalis
Guaiacum officinale
— sanctum
Juglans regia
Laurus sassafras
Lobelia syphilitica
— longiflora
— tupa
Lonicera Diervilla
Plumeria alba
Prunus padus
Ranunculus abortivus
Serratula amara
Stillingia sylvatica
b. *Animals.*
Lacerta agilis
— Iguana
c. *Minerals.*
Hydrargyri oxyda
Hydrargyri sales varii
Carbonas ammoniacæ
— potassæ
— sodæ
d. *Oxygenants.*
e. *Externally.*
Oxydum hydrarg. alb.
— — rubrum
Murias hydrargyri
Unguentum hydrarg.
Balnea cum muriate oxygenato hydrarg.
Frictiones cum hydrargyro
Enemata ——
Fumigationes ——

XIII. APHRODISIACS.

a. Cineraria Sibirica
Eryngium campestre
Fraxinus excelsior
Gladiolus communis
Lycoperdon tuber
Orchis morio, aliæque species
b. *Aromatics.*
Caryophillus aromat.
Epidendrum vanilla
Laurus cinnamomum
Panax quinquefolium
Satureja hortensis
c. *Animals.*
1. Ambra grisea
Castoreum
Coccus cacti
Coccus ilicis
Lacerta iguana
— scincus
Lytta vesicatoria
Moschus
Zibethum
2. Carnes juniorum animalium
Gelatinæ
Ostreæ
Ova
Pisces
d. Quies mentis et corporis
e. *Externally.*
1. Scrotum corrugantia
Alchemilla vulgaris

Anthemis pyrethrum
Cachris odontalgica
Hedera helix
Vinca minor
2. Alkohol
Æther alkoholisatus
Vinum
Acetum
3. Vesicantia
4. Frictiones variæ
Unctiones aromaticæ
Flagellatio
Urticatio.

XIV. Aromatics.

a. Acorus calamus
Amomum cardamomum
— zingiber
Angelica Archangelica
— sylvestris
Aristolochia longa
— odoratissima
— rotunda
— serpentaria
— trilobata
Arnica montana
Artemisia abrotanum
— rupestris
— vulgaris
Caryophillus aromaticus
Cistus creticus
Citrus aurantium
— medica
Cyperus longus
— odoratus
— rotundus
Doronicum latifolium
— pardalianches
Dracocephalum Canariense
Fagara pterota
Gnaphalium arenarium
— dioicum
Kaempferia rotunda
Laurus cassia
— cinnamomum
— culilawan
— nobilis
— pecurim
— sassafras
Lavandula spica
— stoechas
Melissa calamintha
— officinalis
Melittis melissophyllum
Mentha auricularis
— cervina
— crispa
Mentha piperita
— pulegium
— sativa
— sylvestris
— viridis
Maranta galanga
Marrubium vulgare
Melaleuca leucadendron
Monarda fistulosa
Myristica moschata
Myrtus caryophillata
— communis
— pimenta
Ocymum basilicum
Origanum creticum
— dictamnus
— majorana
— Syriaticum
— vulgare
Pimpinella anisum
— magna
Rosmarinus officinalis
Santalum album
Santolina chamæcyparissus
Satureja capitata
— hortensis
Salvia officinalis
Tanacetum balsamita
— vulgare
Valeriana officinalis
Wintera aromatica
— canella
Teucrium chamædrys
— chamæpitys
— marum
Thymus serpillum
— vulgaris
b. Aromatica acria
Vide *Aromatic acrids*
c. Aromatica amara
Vide *Aromatic bitters*
d. Aromatica resinosa
Vide *Resinous stimulants*
e. Carminativa.

XV. Balsamics.

Amyris elemifera
— zeylonica
Balsamum de Mecca
Gummi-resina bdellium
Liquidambar styraciflua
Myroxyllum peruiferum
Styrax Benzoin
Styrax officinalis
Toluifera balsamum.

XVI. Cordials.

a. Andropogon nardus
Aristolochia serpentaria
Laurus cinnamomum
Panax quinquefolium
Sium ninsi
Teucrium marum
b. Aromatica
c. Nutrientia
Diæta lenta
d. Oxygenantia
e. Roborantia
f. Stimulantia
g. Analeptica
Vinum generosum
Alkohol
Cerevisia generosa
h. Opium
i. Oxygenantia
k. *Externally.*
a. Aër purus
Respiratio gazis oxygenii
b. Enemata aromatica
— nutrientia
— alkoholisata
c. Balnea aromatica
— alkoholisata
d. Frictiones corporis.

XVII. Carminatives.

a. Æthusa meum
Ammi copticum
— majus
Amomum cardamomum
— granum Paradisi
— zingiber
Anethum graveolens
— fœniculum
Andropogon schœnanthus
Apium graveolens
— petroselinum
Bubon Macedonicum
Carum carui
Chenopodium ambrosioides
— botrys
Cistus creticus
Coriandrum sativum
Cuminum cyminum
Ferula assafœtida
Illicium anisatum
Juniperus communis
Lagoëcia cuminoides
Laserpitium latifolium
— siler
Ligusticum levisticum
Melaleuca leucadendron
Panax quinquefolium
Pastinaca opopanax
Pimpinella anisum
Pimpinella magna
— saxifraga
Santolina chamæcyparissus
Semen adiowaen
Scrophularia aquatica
— nodosa
Sison ammi
— amomum
Sium ninsi
Tordylium officinale
Wintera aromatica
— canella
b. *Acrid aromatics.*
c. *Bitter aromatics.*
d. Frictiones abdominis simplices vel aromaticæ
e. Exercitium
f. Diæta eupepta
g. Alkohol et alkoholisata
Vinum generosum
h. Æther
— alkoholisatus
i. Acidum sulphuricum
— — alkoholisatum
Acidum nitricum alkoholisatum
k. Alkalia
l. Magnesia
m. *Mild cathartics.*
n. Ferri præparata

XVIII. Cathartics.

I. *The more mild.*

a. Cassia alata
— fistula
Cassia senna
Cichorium endivia

Prunus domestica
Spinacia oleracea
Thalictrum flavum
Fructus acido-dulces crudi vel cocti
Manna
Oleum seminum ricini communis
b. Infusum coffeæ
c. Aquæ frigidæ haustus omni mane aut vesperi
d. Emetica refracta dorsi
e. *Minerals.*
Sulphur
Magnesia
Carbonas magnesiæ
Sulphas magnesiæ
— potassæ
Sulphas sodæ
Tartris potassæ
— sodæ
Phosphas sodæ, aliique sales neutri
Aquæ minerales salinæ
f. Frictio abdominis cum catharticis acrioribus
g. Enemata varia
h. Aspersio ventris nudi e longinguo aqua frigida
Frictio ventris
i. Lotio manuum in solutione muriatis oxygenati stibii aquosa.

II. Drastics.

a. Allamanda cathartica
Aloë perfoliata
— spicata
Agaricus muscarius
Anagyris fœtida
Asarum Europæum
Boletus laricinus
Bryonia alba
— dioica
Buxus sempervirens
Cambogia gutta
Carthamus tinctorius
Cassia senna
Cassine peragua
Colchicum autumnale
Convallaria majalis
Convolvulus jalappa
— sepium
— scammonia
— soldanella
— turpethum
Croton tiglium
Cucumis colocynthis
Cyclamen Europæum
Delphinium staphisagria
Digitalis purpurea
Euphorbiæ species
Gratiola officinalis
Guttæfera vera
Helleborus niger
Iridis species
Linum catharticum
Lycopodium selago
Mercurialis annua
Momordica elaterium
Nicotiana tabacum
Penœa sarcocolla
Phyllanthus emblica
Polygala senega
Rhamnus catharticus
— frangula
Rheum palmatum
— rhaponticum
— undulatum
Sambucus ebulus
Veratrum album
— nigrum
Viola tricolor
b. Sales neutri
c. Enemata acriora
Fumus aut decoctum nicotianæ tabaci
Decoctum mercurialis annuæ.

CEPHALICS, vide *NERVINES.*

XIX. CORROSIVES.

a. Allium cepa
— sativum
Aloëxylum verum
Anacardium occidentale
Anemone nemorosa
— pratensis
Arum maculatum
Bryonia alba
Capsicum annuum
Clematis recta
Daphnes species
Drosera rotundifolia
Euphorbiæ species
Juniperus sabina
Nicotiana tabacum
Phytolacca decandra
Plumbago Europæa
Polygonum hydropiper
Ranunculi species
Ruta graveolens
Semecarpus anacardium
Sinapis alba
— nigra
Lytta vesicatoria
b. *Acria varia.*
c. *Mineralia.*
Caustica stricte sic dicta
Ammoniaca
Potassa
Soda
Calx
Alumen fusum
Acidum muriaticum
— nitricum
— sulphuricum
Murias oxygenatus hydrargyri
— — stibii
Nitras argenti
Sulphas cupri
Oxidum arsenici
— cupri
— ferri rubrum
— hydrargyri rubrum
Ferrum candens
Moxa.

XX. DEBILITANTS.

a. Diæta tenuis, vegetabilis
Acida vegetabilia diluta
Aquosa tepida
b. Refrigerantia
c. Deoxygenantia
d. Narcotica
e. Nauseantia
Scilla maritima
Digitalis purpurea, etc.
f. Cathartica repetita, et salium neutrorum usus diutius continuatus
g. Plumbi præparata
h. Respiratio aëris gaze azoto, hydrogenio, aut acido carbonico abundantis
Respiratio ætheris sulphurici
Halitus putridi aut mephitici
Seclusio in stabulis, aut loco humido aëre non perflato
i. Affectus animi tristes
k. Abusus veneris
— liquorum fermentatorum
— opii, aliorumque narcoticorum
Labor nimius
Vita otiosa sedentaria
Defectus exercitii solitii
l. Balnea frigida diutius adplicata
Balneorum tepidorum abusus
m. Calor atmosphæræ magnus
Ventus australis, præcipue ex desertis Africæ
n. Evacuationes sanguineæ
— gelatinosæ vel mucilaginosæ
Fonticuli.

XXI. DEMULCENTS.

a. *Gelatinous.*
Gelatina cornu cervi
— vitulina, &c.
Ichthyocolla accipencerum
Ova
Helix pomatia
Limax maximus
b. *Mucilaginous.*
c. *Oily.*
Olea veget. fixa
Adipes et olea animalia
d. *Sweet*
Saccharum
Mel
Glycyrrhiza glabra
— echinata
Ficus carica
Rhamnus zyzyphus
e. *Externally.*
Cataplasmata
Fotus
Frictiones oleosæ
— mucilaginosæ
Balnea calida
Vapor aquæ.

XXII. Deobstruents.

a. Chærophyllum sylvestre
Chelidonium majus
Cichorium intybas
Cicuta virosa
Cimicifuga fœtida
Conium maculatum
Cucumis colycynthis
Curcuma longa
Cuscuta epithymum
— Europæa
Ferula assafœtida
Gummi-resina ammon.
— sagapenum
Fucus vesiculosus
Fumaria bulbosa
— officinalis
Gypsophilla struthium
Helleborus fœtidus
— niger
— viridis
Iridis species
Leontodon taraxacum
Menyanthes trifoliata
Nicotiana tabacum
Panicum dactylum
Polygala senega
Prunus lauro-cerasus
Rheum palmatum
Sapidus saponaria
Scandix cerefolium
Triticum repens
b. Mel
c. Vitellus ovi
d. Amara
e. Stomachica
f. Alkalia
g. Sales neutri
h. — terrestres
i. Præparata ferri
— hydrargyri
— stibii
k. Thermæ alkalinæ
— sulphureæ
l. Aquæ minerales ferruginosæ
— — salinæ
— — acidulæ
m. Frictiones simplices, et aromatisatæ
n. Embrocatio
o. Enemata varia
p. Exercitium.

XXIII. Deoxygenants.

1. Alkalia
2. Sulphureta alkalina
Sulphuretum ammoniacæ
— potassæ
3. Aquæ min. sulphureæ
— — alkalinæ
4. Respiratio aëris azoto, hydrogenio, aut acido carbonico abundantis
5. Seclusio in loco angusto ubi aër atmosphæricus non satis renovatur
6. Adstringentia
Decoctum cinchonæ
— corticum viridium nucum juglandis
— quercus, etc.
7. Diæta animalis
8. Quies corporis
9. Prunus lauro-cerasus
Digitalis purpurea.

Diaphoretics, vide *Sudorifics.*

XXIV. Diuretics.

a. Anemone pratensis
Antirrhinum linaria
Apium petroselinum
Arum maculatum
Asarum Europæum
Asclæpias vincetoxicum
Asparagus officinalis
Carthamus tinctorius
Cissampelos pareira
Clematis recta
— vitalba
Conium maculatum
Copaifera officinalis
Croton tiglium
Colchicum Illyricum
— autumnale
Crysanthemum leucanthemum
Cucumis colocynthis
Curcuma longa
Cynara scolymus
Digitalis purpurea
Equisetum arvense
— hyemale
Eryngeum campestre
— fœtidum
Eupatorium cannabinum
Fragaria vesca
Fraxinus excelsior
Genista tinctoria
Helleborus niger
— viridis
Iris Florentina
— fœtida
— Germanica
— pseud-acorus
— tuberosa
Juniperus communis
— sabina
Lactuca scariola
— virosa
Linnæa borealis
Nicotiana tabacum
Ononis arvensis
— spinosa
Parietaria officinalis
Physalis alkekengi
Polygala senega
Polygonum hydro-piper
Pimpinella saxifraga
Radix caligualæ
— timac
Rhamnus catharticus
— frangula
Ranunculus ficaria
Ribes nigrum
Rubia tinctorum
Ruta graveolens
Sambucus ebulus
— nigra
Saxifraga granulata
Scandix cerefolium
Scilla maritima
Solanum dulcamara
Solidago virga aurea
Spartium scoparium
Spilanthus acmella
Stychnos nux vomica
Toluifera balsamum
Triticum repens
Tropœolum majus
Viola odorata
— tricolor
b. Acida vegetabilia
c. — mineralia
d. Æther sulphuricus
Acidum muriaticum alkoholisatum
— nitric. alkoholisat.
e. Alkalia
f. Sales neutri, refracta dosi
Acetis potassæ
— sodæ
Tartris potassæ acidul.
— potassæ
— sodæ
g. Sales terrestris
Murias et acetis calcis
— — — barytæ
h. Amara
i. Acria volatilia
k. Resinosa
l. Balsamica
m. Cathartica acriora
n. Frictio ventris cum scilla maritima
— — cum oleo
o. Frigus corporis superficiei adplicatum
p. Lytta vesicatoria sub varia forma
q. Oniscus asellus

Eccoprotics, vide *Cathartics.*

Emmenagogues, vide *Menagogues.*

XXV. Emetics.

a. Allium cepa
Asarum Europæum
Betonica officinalis
Cochlearia armoracia
Colchicum autumnale
— Illyricum
Croton tiglium
Digitalis purpurea
Erigeron acre
Gratiola officinalis
Helleborus niger
Momordica elaterium
Nicotiana tabacum
Psycotria emetica
Ranunculus flammula
— lingua
Sambucus ebulus
Scilla maritima
Sinapis alba
Sinapis nigra
Strychnos colubrina
— nux vomica
— volubilis
Veratum album
— nigrum
Viola canina
— ipecacuanha
— odorata
b. Amara
c, Cathartica acria
d. *Metallic.*
Oxidum hydrargyri luteum
Tartris potassæ acidulus stibiatus
Stibii præparata varia
Sulphas zinci
e. Aqua distillata ranun-

culi flammulæ aut linguæ
Aqua calida
f. Applicatio nicotianæ tabaci regioni epigastricæ
Frictio epigastrii cum emeticis mediante saliva
Enema ex decocto tabaci
g. Irritatio faucium mechanica
h. Motus vertiginosus.

XXVI. EMOLLIENTS.

a. Gelatinosa
b. Mucilaginosa
c. Oleosa
d. Aqua calida
Balnea calida
Thermæ
Vapor aquæ
— aceti
Embrocatio
Cataplasmata
Fotus.

EPISPASTICS, vide *CORROSIVES*.

XXVII. ERRHINES.

a. Achillea ptarmica
Asarum Europæum
Beta vulgaris
Betonica officinalis
Calendula officinalis
Convallaria majalis
Euphorbia offic. (gummi-resina)
Guaiacum officinale
Iridis species
Nicotiana tabacum
Nigella sativa
Origanum majorana
Primula veris
Salvia sclarea
Sinapis alba
— nigra
Teucrium marum
Veratrum album
— nigrum
b. Acidum benzoicum
Ammoniaca
Succinus ammoniacæ
Sulphas hydrargyri

EXCITANTS, vide *CARDIACS* et *NERVINES*.

XXVIII. EXPECTORANTS.

a, Arum maculatum
Asclepias asthmatica
Cassine paragua
Erysimum officinale
Gummi-resina ammon.
Glecoma hederacea
Glycyrrhiza glabra
Hedera helix
Hyssopus officinalis
Ilex cassine
Inula helenium
Iridis species
Marrubium vulgare
Melissa calamintha
Nicotiana tabacum
Peucedanum officinale
Polygala amara
— senega
Polypodium vulgare
Rubia tinctorum
Scilla maritima
Styrax benzoin
Thuya occidentalis
Tussilago farfara
— petasites
Veronica officinalis
b. Emetica (refracta dosi)
Hydro-sulphur stibii
Carbonas ammoniacæ
Citras ammoniacæ
c. Demulcentia
d. Balsamica et resinosa
Acidum benzoicum
Sulphur
Petroleum
Oleum succini
f. Vapor aquæ
— aceti
Fumus balsamicorum
g. Vesicantia
h. Opium (pro re nata).

XXIX. GALACTOPHORA.

a. Anethum fœniculum
— graveolens
Carum carui
Ligustiscum levisticum
Nigella sativa
Pimpinella anisum
Scandix cerefolium
b. Diæta nutriens
Gelatinosa
Farinacea
Lac
Cerevisia generosa
Potus aquæ frequens
c. Suctio.

HYPNOTICS, vide *SEDATIVES*.

INVOLVENTS, vide *DEMULCENTS*.

LACTIFERA, vide *GALACTOPHORA*.

XXX. MENAGOGUES.

Aloë perfoliata
Artemisia abrotanum
Asarum Europæum
Adonis Appenina
Adonis verna
Anagyris fœtida
Andropogon schœnanthus
Aristolochia clematitis
— longa
— rotunda
Asphodelus ramosus
Bromelia ananas
Bryonia alba
— dioica
Costus arabicus
Crocus sativus
Cucumis colocynthis
Curcuma longa
Cytisus laburnum
Cyclamen Europæum
Helleborus fœtidus
— niger
Juniperus sabina
Lycopodium selago
Maranta galanga
Momordica elaterium
Nepata cataria
Nigella sativa
Onosma echioides ?
Origanum creticum
— dictamnus
Pastinaca opoponax
Pimpinella saxifraga
Rubia tinctorum
Ranunculus sceleratus
Ruta graveolens
Satureja hortensis
Spilanthus acmella
Strychnos nux vomica
Tanacetum vulgare
Teucrii species
Thymus sepyllum
— vulgaris
Veratrum album
— nigrum
b. Aromatica
c. Cathartica acriora
d. Stimulantia
e. Gummi-resinæ fœtidæ
f. Castoreum
g. Hydrargyri oxida et sales varii
h. Ferri præparata
Aquæ minerales ferruginosæ
i. Thermæ variæ
Balnea calida
Semicupia
Pediluvia
Vapor aquæ
k. Frictiones
l. Phlebotomia
m. Electricitas.

XXXI. MUCILAGINOSA.

Alcea rosea
Althæa officinalis
Astragalus gummifer.
— tragacantha
Anchusa officinalis
Aquilegia vulgaris
Asphodelus ramosus
Avena sativa
Cactus opuntia
Cannabis sativa
Ceratonia siliqua
Cissampelos caapeba
Convallaria polygonat.
Cordia mixa
Fucus helminthocort.
Guilandina moringa
Hordeum distichon
— vulgare
Leucoidum vernum, etc.
Lichen islandicus
Lilium candidum
Linum usitatissimum
Malva alcea
— rotundifolia
— sylvestris
Mimosa nilotica
— Senegal
Ocymum basilicum
Œnanthe crocata
Orchis morio, etc.
Oryza sativa
Plantago psyllium
Pyrus cydonia (semen)
Prunus cerasus (gummi)

- Pentapetes muhucunda?
- Populus nigra
- Scorzonera Hispanica
- Symphitum officinale
- Trigonella fœnum Græcum
- Tussilago farfara
- Verbascum thapsus
- — nigrum
- Viscum album
- *b.* Farina avenæ
- — hordei
- — panici
- — phalaris
- Farina sago
- — secalis
- — tritici
- *c.* Dulcia
- Daucus carota
- Ficus carica
- Phœnix dactilifera
- Rhamnus jujuba
- — zyzyphus
- Saccharum officinarum
- Mel
- *d.* Gelatinosa
- Gelatina cornu cervi, etc.
- Ichthyocolla.

XXXII. Narcotics.

- *a.* Amygdalus amara
- — Persica
- Anethum graveolens
- Atropa belladona
- Atropa mandragora
- Cicuta virosa
- Colchium autumnale
- — Illyricum
- Conium maculatum
- Convallaria majalis
- Crocus sativus
- Cynoglossum officinale
- Datura stramonium
- Humulus lupulus
- Hyosciamus albus
- — niger
- Jasminum officinale
- Lactuca scariola
- — virosa
- Ledum palustre
- Laurus camphora
- Mercurialis annua
- Myrica gale
- Myristica moschata
- Nicotiana tabacum
- Nymphæa alba
- — lutea
- Pæonia officinalis
- Paris quadrifolia
- Papaver rhœas
- — somniferum
- Prunus avium
- — lauro-cerasus
- Sambucus ebulus
- Solanum nigrum
- Stachys sylvatica
- Stychnos nux vomica
- — volubilis
- Thea Bohea
- — viridis
- *b.* Vinum et liquores fermentati (majori dosi)
- Alkohol
- Opium (majori dosi).

XXXIII. Nervines.

- *a.* Ammi copticum
- Cassamuniar (radix)
- Camphorosma Monspelliensis
- Chenopodium ambrosioides
- Cheiranthus cheiri
- Citrus aurantium
- Coffea Arabica
- — occidentalis
- Dictamnus albus
- Dracocephalum canariense
- — Moldavicum
- Epidendrum vanilla
- Geranium moschatum
- Gnaphalium arenarium
- Hymenæa courbaril
- Jubabæ (cortex)
- Kikekunemalo (gummi-resina)
- Laurus camphora
- Lavandula spica
- — stoechas
- Melaleuca leucadendron
- Melissa officinalis
- Monarda fistulosa
- Nepeta cataria
- Polypodium fragrans
- Rosmarinus officinalis
- Salvia officinalis
- — sclarea
- Satureja capitata
- — hortensis
- Teucrium marum
- — Syriacum
- Thymus serpyllum
- — vulgaris

- Valeriana officinalis
- — phu
- *b.* Balsamica
- *c.* *Animals.*
- Fiber castor
- Moschus moschiferus
- Vivera zibethum
- Ambragrisea
- *d.* Vinum
- Alkohol
- *e.* Æther
- Æther alkoholisatus
- — — camphoratus
- *f.* Opium
- *g.* *Externally.*
- Odorifera grata
- — fœtida
- Oleum animale
- Vesicantia
- Unguenta varia
- Opium et opiata
- Balnea calida.

XXIV. Oleosa.

- *a.* Amygdalus communis
- — nana
- — Persica
- Brassica rapa
- Cannabis sativa
- Cocos butyracea
- — nucifera
- Corylus avellana
- Cucumis melo
- — sativus
- Cucurbita citrullus
- — lagenaria
- — pepo
- Guilandina moringa
- Linum usitatissimum
- Olea Europæa
- Papaver somniferum
- Pistachia vera
- Sesamum orientale
- Semecarpus anacardium
- Theombroma cacao
- *b.* *Animals.*
- Adeps
- Adipocera physeterum
- Axungia suilla
- Butyrum
- Cera
- Lac
- Sevum ovillum
- Vitellus ovorum.

XXXV. Oxygenants.

- *a.* Acidum nitricum
- — muriaticum oxygenatum
- Murias hyperoxygenatus potassæ
- *b.* Exercitium
- *c.* Respiratio aëris majori quantitate oxygenii mixti
- *d.* Thermæ minerales

PAREGORICS, vide *SEDATIVES.*

PTARMICS, vide *ERRHINES.*

PURGATIVES, vide *CATHARTICS.*

XXXVI. Refrigerants.

- 1. Cassia fistula
- Lactuca sativa
- Mesembryanthemum crystallinum
- Nymphæa alba
- — lutea
- Oxalis acetosella
- Parietaria officinalis
- Pertulacca oleracea
- Rumex acetosa
- — scutatus
- Tamarindus Indica
- 2. Fructus acido-dulces
- Morus nigra
- Prunus avium
- — cerasus
- Pyrus communis
- — malus
- Ribes nigrum
- Ribes rubrum
- Rubus arcticus
- — chamæmorus
- — idæus
- Sambucus nigra
- Vaccinium vitis idæa
- Vitis apyrena
- — vinifera
- 3. Lac ebutyratum
- Serum lactis
- 4. *Acids.*
- Omphacium
- Vinum pomaceum
- Vinum Campaniæ, aqua dilutum
- Aquæ minerales acidulæ
- Acidum acetosum
- Oxycratum

Oxymel
Syrupus aceti
Acidum citricum dilutum
Limonada
Acidum tartarosum
— muriaticum alkoholisatum dilutum
5. *Neutral salts.*
Nitras potassæ
— sodæ
Acetis potassæ
— sodæ
Tartris sodæ
— potassæ
— — acidulus
6. Diæta levis
7. Potus aquæ frigidæ copiosus
8. *Externally.*
Balnea tepida
— frigida
Glacies
Nix
Fotus frigidi
Pulvis nitratis potassæ aqua frequenter humectatus
Murias ammoniacæ
Acetum aqua dilutum
Aëris accessus liber.

RELAXANTS, vide *EMOLLIENTS*, *Oleosa*, & *Mucilaginosa.*

XXXVII. RESOLVENTS.

1. Acria
2. Adstringentia
3. Corrosiva
4. Emollientia
5. Refrigerantia
6. Sedativa
7. Stimulantia
8. Evacuantia chirurgica
9. Varia
Linimentum saponaceum
— ammoniacale
— ex Petroleo et alkohole
— ex gummi-resina ammon. et aceto scillæ
Unguentum hydrargyri
Vinum
Alkohol
Cerevisia generosa
Acetum
Camphora
Murias ammoniacæ
Plumbi præparata varia
Fotus frigidus
Fotus calidi varii
Embrocationes variæ
Cataplasmata varia
Frictiones variæ
Cucurbitæ
Emetica
Cathartica acriora
Sudorifica
Calor
Vapor aquæ, aceti, etc.

XXXVIII. ROBORANTS.

1. Ventriculum et systema gastricum roborantia, vide *Stomachics.*
2. Systema arteriosum roborantia, vide *Cordials.*
3. Systema nervosum roborantia, vide *Nervines*, *Analeptics*, *Antispasmodics.*

Hinc pro re nata
a. Amara stomachica
b. Aromatica cardiaca
c. Odorifera nervina
d. Ferri præparata
Aquæ minerales ferruginosæ
e. Oxygenantia
f. Adstringentia
g. *Externally.*
Frictiones
Exercitium
Constrictio, seu Ligatura membrorum
Balnea frigida
— alkoholisata
— aromatica
Fotus ex vino, alkohole
Linimenta varia aromatica

XXXIX. SEDATIVES.

a. Narcotica
Opium
Hyosciamus
b. Vinum
Alkohol
Æther
Æther alkoholisatus
c. Camphora
Æther camphoratus
— alkoholisatus camphoratus
Acetum camphoratum
d. Olea fixa
e. Mucilaginosa
Gelatinosa
f. Refrigerantia
g. Antispasmodica
h. *Externally.*
Æther
Oxida et sales plumbi
Frictiones oleosæ
Alkohol camphoratum
Oleum camphoratum
Unguentum opiatum
Emplastrum opiatum
Enemata
Fotus
Cataplasmata
Thermæ
Balnea calida
Vapor aquæ
— aceti.

XL. SIALAGOGUES.

a. *Internally.*
Hydrargyri præparata
Smilax China
Murias hyperoxygenatus potassæ
b. *Externally.*
Amomum zingiber
Angelica Archangelica
Anthemis pyrethrum
Cathris odontalgica
Caryophillus aromaticus
Cochlearia armoracia
Imperatoria ostruthium
Iridis species
Nicotiana tabacum
Nigella sativa
Sinapis alba
— nigra
Polygala Senega
Gargarisma ex scilla
— ex muriate ammoniacæ.

STHENICS, vide *ROBORANTS*, *STIMULANTS*, *CARDIACS*, *and NERVINES.*

XLI. STIMULANTS.

a. *Aromatics.*
Ammi copticum
Amomum zingiber
— cardamomum
Aristolochia clematitis
— longa
— rotunda
— odoratissima
— serpentaria
— trilobata
Angelica Archangelica
Arnica montana
Artemisia abrotanum
— campestris
— dracunculus
— glacialis
— rupestris
— vulgaris
Capsicum annuum
Carlina acaulis
Costus Arabicus
Croton cascarilla
Doronicum latifolium
— pardalianches
Dorstenia contrayerva
Ilex cassine
Illicium anisatum
Imperatoria ostruthium
Inula helenium
Kaempferia rotunda
Laurus cassia
— cinnamomum
— culilawan
— nobilis
— pecurim
Lavandula spica
— stoechas
Ligusticum levisticum
Maranta galanga
Malaleuca leucadendron
Melissa calamintha
— officinalis
Mentha crispa
— pulegium
Myrtus pimenta
Origanum creticum

Origanum dictamnus
Piper cubeba
— longum
— nigrum
Rosmarinus officinalis
Salvia sclarea
Semen adiowaen
— ajavæ
Tanacetum balsamita
— vulgare
Teucrium chamædrys
— chamæpitys
— criticum
— marum
— polium
Thymus serpyllum
— vulgaris
Wintera aromatica
— canella

b. *Gum-resins.*
Gummi-resina ammon.
— assafœtida
— bdellium
— caranna
— galbanum
— galda
— guaiaci
— juniperi
— hederæ
— kikekunemalo
— look
— myrrha
— olibanum s. Thus
— opopanacis
— Rakasira
— sagapenum

c. *Resins.*
Æthusa meum
Amomum granum paradisi
Amyris kataf?
Angelica Archangelica
— sylvestris
Balsamea Meccanensis
Copaifera officinalis
Caryophillus aromaticus
Cistus creticus
Genista Canariensis
Guaiacum officinale
Juniperus communis
— sabina
Laurus myrrha
— sassafras
Pimpinella saxifraga
Pinus abies
— balsamea
— Canadensis
— cembra
— larix
— mungos
— picea
— sylvestris
Pistacia chio
— lentiscus
— terebinthus
Polygala Senega
Santalum album
Thuja articulata

d. Balsamica
e. Carminativa
f. Cardiaca
g. Nervina
Opium
Vinum
Alkohol
Æther
— alkoholisatus
h. Oxygenantia
i. Ferri præparata
Aquæ min. ferruginosæ
k. *Externally.*
Respiratio aut inflatio gazis oxygenii
Acria
Errhina
Epispastica
Vesicantia
Enemata acria
Acidum aceticum
Æther acetosus
— sulphuricus
— nitricus
Ammoniaca
Succinus ammoniacæ
Olea empyreumatica
Fumus plumarum aut ossium accensorum
Castoreum
Moscus
l. Balnea fervida
— aromatica
— alkoholisata
— frigida, gelida
Thermæ simplices
— sulphureæ
— alkalina
m. Frictiones simplices
— aromatica
Urticationes
Exercitia varia
n. Calor externus
o. Lumen solare
p. Electricitas.

XLII. Stomachics.

a. Amomum zingiber
Angelica Archangelica
Caryophillus aromaticus
Cinchonæ species variæ
Dorstenia contrayerva
Dracocephalum Canariense
Fagara pterota
Fumaria bulbosa
— officinalis
Geum urbanum
Lauri species variæ
Maranta galanga
Melissa calamentha
Melittis melissophyllum
Menthæ species
Menyanthes trifoliata
Monarda fistulosa
Myristica moschata
Myrtis caryophillata
— pimenta
Polygala amara
Quassia amara
Radix cassamuniar
— chynlen
— columbo
Rosmarinus officinalis
Satureja hortensis
— capitata
Scrophularia aquatica
Strychnos colubrina
— nux vomica
Thymus serpyllum
— vulgaris
b. Amara varia
c. — adstring.
d. Adstringentia
e. Aromatica
f. Carminativa
g. Stimulantia
h. Antacida
i. Vinum
Alkohol
k. Ferrum.

Styptics, vide *Astringents.*

XLIII. Sudorifics.

a. Agaricus muscarius
Aristolochia serpentaria
Buxus sempervirens
Calendula officinalis
Carex arenaria
Carlina acaulis
Crocus sativus
Dorstenia contrayerva
Genista Canariensis
Guaiacum officinale
Laurus sassafras
Ledum palustre
Papaver somniferum
Psycotria emetica
Rhododendrum chrysanthum
Ruta graveolens
Salvia officinalis
Sambucus nigra
Spiræa ulmaria
Strychnos nux vomica
Strychnos volubilis
Teucrium scordium
Thuja occidentalis
b. Infusa aromat. calida
Serum lactis vinosum
c. Aqua calida
d. Aqua frigida hausta
e. Balnea calida
Thermæ variæ
Balneum vaporis
Balnea terræ
f. Stibii præparata
Stibium cum opio
Psycotria emetica cum opio
g. Ammoniaca
Acetis ammoniacæ
Carbonas ammoniacæ
Murias ammoniacæ
h. Vestimenta et stragula calida.

Tonics, vide *Roborants.*
Vesicants, vide *Corrosives.*

To these might be added the *Evacuantia Chirurgica*, as the various modes of venesection, &c. with the supplementary aids of medicine, consisting of the cold, hot, and tepid baths; friction, exercise, electricity, galvanism, &c.

MATLOCK WATERS, are those mineral springs which issue from the limestone-hill or rock, on which the village of Matlock, in Derbyshire, is situated. They are remarkable for their purity; and are both cold and tepid: the latter flow abundantly, and are partly collected into baths for medical purposes. The sensible qualities of the Matlock waters vary but little from those of good spring water, which they greatly resemble in taste; being perfectly clear; divested of all acidulous flavour: and exhaling no steam, unless during very cold or frosty weather. Dr. Willich says, these springs may be advantageously used in all cases, where pure diluent drink is necessary; but they are chiefly resorted to for tepid bathing; and form a medium between the waters of Buxton or Bath and those of the sea, for which last they may be beneficially substituted by invalids. Their temperature exceeds that of the cold bath only in a few degrees; and, as the Matlock waters produce a very slight shock, on immersion, they are particularly calculated for those persons whose delicate or weakly frames are unable to support the sudden effects of the usual cold bath.

This spring is found to contain a small quantity of a neutral salt, probably muriat of soda, and about as much of an earthy salt, which is chiefly calcareous. No traces of iron are discoverable by any test, nor does there appear to be any excess of carbonic acid, as in the Bristol Hotwell water.

MATRICA'RIA, (from *matrix*, the womb, so called from its supposed use in disorders of the womb), also called *Parthenium;* fever-few, or mother's-wort: *Matricaria parthenium; foliis compositis, planis; foliolis ovatis, incisis; pedunculis ramosis*, Linn. The leaves and flowers have a strong disagreeable smell, and a moderately bitter taste; both which they communicate, by infusion, to water and rectified spirit. The watery infusions, inspissated, leave an extract of considerable bitterness, and which discovers also a saline matter, both to the taste, and in a more sensible manner, by throwing up to the surface small crystalline efflorescences in keeping. The peculiar flavour of the matricaria, exhales in the evaporation, and impregnates the distilled water, on which also a quantity of essential oil is found floating. The quantity of spirituous extract, according to Carthuser's experiments, is about one sixth the weight of the dry leaves, whereas the watery extract amounts to near one-half. This plant is supposed to be the *Parthenium* of Dioscorides; since whose time it has been very generally employed for medical purposes. In natural affinity it ranks with chamomile and tansy, and its sensible qualities show it to be nearly allied to them in its medicinal character. Bergius states its virtues to be tonic, stomachic, resolvent, and emmenagogue. It has been given successfully as a vermifuge, and for the cure of intermittents; but its use is most celebrated in female disorders, especially in hysteria; whence its name of *matricaria*. Its smell, taste, and analysis prove it to be a medicine of considerable activity at least.

MATRICA'RIA CHAMOMI'LLA; the systematic name of the common fever-few. See CHAMÆMELUM VULGARE.

MATRICA'RIA PARTHENIUM; the systematic name of the fever-few. See MATRICARIA.

MA'TRIX, (of the Gr. μητρη); the womb. See UTERUS.

MATURA'TIO, (from *maturo*, to make ripe), maturation; a term in surgery, signifying that process which succeeds inflammation, by which pus is collected in an abscess.

MATTER, in common language, is a word of the same import with *body*, and denotes that which is tangible, visible, and extended; but, among philosophers, it signifies that substance of which all bodies are composed; and in this sense it is synonymous with the word ELEMENT. It is only by the senses that we have any communication with the external world; but the immediate objects of sense philosophers have in general agreed to term *qualities*, which they conceive as inhering in something which is called their *subject* or *substratum.* It is this substratum of sensible qualities which, in the language of philosophy, is denominated *matter;* so that *matter* is *not* that which we immediately see or handle, but the *concealed subject* or *support* of visible or tangible qualities. What the moderns term *qualities*, was by Aristotle and his followers called *form;* but so far as the two doctrines are intelligible, there appears to be no essential difference between them. From the moderns we learn, that body consists of *matter* and *qualities;* and the Peripatetics taught the same thing, when they said that body is composed of *matter* and *form.* How philosophers were led to analyze body into matter and form, or, to use modern language, into matter and qualities; what kind of existence they attribute to each; and whether *matter* must be conceived as self-existent or created—are questions which belong to metaphysics. It is sufficient here to have defined the term.

MATTHIOLUS, (Peter Andrew), an eminent physician in the 16th century, born at Sienna. He was well skilled in the Greek and Latin tongues, and wrote learned commentaries on Dioscorides, and other works which were esteemed. He died in 1577.

MAUDLIN. See AGERATUM.

MAURICEAU (Francis), a French surgeon, who applied himself with great success and reputation to the theory and practice of his art, for several years, at Paris. Afterwards he confined himself to the disorders of pregnant and lying-in-women, and was at the head of all the operators in this way. His "*Observations sur la grossesse et sur l'accouchement des femmes, sur leurs maladies, et celles des enfans nouveaux*," 1694, in 4to. is reckoned an excellent work, and has been translated into several languages; German, Flemish, Italian, English: and the author himself translated it into Latin. It is illustrated with cuts. He published another work or two, by way of supplement, on the same subject; and died at Paris in 1709.

MAXI'LLA, (from μασσαω, *to chew);* the jaw.

MAXI'LLA INFERIOR, *Os maxillare inferius*, vel *Mandibula;* the inferior maxilla, or under jaw. This bone, in its figure, may be compared to a horse-shoe. It is at first composed of two distinct bones; but these, soon after birth, unite at the middle of the chin, so as to form only one bone. The superior edge of this bone, like the upper jaw, has a process, called the *alveolar* process. This, as well as that of the upper jaw, to which it is in other respects a good deal similar, is likewise furnished with cavities for the reception of the teeth. The posterior part of the bone on each side, rises perpendicularly into two processes, one of which is called the *coronoid*, and the other *condyloid* process. The first, which is the highest, is thin and pointed; and the temporal muscle, which is attached to it, serves to elevate the jaw. The condyloid process is narrower, thicker, and shorter than the other, terminating in an oblong, rounded head, which is formed for a moveable articulation with the cranium, and is received into the fore part of the fossa described in the temporal bone. In this joint there is a moveable cartilage, which being more closely connected to the condyle than to the cavity, may be considered as belonging to the former. This moveable cartilage is connected with both the articulating surface of the temporal bone and the condyle of the jaw, by distinct ligaments arising from its edges all round. These attachments of the cartilage are strengthened, and the whole articulation secured, by an external ligament, common to both, fixed to the temporal bone, and to the neck of the condyle. On the inner surface of the ligament, which attaches the cartilage to the temporal bone, and backwards in the cavity, is what is commonly called the gland of the joint; at least the ligament is there found to be much more vascular than at any other part. At the bottom of each coronoid process, on its inner part, is a foramen or canal, extending under the roots of all the teeth, and terminating at the outer surface of the bone near the chin. Each of these foramina affords a passage to an artery, vein, and nerve, which send off branches to the teeth. See Teeth.

The lower jaw is capable of performing a great many motions. The condyles, by sliding from the cavity towards the eminences on each side, bring the jaw horizontally forwards, as in the action of biting; or the condyles only may be brought forwards, while the rest of the jaw is tilted backwards, as is the case when the mouth is open. The condyles may also slide alternately backwards and forwards from the cavity of the eminence, and *vice versa;* so that while one condyle advances, the other moves backwards, turning the body of the jaw from side to side, as in grinding the food. The great use of the cartilages seems to be that of securing the articulation, by adapting themselves to the different inequalities in these several motions of the jaw, and to prevent any injury from friction. This last circumstance is of great importance where there is so much motion, and accordingly this cartilage is found in the different tribes of carnivorous animals, where there is no proper apparatus for grinding.

MAXI'LLA SUPERIOR, or *Os maxillare superius;* the superior maxillary bone. The most considerable portion of the upper jaw is formed by two of these, which are sometimes found united in adults, but generally remain distinct through life. Their figure is too irregular to be easily described. Each of these bones has several eminences. One at the upper and fore part of the bone, from its making part of the nose, is called the *nasal* process. Internally, in the inferior portion of this process, is a fossa, which, with the os unguis, forms a passage for the lachrymal duct. Into this nasal process likewise is inserted the short round tendon of the *musculus orbicularis palpebrarum.* Backwards and outwards, from the root of the nasal process, the bone helps to form the lower side of the orbit, and this part is therefore called the *orbitar* process. Behind this orbitar process the bone forms a considerable tuberosity, and at the upper part of this tuberosity is a channel, which is almost a complete hole. In this channel passes a branch of the fifth pair of nerves, which, together with a small artery, is transmitted to the face, through the external orbitar foramen, which opens immediately under the orbit. Where the bone on each side is joined to the os malæ, and helps to form the cheeks, is observed what is called the *malar* process. The lower and anterior parts of the bone make a kind of circular sweep, in which are the *alveoli*, or sockets for the teeth. This alveolar process has posteriorly a considerable tuberosity on its internal surface. Above it, and just behind the fore teeth, is an irregular hole, called the *foramen incisivum*, which separating into two, and sometimes more holes, serves to transmit small arteries and veins, and a minute branch of the fifth pair of nerves to the nostrils. There are two horizontal lamellæ behind the alveolar process, which, uniting together, form part of the roof of the mouth, and divide it from the nose. This partition being seated somewhat higher than the lower edge of the alveolar process, gives the roof of the mouth a considerable hollowness. Where the ossa maxillaria are united to each other, they project somewhat forwards, leaving between them a furrow, which receives the inferior portion of the septum nasi. Each of these bones is hollow, and forms a considerable sinus under its orbitar part, usually, though improperly, called *antrum Highmorianum.* This is lined with the pituitary membrane, and answers the same purpose as the other sinuses of the nose; communicating with the nostrils by an opening, which appears to be a large one in the skeleton, but which in the recent subject is much smaller. In the fœtus, instead of these sinuses, an oblong depression only is observed at each side of the nostrils, nor is the tuberosity of the alveolar process then formed. On the side of the palate, in young subjects, a kind of fissure may be noticed, which seems to separate the portion of the bone which contains the dentes incisores from that which contains the canini. This fissure is sometimes apparent till the sixth year, but after that period it is seldom seen.

The ossa maxillaria form the cheeks, and likewise the palate, nose, and orbits. Besides their union with each other, they also are connected with the greatest part of the bones of the face and cranium, viz. with the ossa nasi, ossa malarum, ossa unguis, ossa palati, os frontis, os sphenoides, and os ethmoides.

MAXILLA'RIÆ ARTERIÆ; the maxillary arteries. These are branches of the external carotid. The *external maxillary* is the fourth branch of the carotid: it proceeds anteriorly, and gives off the facial or mental, the coronary of the lips, and the angular artery. The *internal maxillary* is the next branch of the carotid; it gives off the sphæno-maxillary, the inferior alveolar, and the spinous arteries.

MAXILLARY GLANDS. The glands so called are conglomerate, and are situated under the angles of the lower jaw. The excretory ducts of these glands are called Worthonian, after their discoverer.

MAXILLARY NERVES. The superior and inferior maxillary nerves are branches of the fifth pair or trigemini. The former is divided into the sphæno-palatine, posterior alveolar, and the infra-orbital nerve. The latter is divided into two branches, the internal lingual, and one more properly called the inferior maxillary.

MAYERNE (Sir Theodore), baron of Aulbone, the son of Lewis de Mayerne, the celebrated author of the General History of Spain, and of the *Monarchie Aristo-democratique*, was born in 1573, and had for his godfather Theodore Beza. He studied physic at Montpelier, and was made physician in ordinary to Henry IV. who promised to do something handsome for him, provided he would change his religion. As a chemical physician, Dr. Cullen says, he had been much opposed and oppressed by the Galenists of France, was called over into England, where he was appointed first physician to King James I, and continued to hold that office for more than thirty years after. His theory and his prescriptions were very like those of the Galenists; but he was a great favourer of chemical medicines, and particularly of antimony; the medicine with regard to which the two sects were most especially divided. It does not, however, appear, that upon this account he met with any opposition from the physicians of England; and indeed, on the contrary, we find him becoming a member of, and acquiring great authority in, the London college. It is probable that his great credit put an end, in England, to all distinction between the Galenic and chemical practitioners; and as, in the year 1666, the faculty of Paris rescinded their arret discharging the use of antimony, there was thereafter hardly any where a distinction to be found between the Galenists and chemists. His works were printed at London, in 1700, and make a large folio, divided into two books; the first containing his *Consilia, Epistolæ & Observationes*; the second his *Pharmacopæia variæque Medicamentorum formulæ*.

MAY-LILY. See Lilium convallium.

MAYS, INDIAN. See Zea mays.

MAY-WEED. See Cotula fœtida.

MEAD, an agreeable liquor, prepared of honey and water, with the addition of spices. In the brewing of mead, a simple and agreeable method is, to mix honey in the proportion of one pound to a quart of water. This is to be boiled, scummed, and fermented in the usual manner, without the addition of any aromatic substances. Mead was formerly the favourite liquor of the ancient Britons, and Anglo-Saxons. It still retains its place at country feasts in the western parts of this island; where considerable quantities are brewed annually. Being an wholesome and pleasant beverage, Dr. Willich says, it is far preferable to brandy, gin, or other ardent spirits; though it does not always agree with the bilious, asthmatic, or those whose breasts and lungs are in the least affected. But, if it be kept for a number of years in proper vessels, and dry cellars, it acquires a flavour and strength equal to the best Madeira or even Tokay wines. In this state, mead is a true medicine to the aged and infirm, when used with moderation.

MEADOW CROWFOOT. See Ranunculus pratensis.

MEADOW, QUEEN OF. See Ulmaria.

MEADOW SAFFRON. See Colchicum.

MEADOW SAXIFRAGE. See Saxifraga vulgaris.

MEADOW-SWEET. See Ulmaria.

MEADOW-THISTLE. The leaves of the *round-leaved species*, *Cnicus oleraceus* of Linnæus, are boiled, in the northern parts of Europe, and eaten as we do cabbage.

MEASLES. See Rubeola.

MEASURES. The errors arising from the promiscuous use of weights and measures, have induced the Edinburgh and Dublin colleges to reject the use of measures entirely, and to direct that the quantities of every thing fluid, as well as solid, shall be determined by troy weight: the London college, however, have given their sanction to the use of measures, and as, from the much greater facility of their employment, apothecaries will always use them, the following table of measures may be properly inserted:

Measures.

Gallon.		Pints.		Ounces.		Drachms.		Cub. Inch.
1	=	8	=	128	=	1024	=	231
		1	=	16	=	128	=	28.875
				1	=	8	=	1.8047
						1	=	0.2256

For measuring fluids, the graduated glass measures shown in Pl. XI. fig. 11 and 12, are always to be preferred. Elastic fluids are also measured in glass tubes, graduated by inches and their decimals.

MEASURE, in botany. In describing the parts of plants, Tournefort introduced a geometrical scale, which many of his followers have retained. They measured every part of the plant; and the essence of the description consisted in an accurate mensuration of the whole. As the parts of plants, however, are liable to variation in no circumstance so much as that of dimension, Linnæus very rarely admits any other mensuration than that arising from the respective length and breadth of the parts compared together. In cases that require actual mensuration, the same author recommends, in lieu of Tournefort's artificial scale, the following natural scale of the human body, which he thinks is much more convenient, and equally accurate. The scale in question consists of eleven degrees, which are as follows: 1. A hair's-breadth, or the diameter of a hair, *(capillus)*. 2. A line, *(linea)*, the breadth of the crescent or white appearance at the root of the finger, (not thumb), measured from the skin towards the body of the nail; a line is equal to twelve hair breadths, and is the twelfth part of a Parisian inch. 3. A nail, *(unguis)*, the length of a finger nail; equal to six lines, or half a Parisian inch. 4. A thumb, *(pollex)*, the length of the first or outermost joint of the thumb; equal to a Parisian inch. 5. A palm, *(palmus)*, the breadth of the palm exclusive of the thumb; equal to three Parisian inches. 6. A span, *(spithama)*, the distance between the extremity of the thumb and that of the first finger when extended; equal to seven Parisian inches. 7. A great span, *(dodrans)*, the distance between the extremity of the thumb and that of the little finger when extended; equal to nine inches. 8. A foot, *(pes)*, measuring from the elbow to the basis of the thumb; equal to twelve Parisian inches. 9. A cubit, *(cubitus)*, from the elbow to the extremity of the middle finger; equal to seventeen inches. 10. An arm-length, *(brachium)*, from the arm-pit to the extremity of the middle finger; equal to twenty-four Parisian inches, or two feet. 11. A fathom, *(orgyia)*, the measure of the human stature; the distance between the extremities of the two middle fingers when the arms are extended; equal, where greatest, to six feet.

MEAT. See Animal food, Diet, &c. The principal and most necessary food among the ancient Greeks was bread, which they called *αρτος*, and produced in a wicker basket, called *κανεον*. Their loaves were sometimes baked under the ashes, and sometimes in an oven. They also used a sort of bread called *Maza.* Barley-meal was used amongst the Greeks, which they called *αλφιτον*. They had a frequent dish called *ϑριον*, which was a composition of rice, cheese, eggs, and honey, wrapped in fig-leaves. The Μυτωτον was made of cheese, garlic, and eggs, beaten and mixed together. Their bread, and other substitutes for bread, were baked in the form of hollow plates, into which they poured a sauce. Garlic, onions, and figs, seem to have been a very common food among the poorer Athenians. The Greeks, especially in the heroical times, ate flesh roasted; boiled meat seldom was used. Fish seems not to have been used for food in the early ages of Greece. The young people only, amongst the Lacedemonians, ate animal food; the men and the old men were supported by a black soup called *μελα ζυμος*, which to people of other nations was always a disagreeable mess. Grasshoppers and the extremities or tender shoots of trees were frequently eaten by the poor among the Greeks. Eels dressed with beet-root were esteemed a delicate dish, and they were fond of the jowl and belly of salt-fish. Neither were they without their sweet-meats: the dessert consisted frequently of fruits, almonds, nuts, figs, peaches, &c. In every kind of food we find salt to have been used.

The diet of the first Romans consisted wholly of milk, herbs, and roots, which they cultivated and dressed with their own hands; they also had a kind of gruel, or coarse gross pap, composed of meal and boiling water; this served for bread: and when they began to use bread, they had none for a great while but of unmixed rye. Barley-meal was eaten by them, which was called *Polenta.* When they began to eat animal food, it was esteemed a piece of luxury, and an indulgence not to be justified but by some particular occasion. After animal food had grown into common use, the meat which they most frequently produced upon their tables was pork.

MEA'TUS AUDITORIUS EXTERNUS. See Ear.

MEA'TUS AUDITORIUS INTERNUS, the internal auditory passage; a small bony canal, beginning internally by a longitudinal orifice at the posterior surface of the petrous portion of the temporal bone, running towards the vestibulum and cochlea, and there being divided into two less cavities by an eminence. The superior and smaller of these is the orifice of the aqueduct of Fallopius, which receives the portia dura of the auditory nerve: the inferior and larger cavity is perforated by many small holes, through which the portio mollis of the auditory nerve passes into the labyrinth.

MEA'TUS URINA'RIUS, the urinary passage. This part in women is situated in the vagina, immediately below the symphysis of the pubis, and behind the nymphæ. In men it is at the end of the glans penis. See Bladder.

ME'CCA BALSAMUM. See Balsam *of* Gilead.

MECHANICAL, whatever relates to mechanics. This term, however, was at one time applied to medicine. It is described by Dr. Quincy as the result of a thorough acquaintance with the structure of animal bodies: "for," says he, "considering an animal body as a composition out of the same matter from which all other bodies are formed, and to have all those properties which concern a physician's regard, only by virtue of its peculiar construction; it naturally leads us to consider the several parts, according to their figures, contexture, and use, either as wheels, pulleys, wedges, levers, screws, cords, canals, strainers," &c. For which purpose, the publications of his time abound with diagrams, and geometrical demonstrations. Dr. Cullen says, "the mechanical physicians, by introducing the *Corpuscularian philosophy;* that is, the notion of the small parts of bodies acting upon one another, by their figure, size, and density, have in that manner endeavoured to explain the operation of medicines upon the fluids and solids of the human body; and have thereby introduced many false opinions concerning their virtues." It was the Cartesian physicians who first introduced this doctrine; but it was especially Boerhaave, who, by adopting it, contributed to extend it to the whole of medical writers. Even at this day, it has not yet passed away; for a late author, Mr. Navier, and a living writer, Mr. Fourcroy, have continued to explain the operation of mercury *by its specific gravity.*

MECHO'ACAN. See Mechoacana.

MECHOACA'NA, (from *Mechoacan*, a province in Mexico, whence it is brought), also named *Jalappa alba*, and *Rhabarbarum album;* Mechoacan. It is the root of a species of convolvulus which is brought from Mexico. It possesses aperient properties, and was long used as the common purge of this country, but is now wholly superseded by jalap.

MECHOACA'NA NIGRA. See Jalapium.

MECO'NIUM; the green excrementitious substance that is found in the large intestines of the fœtus. Nurses usually give some slight purgative to evacuate it when too redundant, though, in general, the mother's milk answers the purpose.

MEDIAN NERVE; the second branch of the brachial plexus. See Nerves.

MEDIAN VEIN. The situation of the veins of the arms is extremely different in most individuals. When a branch proceeds near the bend of the arm, inwardly from the basilic vein, it is termed the *basilic median;* and when a vein is given off from the cephalic in the like manner, it is termed the *cephalic median.* When these two veins are present, they mostly unite just below the bend of the arm, and the common trunk proceeds to the cephalic vein. These veins are not, in general, the most convenient for phlebotomy.

MEDIASTI'NUM, *(quasi in medio flave)*: the membranous septum, which is formed by the duplicature of the pleura. It divides the cavity of the chest into two parts. It is divided into an anterior and posterior portion. See Lungs.

MEDICINE, the art of preventing, curing, or alleviating those diseases to which the human species are subjected. It consists, according to Boerhaave, in the knowledge of those things by whose application life is either preserved sound and healthy, or, when disordered, is again restored to its pristine healthiness. Galen defines medicine, the art of preserving present health, and of retrieving it when lost; Hippocrates, the addition of what is wanting, and the retrenchment of what is redundant; and Herophilus, the knowledge of things good, indifferent, and ill, with regard to health.

Medicine must have been nearly coeval with the world. The injuries and vicissitudes of the air, the nature and qualities of foods, the violence of external bodies, the actions of life, and, lastly, the fabric of the human compages, must have rendered diseases almost as old as mankind; and the presence of a disease, as it brings with it a painful sensation, or the loss, perhaps, of the use of a limb, does, by a necessary mechanical impulse, both in brutes and men, compel the diseased to seek for help, and to apply remedies, either by mere experiment, or by instinct, and spontaneous exertion: hence arose the art of medicine, which, in this sense, has been always every where among mankind.

Ancient histories and fables tell us, that, in a little time from the flood, medicine was so well cultivated by the Assyrians, Babylonians, Chaldæans, and Magi, that they were able to remove present diseases, and prevent future ones. Hence it passed into Egypt, Lybia, Cyrenaica, and Crotona; and thence into Greece, where it flourished, principally in the islands of Cnidus, Rhodes, and Cos, and in Epidaurus.

The first foundations of the art were laid by chance, natural instinct, and events unforeseen; these were improved by the memory of the success of former experiments; by writing down diseases, their remedies, and events, on columns, paintings, and the walls of their temples; by exposing the sick in the markets, and public ways, that those who passed by might inquire into the disease, and communicate a remedy, if they knew any; and, lastly, by analogy, or reasoning, from a comparison of things already observed, with things present, and things to come.

The art at length received a much greater degree of perfection, by the appointing of physicians; some for the cure of particular diseases, and others for diseases in general; by an accurate observation of the disease, and its symptoms; and by an exact description of the remedy, and its use: immediately upon which, it got among the priests, and at length was confined to particular families; descending, by way of inheritance, from father to son: which again proved a great bar to its progress. The extispicy, or inspecting the intrails of beasts, used by the priests; the custom of embalming dead carcases; and even butchery itself, promoted the knowledge of the human fabric, and of the causes both of health, diseases, and death.

Lastly, the dissecting of live animals for philosophical purposes, distinct narratives of the cause, rise, increase, crisis, declension, end, and effect of diseases; and the knowledge of medicines, their choice preparation, application, powers, and events, seemed to have almost brought the art to its perfection.

Hippocrates, who was contemporary with Democritus, and perfectly acquainted with every thing then discovered, and besides furnished with a great number of observations of his own, collecting into one all that was valuable and useful, compiled a body of Greek medicine; and was the first who deserves the title of a true *physician* (see Hippocrates); for, being a master of the εμπειρια, experience, as well as of analogy and reason, and well versed in a pure philosophy, he first made physic rational, and laid the foundation of the *dogmatical* medicine, which has ever since obtained.

What Hippocrates had done continued a long time sacred and unaltered, and was the standing practice of many ages: at length Aretæus, the Cappadocian, digested it into a more orderly body; whence, in various places, at various times, and by various hands, particularly the Alexandrian school, it was farther altered and improved, till at length it came into the hands of Claud. Galen; who, collecting the scattered parts, digesting those which were confused, and explaining every thing by the rigid doctrines of the Peripatetics, did both a great deal of service and a great deal of injury to this noble art; he being the first who introduced the doctrine of the elements, the cardinal qualities, and their degrees, the four humours, &c. into medicine: and on these he made the whole art to depend.

After the sixth century, the arts were not only extinguished, but almost all memory of them was lost, till the ninth; from which to the thirteenth, medicine was vigorously cultivated, by the Arabs, in Asia, Africa, and Spain; who, applying themselves particularly to the study of the materia medica, and its preparations, and to the operations of surgery, rendered both more just and more copious at the same time: and yet Galen's errors became more predominant than ever.

The revival of learning, however, which in the 17th and 18th centuries took place throughout Europe, contributed greatly to remove these, and to promote the advancement of medicine as well as other sciences; while, at the same time, the introduction of the art of printing rendered the communication of new opinions, as well as new practices, so easy a matter, that, to enumerate even the names of those who have been justly rendered eminent for medical knowledge, would be a very tedious task; we have, however, attempted this, in some degree, under the alphabetical arrangement. It was not, however, till 1628 that the immortal Harvey demonstrated, and communicated to the public, one of the most important discoveries that ever was made respecting the animal economy, to wit, the circulation of the blood. This, more effectually than any reasoning, overturned all the systems which had subsisted prior to that time. But though there can be no doubt that this has put the explanation of the phenomena of the animal body, both in a state of health and disease, on a more solid and rational footing than formerly, it has not prevented the rise of numerous fanciful and absurd systems, which, though fashionable for a short time, and strenuously supported by blind adherents, have yet, in no long period, fallen into deserved contempt. Notwithstanding the great abilities and industry of Stahl, Hoffman, Boerhaave, and even of Cullen, we may venture to assert, that no general system has yet been proposed which is not liable to innumerable and insurmountable objections. Very great progress has indeed been made in explaining the philosophy of the human body; from ascertaining, by decisive experiment, the influence of the circulating, the nervous, and the lymphatic systems in the animal economy. But every attempt hitherto made to establish any *general theory in medicine*, that is, to conduct the cure of every disease on a few general principles, has equally deviated from truth with those of Hippocrates and Galen: and has equally tended to mislead those who have adopted it. Indeed, we may with confidence venture to assert, that, from the very nature of the subject itself, medicine does not admit of such simplicity. No one can deny that the human body consists of a very great number of different parts, both solids and fluids. It is, however, equally certain, that each of these is, from many different causes, liable to deviations from the sound state. And although some slight changes may take place without what can be called a morbid affection, yet we well know that every change taking place to a certain degree, in any one part, will necessarily and unavoidably produce an affection of the whole. Hence every general theory which can be proposed, attempting to explain the phenomena, and conduct the cure of all diseases on a few general principles, though for some time it may have strenuous advocates, will yet, in the end, be found to be both ill-grounded and pernicious.

The art of medicine has been much more usefully improved by careful attention to the history, theory, and practice of particular diseases, and by endeavouring to ascertain, from cautious observation, the symptoms by which they are to be distinguished, the causes by which they are induced, and the means by which they are to be prevented, alleviated, or cured. On this footing alone can it be expected that medicine will ever attain any thing like certainty; of what vast importance then must we consider the following scheme of the late Dr. Geo. Fordyce, *for improving the evidence of medicine!*

He has proposed to make the facts detailed in cases of disease more complete and efficient, by a luminous disposition of their parts, so as to place the progress of each particular symptom by itself, and to show its connexion with, and the relation it bears to, the other symptoms of the disease.

Cases taken correctly and faithfully, according to this plan, it is clear, would bring into view the whole of the evidence in the progress and treatment of diseases; and a complete collection of such cases would form a perfect body of medicine, as far as it is known. The result would be, that we should get rid of that variety of opinion which pervades the whole of the science; and our opinions would be grounded on the solid foundation of observation.

The things to be considered in a disease are divided, in Dr. Fordyce's scheme, into those which happen before, or at the time when, the disease takes place; and the things which happen in the progress of the disease. The things which happen before and at the time of the attack are placed in horizontal columns (see the SCHEME annexed); and under these the things which happen during the progress, in perpendicular columns. The things which have happened before, and at the time of the attack, are not afterwards changed; reciting them once, therefore, is sufficient. Those things which happen after the attack are constantly changing; all these are to be enumerated in the order they arise, and therefore must often be repeated. Those points are attained by placing them in this order, as is evident from inspection of the scheme.

1. The first of the horizontal columns is the climate in which the patient lives at the time of the disease.

2. In the second is marked the precession of the seasons, or the course of the preceding seasons. This is meant principally as one ground of investigating the causes of epidemics. The same species of disease sometimes rises and spreads through a town, a whole country, nay over a whole continent at one time; rages with violence for a certain period, and afterwards ceases: when this happens, we say the disease is epidemic. The different states of the body, arising from the temperature, moisture, &c. of the atmosphere in which a man has lived for a length of time, renders him subject to particular diseases often more than its present state. The inhabitants of the same

town, nation, or even continent, sometimes are exposed to the same peculiar states of the atmosphere, and the constitutions of the inhabitants in general are therefore rendered equally susceptible of being affected by the causes of the same disease. If such causes, therefore, should be generally applied, the diseases will be universal, or epidemic, over the whole country. If the causes should be partially applied, the disease will be epidemic in that town or country where they are so applied; and if they be applied no where, the epidemic will not arise, notwithstanding the predisposition.

For instance, dysenteric purgings are often brought on in the autumn, by the moisture and coldness in that season; but in other autumns, equally cold and moist, dysenteric complaints do not happen in the same number. In some they are epidemic in an high degree, in others they hardly appear. It is not, therefore, the state of the atmosphere at this season that is to be looked on as alone producing the epidemic; for this would not have taken effect if the preceding summer had not given the predisposition. Hot and long summers produce disposition to dysenteric purging. Our summers sometimes begin in April, and continue till the end of August, with unequal, but sometimes great heat through the whole; at other times they do not begin till the middle of June, and end in the beginning of August, the heat hardly at any time reaching to 70°. In the last case there are hardly any dysenteric purges in the autumn, but in the first they are very frequent and violent, especially if the cold and moisture of the autumn come on suddenly or by fits. But although the summer be hot and long, these purgings do not appear if the autumn be dry and warm. How far we are to carry our research into preceding seasons is difficult to say; Dr. Fordyce thinks he noticed effects from three years back. But the course of former seasons may be taken from journals, which are often kept with great care; and where they are kept by any public body, it would be superfluous for a practitioner to keep them himself.

By marking the course of the preceding seasons, it is probable that great light might be thrown on *the decline of diseases*, as well as their spreading; but it must require a long time before much advantage will be gained.

3. The third horizontal column contains the present state of the atmosphere, which ought to be marked not only at and before the attack, but throughout the disease. This is difficult, on account of the various things to be attended to, many of which cannot be referred to public or private journals. The weight of the atmosphere may undoubtedly; the general moisture may also. The wind, likewise is of consequence in this respect, since particular winds, in particular countries, have peculiar effects. The east wind, for instance, is in this country a drying wind, and produces cold by dissolving moisture, so as to be felt in the bed-chamber of a patient in rheumatism, &c. as is well known. The purity of the air cannot be judged of by any thing external to the chamber in which the patient is, if he be confined to his bed or bed-chamber, with any degree of accuracy. Methods have been found lately of ascertaining the quantity of pure air contained in the atmosphere, but these methods show the pure air to be in as great quantity in the atmosphere of a ward of an hospital, where the infection is in the most violent degree, as on the banks of a stream murmuring over pebbles in a gravelly soil.

It does not seem to be the quantity of pure air contained in the atmosphere that is to be sought after, but the various substances intermixed. In the same manner as it is very different to the drinker of water, whether he drinks it with a dust of plain sand or arsenic.

The marks of purity in the atmosphere of a room, or rather freedom from noxious vapours or powders, or small drops of liquid matter, are very obscure. A felon brought into a court of justice, apparently in perfect health, has, from his cloaths or person, sent out such a quantity of noxious matter, as to infect half the persons present with violent fever. Yet the men nearest him, nor in any other part of the court, have been sensible of the least smell, taste, feel, or any other sensation whatsoever; so that unless it had happened more than once, or even if it had not happened frequently, no man would have suspected that the disease had arisen from that cause. Just as when the venereal disease first broke out, no person suspected that it arose from coition, but from some malignity of the air. The nuns therefore in Paris, in order to avoid this infection, were not close shut up in their convents, but houses were fitted up for them in the country, out of the infection of the air of the town.

The purity of the atmosphere from infectious or noxious matters in the bed-chamber of a patient, must be taken from various circumstances, which our present knowledge can give but very little direction about. Dr. Fordyce says, he has often seen a person already infected and attacked with fever, go through a fever with as mild symptoms in a room where there were several persons ill of the same disease, as another who was kept in the purest atmosphere that could be procured. Yet if several persons who had entered the room had been seized with fever, we might determine that there was febrile infectious matter. We are, therefore, to take the purity of the atmosphere where the patient is, more from the closeness and size of the room, current of air, &c. but the subject is not so far investigated as to be capable of being further gone into. The heat of the atmosphere of the room is of material importance to be noted, both for the present government of the practitioner, and for the evidence of the disease. Heat, in medicinal effect, is not by any means to be judged of by the thermometer alone in the atmosphere in which the patient at present is. There must be taken into consideration the temperature he has been lately accustomed to. When, therefore, we say the air in a room is warm, we cannot fix to that idea the name of a degree on the thermometer. In winter, in this country, 60° of Fahrenheit's thermometer is warm, or rather hot; in summer 73° is a moderate temperature. In other countries it is different. There are places in India and Africa, where

90° in certain seasons of the year is cold. Having first ascertained what is generally felt warm at several seasons in a year, we may then refer it to the thermometer. In London in the cold season 55° is warm, and in summer 73°, varying in other seasons between these two points. It is not here proper to enter into the effect of hot and cold atmospheres on diseases; Dr. Fordyce, therefore, only mentions one instance. In acute rheumatism in winter, if the heat be 60° we shall rarely have much metastasis, while many shall happen if it be 45° or 50°.

Physicians in all ages have been of opinion, that it is of great advantage to attend to the epidemic diseases which prevail, not only because it is useful in cases of the epidemic itself, but because the same causes which influence the body so as to make it subject to that particular disease, render it liable to be affected in a peculiar manner when any other disease takes place. This part of Dr. Fordyce's scheme might, therefore, be grounded upon the authority of Hippocrates, Sydenham, and many others of great weight. But he proceeds to make some observations, with a view to determine, what *particular epidemics* are more necessary to be noted.

First then, there are certain infectious diseases that become epidemical. These may arise from an infection producing a disease, which, when it has once happened, does not recur during the life of the person, such as the small-pox. In this case it may be, that a community has guarded itself against the disease so long, that a great number of persons are liable to the infection. Numerous cases of such disease may arise on this account, if the infection should be by any accident introduced into such community, although there be nothing in the air or the course of the seasons, or any other circumstance, which renders men in general at that time more apt to receive the infection; such a disease becoming epidemic in this manner is not of much use to be noted in this column, as it will not govern, in any degree, any other disease. But it frequently happens that infectious diseases, whether they recur but once or oftener in the same person, arise and spread at times through a community which has not been guarded against them, or but negligently, as in London, where there is always small-pox, and other such infectious diseases, which recur but once, yet sometimes they spread themselves much more universally than at others, and the same thing happens in the plague, for the more perfect history of which physicians are much indebted to Dr. Russel, and in other diseases which recur in the same person more than once. When this happens, there must be some peculiarities produced in the bodies of men in general, which renders them peculiarly liable to be infected. These peculiarities may have considerable influence on any other disease that may arise, but they have not been hitherto investigated with any degree of precision. It is, however, the object of this scheme of disease, to bring out evidence, and therefore such epidemics should always be noted.

Another set of epidemic diseases, arising from causes that are very commonly applied, are not infectious, therefore the disease only arises more frequently in a community at a particular time, because the bodies of men in general are influenced so as to be more easily affected by such causes. Thus in the spring the bodies of men are rendered subject to phlegmonous inflammations, in the autumn to dysenteric affections.

Or there may be diseases which may arise either from infection, or without any affection, such as the erysipelatous sore throat, often called the putrid or ulcerated sore throat, which is undoubtedly an infectious disease, but which likewise arises often where there can be no kind of suspicion of infection. These certainly become epidemic from there being peculiarities produced in the bodies of men of a community, which renders them subject to be affected either by infection or any other cause. In these cases of epidemics almost every disease incident to the human body is more or less influenced by the peculiarities which occasion the epidemic affection, and therefore such require very particular notice.

4. The next column in the scheme is meant to point out *the temperament* of the patient. Hippocrates conceived there were four humours in the body; blood, bile, black bile, and phlegm: hence men, according as one or other of these humours abounded, were said to be of a sanguineous, bilious, melancholic, or phlegmatic temperament. This doctrine pervaded the whole of Greek medicine, and continued through the Arabian during the reign of the Abbassides, and came, with other Greek and Arabian medicine, into Europe. The modern knowledge of the fluids of the human body, shows that the doctrine which treated of these fluids was without the smallest foundation. But it often has happened, that appearances and differences have been really marked by physicians both in health and disease, and have been described, in words which were only applicable to the hypotheses of the causes on which they were supposed to depend. Although these hypotheses, Dr. Fordyce observes, are not true, yet the appearances which occasioned their formation are perfectly grounded. There does, for instance, exist in certain men, born, bred up, and living in all the circumstances of others of the same community, a disposition to phlegmonous and general inflammation. Those who have this disposition, have likewise their diseases influenced by it, and have been said to be of a sanguineous temperament. There are others in whom perfect regularity takes place in all their diseases; disposition to regularity is also evident in their natural functions. Such have been said to be of a bilious temperament. Others there are in whom there is great irregularity both in health and disease; these are said to be of a phlegmatic temperament. In others there is a degree of intractability in all their diseases, as well as in what happens in their healthy state; these have been said to have been of a melancholic temperature. It would require a much longer dissertation than can be allowed here, to point out the various passages in the works of practitioners, to show that this was what produced temperament. A physician, whose practice is in any degree extensive, must be very inattentive not to see clearly these differences, which, however, run

into one another in all kind of variety. It is much to be wished, that the ancient names for them were abolished; in the specimen, therefore, Dr. Fordyce rejects the term *phlegmatic temperament*. But whether these ancient names may be used, or whether new ones are to be substituted, or general description is to be given, it is a matter of great consequence to be noted, as it often governs many circumstances in the disease.

Besides these differences in the constitution of the body, there are, in particular habits, peculiarities, which have been called *idiosyncrasy*, and which may influence in a great degree the appearance of a disease, and the effects of the medicines employed. Dr. Fordyce says he has known, for example, many instances where the pulse, instead of going on regularly, has been very irregular; in several cases without any other irregularity it has intermitted, and yet all the functions of the body have been carried on perfectly. Persons have been affected by opium, purgatives, and various other medicines, in a manner totally different from the effects which they produce in mankind generally. Such circumstances often tend to mislead, if they are not known; therefore, form the next horizontal column.

5. It is sufficiently evident that it is proper to note the *usual manner of living* of a patient previous to the disease, as it has not only an influence on the disease itself and its appearances, but forms also a ground of practice. For example, if a man had been accustomed to drink a large quantity of wine in health, if he should be seized with a fever, and that fever go on till the strength be much exhausted, wine might be exhibited in considerable quantity; while, if a man who drank no vinous liquor, in the ordinary mode of his living, had an equal quantity exhibited to him, he would be intoxicated. So if animal broths are to be exhibited in fevers at any time, it certainly would be more pardonable to prescribe them to those who have been much accustomed to live on animal food, as is the case of the English people.

In the mode of living the points to be considered are, the kind and quantity of food and drink which is made use of. The times of using food and drink. The defence from, or exposure to, the weather. The quantity and times of sleeping. The degree and times of exercise. The mode of living therefore forms the fifth horizontal column.

6. The title of *times and contingencies* is given to the next column of those containing things to be marked previous to the disease.

These are, in the first place, the *age of the patient*. Dr. Fordyce thinks it is not of great consequence to mark the exact number of years a man has lived; but great changes take place at different periods. The first period may be considered as happening for the first nine months. The second from the end of that time, to the end of the fifth year. During the whole of both these periods, while children are subject to particular diseases, they are remarkable for the irregularity which takes place in all their diseases. The next period is from five to fourteen; the most healthy of the whole life-time of man, provided the small-pox, and other such infectious diseases, which happen but once, are either gone through before, or do not occur till afterwards, and provided also that there is no scrofulous disposition in the child. From fourteen to twenty-eight is the next period; during this time there is inflammatory disposition in men, and to women it is a very trying one. From twenty-eight to forty-five is again an healthy period. From forty-five to sixty is to be considered as the next; and after that time the system is wearing out very fast.

In this column the state of the *menstrual flux* is also to be noted, as well as any disease the patient has formerly been afflicted with; since diseases have influence, in many instances, on those which follow them, as an intermittent will occasion a subsequent fever, even after years, to break down into an intermittent of the same type. Lastly, any accidental circumstance is to be set down.

The last thing to be noted before the taking place of the disease, is the application made to the system which gives occasion to the disease, and which is its *occasional cause*. It may be an application to any part of the body, or to the mind. The knowledge of the occasional causes of diseases is of great consequence for the preservation of health. In so far it does not constitute a part of the history of a particular case of disease, therefore has reference to the science of medicine in general. The knowledge of the occasional cause is often also of great use in pointing out the treatment of diseases, in as far as the maxim, that the cause being removed the effect will cease, is true.

The knowledge of the occasional cause of disease is extremely difficult, and in many cases by no means as yet ascertained. The difficulty arises from various causes. The first is the uncertainty of the action of every thing upon the human body, both causes of diseases and remedies. We have seen, for example, as in the case at the Old Bailey, during Mr. Nash's mayoralty, a felon bringing infection with him into a court of justice, which produced fever in a great number of those assembled in the court, while those affected sat promiscuously in every part of it with those who escaped, and there was no human means of distinguishing any difference in the constitutions of those infected and those who escaped. That a man, therefore, has been exposed to an occasional cause of disease who has not been affected by it, is no proof that that particular application is not an occasional cause of that disease: yet this argument has been held by many practitioners of great eminence. On the other hand, it is equally fallacious to suppose, that any application to the body, if followed immediately by a disease, was the occasion of it. If, for example, a man, after drinking a glass of water, should be immediately seized with a fit of apoplexy, it would not follow from thence that the apoplexy was occasioned by drinking the water. But if a disease should be found to follow immediately upon any application made to the system in a great number of cases by one practitioner, who was the only one who had access to see such application made, there would arise a considerable degree of probability that it was the cause of the disease. If more practitioners than one had had occasion to see

No.

The C

Climate.	London.
Precession of the seasons.	Two very long and cold winters, followed by summers also cold, but mild autu
Present temperature.	
Epidemics.	Frequent inflammations of the skin, or red eruptions, sometimes accompanied with
Temperament.	Rather small in stature, and delicate. Her pulse in health, small and weak, and
Peculiarities.	
Mode of living.	As women of a middle rank ; regular as to hour of sleeping.
Times and contingencies.	Aged 29 ; menstrua regular, not much in quantity ; had been married four years wi
Occasional causes.	None appeared.

1787. Jan.			*Day of the Dis.*	*Pulse.*	*Skin.*	*Heat by Therm. under the tongue.*	*Heat feel of the patient.*	*Heat on touching the skin by the physician.*	*Muscles.*	*Eyes.*	*Tongue.*	*Mouth & throat.*	*Respi tion*
6 p. m.	12	F.	I									began to feel the uvula	
	13	S.	1 & 2	between 80 and 90			not hot					throat sore	natur
	14	Sun.	2 & 3	about 100			not hot				foul	sore, red, and beginning sloughs	rath affec
	15	M.	3 & 4	about 110			hot				fouler	sloughs increased	not affec
2½ p.m	16	T.	4	124	dry	105	hot	moderate	in noways tense	dull	a thick yellowish brown mucus formed a triangle, the base to the throat	slough of an ash colour covered the whole right tonsil, round which the membrane was not red	not fect fron affe of thr
noon	17	W.	5	96	moist and natural	100	temperate	moderate	natural	brighter	mucus crust less	membrane red about the edge of the slough, which begins to separate	mo fic fro th

of Mrs. H.

particularly the last.

pelatous sore throat, sometimes without; they particularly affected that part of the town.

endered frequent.

being pregnant; she had been affected two years before with a nervous fever, which continued nearly four weeks.

Stomach.	Food and drink.	Intestines.	Urine.	Sleep.	Miscellaneous Observations.	Medicines.
appetite not lost	refrained from animal food				except for the feel of the uvula, no complaint	linimentum volatile guttura.
appetite lost	tea and water-gruel.	natural evacuation in the morning.	not observed	disturbed	felt generally disordered	pulvis antimon. vespere.
sick	beef-tea, barley-water, &c.	no evacuation	ditto	very little, drowsy		mistura salina c. antim. tart. gr. ¼ sextis horis.
nausea	the same	evacuation in the morning	ditto	the same		℞ cort. cinchon. ℈ij. tertiis hor. tinct. myrrh. ʒij. mel. rosæ. ℥ij. aquæ puræ ℥viij. m. subinde utendum pro gargar.
nausea, which she ascribes to the medicines	sago, panada, &c. with wine lemonade	evacuation as usual in the morning	somewhat of a whey appearance.	dosing and drowsy	Saw her for the first time in this disease	℞ aq. menth. vulg. ℥jss. cort. cinch. pulv. ʒj. tinct. lavend. c. ʒj. ft. haust. secundâ qq. hora sum. ℞ ol. olivæ ℥ij. alkal. volat. ℥ij. pro liniment. gutturæ applicandum ℞ tincturæ rosar. ℥vj. tinct. myrrh. ℥ij. pro garg.
nausea gone, but no appetite	the same	the same	higher coloured, with a cloud	still dosing and drowsy		medicines continued.
					the slough fell off the evening of the 18th, and she recovered.	

such application made, and found that the disease immediately followed, the probability would increase. It would increase the more if these practitioners had had no communication with one another; and it would come almost to a certainty, if it had been observed by many practitioners during many ages, although the disease did not arise more than once in ten, twenty, or even an hundred times that the application had been made. Such, however, has the inattention to accuracy been, that many occasional causes which produce diseases immediately, are rather admitted from common consent than from such evidence as Dr. Fordyce has pointed out.

In the next place it happens, undoubtedly, that in many cases the occasional causes of disease do not operate immediately, but the person appears in perfect health for some time before the disease comes on. As in the small-pox, after catching the infection, there is undoubted proof of the patient's continuing apparently and actually in perfect health before the disease takes place. Here the difficulty increases in an immense degree. It is true, indeed, that such diseases as never arise except from one well known cause, such as the small-pox, and some other infectious diseases, have that cause well ascertained even when it is not understood in what manner it operated before its effects became sensible. But, in other cases, where a disease arises from many causes, it becomes extremely difficult to ascertain the application which has actually produced it. This, Dr. Fordyce insists, has been the origin of greater confusion in medicine than any other circumstance whatever: for a practitioner, in relating either a single case, or the result of his experience in disease, has generally taken no manner of notice how long it was from the application of the supposed cause to the beginning of the disease. It must be, therefore, a strict rule, that in filling this horizontal column, it shall be set down exactly how long it was after the application of the supposed cause before any morbid appearance was perceived in the system.

When a disease arises some time after its cause has been applied, it is clear that that cause must have produced some alteration, which became a cause of the disease. The conjectures with regard to this alteration, have formed the greatest part of the fallacies, hypotheses, and confusion in medicine, they being almost entirely from conjecture, and not from observation. It is, therefore, high time that these should be laid aside, and the intermediate appearances, from the application of the cause to the appearance of the disease, should only be noted.

These things are to be observed with regard to the evidence of the actual causes of disease. There is another circumstance to be attended to; the effect which the cause produces, if the application of it be continued during the course of the disease: for, sometimes, the cause continuing is the occasion of the continuance of the disease. In this case the maxim is true, that *causa dempta tolitur effectus;* as if a thorn be run into the flesh, it produces an inflammation, and keeps it up; but if the thorn be removed before the inflammation arises to a certain height, the inflammation will diminish and cease. Yet it may also happen, that the occasional cause being removed, the effect may continue, without any application of any new cause produced by the first, and the disease may go on. It may happen in medicine as in motion, that a body being impelled by a given power, will move on, although there is no new impulse. If the cause of disease continue to be applied, yet no continuance of the effect may be produced. Want of attention to this point has introduced an infinite number of hypotheses in medicine, such as the idea of some error in the fluids being the occasion of the continuance of fever; such error, or, in other words, alteration of properties, can never be admitted, unless proved by experiments.

There are diseases, in which a morbid action once produced, goes on without any cause at all, as the motion of a mass of matter being once produced, the mass would continue to move on if in free space. In the next place it is to be observed, that this may be the case where the causes produce a disease immediately on their application, and also when the occasional cause produces an effect, which effect is or is not a disease itself, but the cause of the disease finally produced.

Diseases, however, appear to go on simply, without the continued application of any cause: or one part of them may be a cause of the other reciprocally, as seems to be the case in inflammations.

7. The foregoing are the things to be observed before the disease takes place. Those things to be observed *during the disease*, are placed in perpendicular columns, (See the Scheme, which will sufficiently explain itself), as being the things commonly observed by all physicians. There is only one of these columns which requires explanation, the day of the disease.

A *day* has been variously considered, according to the purposes for which time has been measured. It is almost superfluous to mention, that a day has been taken from the rising of the sun to the rising of the sun; from the time the sun passed the meridian, till the time of its next passage over the meridian; from the time of a star's passage over the meridian, until its next passage over the meridian. All these measurements of time, as well as others, have their particular uses.

It is well known that almost all the ancients, that is to say, the Greek physicians, have counted days in disease, as well as the Arabians, most of the moderns, the Chinese, and indeed almost all nations in whom the study of medicine has made any tolerable progress. Yet few authors have considered when a medical day begins. It is true, that almost all have taken the period from the sun's passing the meridian to the time of its next passing the meridian, as the length of the day, which is unequal. It seems, however, notwithstanding, to be received with universal consent, that this inequality is not to prevent our considering this period as the length of a medical day. But the time of the beginning of the day is a point which, for accuracy, should have been ascertained from the first. Supposing two fevers, in different persons, to begin at eleven o'clock in the forenoon on Sunday: in one of these the crisis takes place on the Sunday following, at eight o'clock in the morning, and in the other at two o'clock in the afternoon; if we count according to the ordinary reckoning of days, both crises would happen on the eighth day of the disease. But if we begin the day at the time of the attack of the fever, then that crisis which took place at eight in the morning, would be on the seventh day; and that which took place at two, would be on the eighth. Therefore, unless this point be previously determined, every thing about critical days is thrown into confusion. Perhaps there should be two modes of counting the beginning of medical days; one from the commencement of the disease itself, whatever time of day it took place, which seems to have been adopted, and is proper, as far as we can judge, in pure phlegmonous inflammation, not attended with fever. But in the human body a natural evening attack of fever is sensible in all mankind, even in the most perfect health, and this begins at five o'clock in the evening; therefore that hour, in many diseases, must be accounted the beginning of a medical day.

It is by means like these, unremittingly pursued and minutely exercised, that medicine can alone be advanced to that degree of perfection of which it is capable, and be rendered a real benefit to the human race.

MEDICINE, PNEUMATIC. See PNEUMATIC MEDICINE.

MEDICINES, the substances popularly called DRUGS. This term is applied to the various substances which are prescribed by the physician and prepared by the apothecary. See MATERIA MEDICA, PRESCRIPTION, and PHARMACY. Dr. Cullen observes, that the progress of philosophy has corrected many superstitious follies that were formerly intermixed with the doctrines of the materia medica. Chemistry has given us many new medicines, entirely unknown in ancient times; and this science, in its progress, has not only gradually corrected its own errors, but has taught us to reject many inert medicines which formerly made a part of the materia medica. It has taught us a greater accuracy in preparing all its peculiar productions, and to lay aside many of those operations with which it had amused the physician, and had imposed much useless labour upon the apothecary. In particular, it has instructed us how to make the different combinations of medicines with greater correctness and propriety; and in all these respects has rendered the whole of the pharmaceutic treatment of medicines more simple and accurate than it was before.

One of the most atrocious practices of the present day, or rather an evil which has long existed, is the adulteration of medicines, or the substitution of one substance for another. These frauds commence even in the country which produces the article; and it becomes more or less debased, according to the number of hands through which it is conveyed to the unfortunate patient; whose life, perhaps, is the ultimate price.

It is of great use to practitioners to have a general idea of the limits within which each article in the materia medica, or each officinal composition in our pharmacopœias may be administered. This is conveniently afforded by the *Nosological Table*, in which the extreme doses are given, on the supposition that the patient is of adult age, and of adequate powers of constitution.

Acetum scillæ;	for a dose	gtt. 10 ad gtt. 50
Acidum muriaticum;	—	gtt. 15 ad gtt. 40
——— vitriolicum dilutum;	—	gtt. 10 ad gtt. 30
Æther vitriolicus;	—	gtt. 10 ad gtt. 100
Aloës socotrina;	—	gr. 15 ad scr. 1
Alumen;	—	gr. 6 ad gr. 12
Ammonia præparata;	—	gr. 5 ad scr. 1
Ammoniacum;	—	gr. 10 ad gr. 15
Antimonium;	—	scr. 1 ad dr. 1
——— calcinatum;	—	gr. 15 ad scr. 2
——— tartarisatum;	—	gr. 1 ad gr. 3
——— vitrificatum;	—	gr. 2 ad gr. 10
Aqua ammoniæ;	—	gtt. 10 ad gtt. 30
—— ——— acetatæ;	—	dr. 2 ad dr. 6
—— anethi;	—	un. 1 ad un. 2
—— calcis;	—	un. 4 ad lb. ½
—— cinnamomi;	—	un. 2 ad un. 4
—— fœniculi;	—	un. 2 ad un. 4
—— kali;	—	gtt. 20 ad gtt. 30
—— —— puri;	—	gtt. 10 ad gtt. 30
—— menthæ piperitidis;	—	un. 2 ad un. 4
—— pimento;	—	un. 2 ad un. 4
—— pulegii;	—	un. 2 ad un. 4
—— rosæ;	—	ad libitum
Arabicum gummi;	—	dr. 1 ad dr. 2
Asafœtida;	—	gr. 10 ad scr. 1
Balsamum Canadense;	—	gr. 15 ad gr. 30
——— Copaivæ;	—	gtt. 20 ad gtt. 40
——— Peruvianum;	—	gr. 6 ad gr. 25
——— Tolutanum;	—	scr. 1 ad dr. 1
Calomelas;	—	gr. 3 ad gr. 10
Camphora;	—	gr. 3 ad scr. 1
Cantharis;	—	gr. ¼ ad gr. 4
Cardamomum;	—	gr. 5 ad gr. 10
Cascarilla;	—	scr. ½ ad dr. 1
Castoreum;	—	gr. 3 ad scr. 1
Catechu;	—	gr. 15 ad scr. 2
Chamœmelum;	—	scr. ½ ad dr. 1
Cicuta;	—	gr. 5 ad scr. 1
Cinchona;	—	scr. 1 ad dr. 2
Colomba;	—	gr. 10 ad scr. 1
Confectio aromatica;	—	gr. 15 ad scr. 2
——— opiata;	—	gr. 5 ad scr. 1
Conserva absinthii maritimi	—	dr. 2 ad un. ½
——— ari;	—	scr. 1 ad dr. 1
——— corticis aurantii;	—	ad libitum
——— cynosbati;	—	ad libitum
——— lujulæ;	—	dr. 4 ad un. 1
——— pruni sylvestris;	—	dr. 1 ad dr. 3
——— rosæ rubræ;	—	dr. 2 ad un. 1
——— scillæ;	—	scr. 1 ad dr. 1
Contrayerva;	—	gr. 10 ad dr. ½
Coryandrum;	—	scr. 1 ad dr. 1
Cornu cervi ustum;	—	dr. ½ ad dr. 2
Creta;	—	gr. 15 ad scr. 1

Decoctum cinchonæ;	for a dose	un. 2 ad un. 6
—— cornu cervi;	—	un. 4 ad lb. ½
—— hordei;	—	un. 4 ad lb. ½
—— —— compositum;	—	un. 4 ad lb. ½
—— sarsaparillæ;	—	un. 4 ad lb. ½
—— —— compositum;	—	un. 4 ad lb. ½
—— ulmi;	—	un. 4 ad lb. ½
Digitalis;	—	gr. ½ ad gr. 2
Elaterium;	—	gr. ½ ad gr. 3
Electuarium cassiæ;	—	dr. 1 ad dr. 6
—— scammonii;	—	scr. 1 ad dr. 1
—— sennæ;	—	dr. ½ ad dr. 4
Extractum cacuminis genistæ;	—	dr. ½ ad dr. 1½
—— cascarillæ;	—	gr. 10 ad scr. 1½
—— chamæmeli;	—	gr. 10 ad scr. 2
—— cinchonæ;	—	gr. 10 ad scr. 1½
—— —— cum resina;	—	gr. 10 ad scr. 1½
—— colocynthidis compositum;	—	gr. 5 ad gr. 25
—— gentianæ;	—	gr. 10 ad scr. 1½
—— glycyrrhizæ;	—	dr. 1 ad dr. 4
—— hæmatoxyli;	—	gr. 2 ad gr. 10
—— hellebori nigri;	—	gr. 2 ad gr. 10
—— jalapii;	—	gr. 10 ad scr. 1
—— papaveris albi;	—	gr. 1 ad gr. 5
—— rutæ;	—	gr. 10 ad scr. 1
—— sabinæ;	—	gr. 10 ad scr. 1½
—— sennæ;	—	gr. 10 ad scr. 1½
Ferri rubigo;	—	gr. 6 ad scr. 1½
Ferrum ammoniacale;	—	gr. 2 ad gr. 10
—— tartarisatum;	—	gr. 2 ad gr. 10
—— vitriolatum;	—	gr. 1 ad gr. 6
Filix;	—	dr. ½ ad un. ½
Flores benzoës;	—	gr. 10 ad scr. 1
—— sulphuris;	—	scr. 1 ad scr. 1½
Gambogia;	—	gr. 2 ad gr. 12
Genista;	—	scr. 1 ad dr. 1
Gentiana;	—	gr. 10 ad dr. 1
Ginseng;	—	gr. 10 ad dr. 1
Glycyrrhiza;	—	dr. 4 ad dr. 6
Guaiacum;	—	dr. ½ ad dr. 1
Gummi resina;	—	gr. 6 ad scr. 1½
Hæmatoxylum;	—	gr. 10 ad dr. 1
Helleborus niger;	—	gr. 1 ad gr. 5
Hydrargyrus;	—	un. ½ ad un. 4
—— acetatus;	—	gr. 1 ad gr. 10
—— calcinatus;	—	gr. ½ ad gr. 2
—— cum creta;	—	gr. 5 ad scr. 1
—— muriatus;	—	gr. ⅛ ad gr. ½
—— cum sulphure;	—	scr. 1 ad dr. 1
—— sulphuratus ruber;	—	gr. 10 ad scr. 1½
—— vitriolatus;	—	gr. ½ ad gr. 4

Infusum gentianæ compositum;	for a dose	un. 2 ad un. 4
—— rosæ;	—	un. 2 ad lb. ½
—— sennæ;	—	un. 2 ad un. 4
—— —— tartarisatum;	—	un. 2 ad un 4
Ipecacuanha;	—	gr. 10 ad scr. 1
Iris;	—	scr. 1 ad dr. 1
Jalapium;	—	gr. 7 ad scr. ½
Juniperus;	—	scr. 1 ad dr. 1
Kino;	—	gr. 10 ad scr. 1½
Kali præparatum;	—	gr. 8 ad scr. 1
—— acetatum;	—	scr. 1 ad dr. 1
—— tartarisatum;	—	dr. 2 ad dr. 6
—— vitriolatum	—	dr. 2 ad dr. 6
Lac ammoniaci	—	dr. 2 ad un. 1
—— amygdalæ;	—	un. 2 ad un. 6
Liquor volatilis cornu cervi;	—	dr. ½ ad dr. 2
Magnesia alba;	—	scr. 1 ad dr. 2
—— usta;	—	dr. ½ ad dr. 1
—— vitriolata;	—	dr. 2 ad dr. 6
Manna;	—	un. ½ ad un. 2
Mel acetatum;	—	dr. 1 ad dr. 2
—— rosæ;	—	dr. 1 ad dr. 2
—— scillæ;	—	dr. ½ ad dr. 2
Millepeda;	—	dr. 1 ad dr. 3
Mistura camphorata;	—	un. 2 ad un. 4
—— cretacea;	—	un. 2 ad un. 4
—— moschata;	—	dr. 4 ad un. 2
Mucilago amyli;	—	dr. 1 ad un. 1
—— arabici gummi;	—	dr. 1 ad un. 1
—— seminis cydonii mali;	—	dr. 1 ad un. 1
—— tragacanthæ;	—	dr. 1 ad un. 1
Myrrha;	—	gr. 10 ad scr. 1½
Natron præparatum;	—	gr. 10 ad scr. 1½
—— tartarisatum;	—	dr. 4 ad un. 1
—— vitriolatum;	—	dr. 6 ad un. 1
Nitrum purificatum;	—	gr. 5 ad scr. 1
Oleum amygdalæ;	—	dr. 4 ad un. 1
—— juniperi baccæ;	—	gtt. 2 ad gtt. 10
—— lavendulæ;	—	gtt. 1 ad gtt. 5
—— lini;	—	dr. 4 ad un. 1
—— olivæ;	—	dr. 4 ad un. 1
—— ricini;	—	dr. 2 ad un. 1
—— sinapeos;	—	dr. 4 ad un. 1
Opium purificatum;	—	gr. ½ ad gr. 2
Ostreorum testæ;	—	scr. 1 ad dr. 1½
Oxymel colchici;	—	scr. 1 ad scr. 1½
—— scillæ;	—	dr. ½ ad dr. 1
Pilula aloës composita;	—	gr. 10 ad scr. 1
—— cum myrrhâ;	—	gr. 6 ad gr. 18
—— galbani composita;	—	gr. 10 ad scr. 1½
—— hydrargyri;	—	gr. 6 ad scr. 1
—— opii;	—	gr. 2 ad gr. 8

Pilula scillæ ;	for a dose	gr. 10 ad scr. 1
Pimento ;	—	gr. 5 ad scr. 1
Pulvis aloës cum canellà ;	—	gr. 10 ad scr. 1
————————— ferro ;	—	gr. 8 ad gr. 18
————————— guaiaco ;	—	gr. 10 ad scr. 1
—— antimonialis ;	—	gr. 3 ad gr. 6
—— aromaticus ;	—	gr. 5 ad scr. 1
—— e chelis cancrorum compositus ;	—	dr. ½ ad dr. 1
—— contrayervæ compositus ;	—	gr. 15 ad scr. 1½
—— cretæ compositus ;	—	gr. 10 ad scr. 1
———— compositus cum opio ;	—	gr. 10 ad scr. 2
—— ipecacuanhæ compositus :	—	gr. 18 ad scr. 1½
—— myrrhæ compositus ;	—	gr. 15 ad scr. 1½
—— opiatus :	—	gr. 5 ad scr. 1
—— scammonii :	—	gr. 10 ad scr. 1
————————— compositus cum aloë :	—	gr. 5 ad gr. 10
————————— cum calomelane ;	—	gr. 8 ad gr. 16
—— sennæ compositus ;	—	scr. 1 ad scr. 2
—— tragacanthæ compositus :	—	scr. 1 ad dr. 1
Pyrethrum ;	—	gr. 1 ad gr. 6
Quassia ;	—	gr. 5 ad scr. 1
Quercus ;	—	gr. 6 ad scr. 1
Raphanus rusticanus ;	—	scr. 1 ad dr. 1
Rhei ;	—	gr. 15 ad scr. 2
Ruta ;	—	gr. 15 ad scr. 1
Sal ammoniacus ;	—	gr. 8 ad scr. 1
— cornu cervi ;	—	gr. 10 ad scr. 1
— succini purificatus ;	—	gr. 5 ad gr. 15
Sapo ;	—	dr. ½ ad dr. 4
Sarsaparilla ;	—	scr. 1 ad scr. 1½
Sassafras ;	—	scr. 1 ad dr. 1
Scammonium ;	—	gr. 5 ad scr. 1
Scilla exsiccata ;	—	gr. 1 ad gr. 3
—— recens :	—	gr. 5 ad gr. 10
Scordium ;	—	scr. 1 ad dr. 1
Seneka ;	—	scr. 1 ad scr. 2
Senna :	—	scr. 1 ad dr. 1
Serpentaria ;	—	gr. 10 ad scr. 2
Simarouba ;	—	gr. 10 ad scr. 1½
Sinapi ;	—	dr. 1 ad dr. 3
Sperma ceti ;	—	scr. 1 ad dr. 1
Spigelia ;	—	gr. 10 ad scr. 1
Spina cervinæ ;	—	dr. ½ ad dr. 2
Spiritus ætheris vitriolici ;	—	gtt. 20 ad gtt. 60
————————— compositus ;	—	gtt. 20 ad gtt. 60
————————— nitrosi ;	—	gtt. 20 ad gtt. 60
——— ammoniæ ;	—	scr. 1 ad scr. 2
————————— compositus ;	—	dr. ½ ad dr. 1
————————— fœtidus ;	—	scr. 1 ad scr. 2

Spiritus ætheris vitriolici succinatus ;	for a dose	gr. 10 ad scr. 1
——— anisi compositus ;	—	dr. 1 ad dr. 4
——— carui ;	—	dr. 1 ad dr. 4
——— cinnamomi ;	—	dr. 1 ad dr. 4
——— juniperi compositus ;	—	dr. 1 ad dr. 4
——— lavendulæ ;	—	dr. 1 ad dr. 4
————————— compositus ;	—	dr. ½ ad dr. 2
——— menthæ piperitidis ;	—	dr. 1 ad dr. 3
————————— sativæ ;	—	dr. 1 ad dr. 4
——— nucis moschatæ ;	—	dr. 1 ad dr. 4
——— pimento ;	—	dr. 1 ad dr. 3
——— pulegii ;	—	dr. 1 ad dr. 3
——— raphani compositus ;	—	dr. 1 ad dr. 3
Spongia usta :	—	scr. 1 ad dr. 1
Stanni pulvis ;	—	dr. 1 ad dr. 6
Styrax ;	—	gr. 10 ad scr. 1
Succinum præparatum ;	—	dr. ½ ad dr. 1
Succus aconiti spissatus ;	—	gr. 1 ad gr. 4
—— baccæ sambuci spissatus :	—	un. ½ ad un. 2
—— cicutæ spissatus ;	—	gr. 2 ad gr. 10
—— cochleariæ compositus ;	—	un. 2 ad un. 6
—— ribis nigri ;	—	un. ½ ad un. 2
Sulphur antimonii præcipitatum :	—	gr. 2 ad gr. 5
——— præcipitatum ;	—	dr. 1 ad dr. 2
Syrupus altheæ ;	—	dr. 1 ad dr. 2
——— papaveris albi ;	—	dr. 4 ad un. 1
——— ——— erratici ;	—	dr. 2 ad dr. 4
——— rosæ ;	—	dr. 1 ad dr. 2
——— spinæ cervinæ ;	—	dr. 1 ad dr. 2
——— violæ ;	—	dr. 1 ad dr. 2
——— zingiberis ;	—	dr. 1 ad dr. 2
Tanacetum :	—	dr. ½ ad dr. 1
Tartari crystalli ;	—	dr. 4 ad un. 1
Tinctura aloës ;	—	dr. 4 ad un. 1
————————— composita ;	—	dr. ½ ad dr. 2
——— asafœtidæ :	—	scr. 1 ad dr. 2
——— balsami Peruviani ;	—	dr. ½ ad dr. 2
——— balsami Tolutani ;	—	dr. ½ ad dr. 2
——— benzoës composita ;	—	dr. 1 ad dr. 2
——— cantharidis :	—	gr. 10 ad dr. 1
——— cardamomi :	—	dr. 1 ad dr. 3
————————— composita :	—	dr. 1 ad dr. 3
——— cascarillæ ;	—	dr. 1 ad dr. 4
——— castorei ;	—	scr. 1 ad dr. 1½
——— catechu ;	—	dr. 2 ad dr. 3
——— cinchonæ ;	—	dr. 1 ad dr. 4
————————— composita ;	—	dr. 2 ad dr. 4
————————— ammoniata ;	—	dr. ½ ad dr. 2
——— cinnamomi ;	—	dr. 1 ad dr. 3

Tinctura cinnamomi composita;	for a dose	dr.	1 ad dr. 3
——— colombæ;	—	dr.	1 ad dr. 3
——— ferri ammoniacalis;	—	scr.	1 ad dr. 2
——— ferri muriati;	—	gtt.	10 ad gtt. 60
——— galbani;	—	dr.	1 ad dr. 3
——— gentianæ composita;	—	dr.	2 ad dr. 3
——— guaiaci ammoniata;	—	dr.	1 ad dr. 4
——— helebori nigri;	—	scr.	1 ad dr. 1
——— jalapii;	—	dr.	1 ad dr. 3
——— myrrhæ;	—	dr.	1 ad dr. 2
——— opii;	—	gtt.	20 ad gtt. 40
———— camphorata;	—	gtt.	30 ad gtt. 60
——— rhabarbari;	—	dr.	4 ad un. 2
———— composita;	—	dr.	4 ad un. 2
——— sabinæ composita;	—	gtt.	20 ad gtt. 40
——— scillæ;	—	gtt.	20 ad gtt. 60
——— sennæ;	—	dr.	2 ad un. 1
——— serpentariæ;	—	dr.	1 ad dr. 2
——— valerianæ;	—	dr.	1 ad dr. 3
———— ammoniata;	—	scr.	1 ad dr. 2
——— zingiberis;	—	dr.	1 ad dr. 2
Tormentilla;	—	gr.	10 ad scr. 2
Tragacantha;		gr.	10 ad dr. 1
Valeriana;	—	scr.	1 ad dr. 2
Vinum aloës;	—	dr.	6 ad un. 1
——— antimonii;	—	gtt.	20 ad gtt. 50
———— tartarisati;	—	gtt.	20 ad gtt. 50
——— ferri;	—	dr.	1 ad dr. 4
——— ipecacuanhæ;	—	dr.	1 ad dr. 4
——— rhabarbari;	—	dr.	4 ad un. 2
Uva ursi;	—	scr.	1 ad dr. 1
Zincum calcinatum;	—	gr.	3 ad gr. 10
——— vitriolatum purificatum;	—	gr.	5 ad scr. 1

The combination of medicines belongs to pharmacy, and this art cannot be practised in a competent manner without some knowledge of chemistry. Though a multitude of ingredients has been very justly reprobated in modern practice, yet the judicious introduction of auxiliary substances, is sometimes highly advantageous; as has been shown under the article Prescription already referred to.

MEDINE'NSIS GORDIUS, (*Medinensis*, so called because it is frequent at Medina), or *Dracunculus*, the Guinea-worm, or muscular hair-worm; *Gordius medinensis* of Linnæus. This very singular animal, which, in some countries, inhabits the cellular membrane between the skin and muscles, has been compared, both in thickness and length, to the treble string of a violin; though it has been seen a cubit in length.

The symptoms which announce this disease are almost always the same; an uneasiness is experienced during some days, which is by intervals accompanied by headach, pain in the stomach, and nausea. One or two days before the pain is fixed in the part through which the worm is to make its passage, an eruption of small pimples, accompanied with a very unpleasant itching, takes place over the whole body: this itching becomes more violent in the place where the worm is to pass, until the pain is fixed in it, when the part swells, sometimes to a great extent, with considerable inflammation, which is soon followed by suppuration. In this case, the worm often comes out with the pus, or makes its appearance when the suppuration is at an end; sometimes the place where it is lodged puffs up in the form of a bladder, filled with a limpid matter, and sometimes only a hardness is produced, without any considerable inflammation taking place. The period for the worm to come out is not determined within the first eight or ten days of the disease: in many cases, two or three months elapse before it makes its appearance, and, during the whole of that time, the limb will continue in a state of swelling, inflammation, and suppuration. Sometimes it will come out all at once, being gently assisted; and, in this case, it is often in a living state. Mr. Dubois, a missionary in the East Indies, who gives this account of the Guinea-worm, says he has many times seen these insects extracted from the leg, and afterwards continue to live and move for many minutes. However, for the most part, the worm comes out by little and little, about an inch being extracted every day; care being taken to roll it round a straw, or some other substance, to prevent its returning. If drawn out rudely, it is liable to break, as often happens, and, in these cases, the part which remains, occasions swelling and inflammation, attended with smart pain, which is again followed by suppuration, and the disorder proves tedious and obstinate. However severe the disorder, it is never, or very seldom, followed by mortification; nevertheless, it is not uncommon to see cases in which some of the principal parts have been so much injured by it, as to produce lameness, or some deformity of the legs.

This gentleman commends, in these cases, the internal use of a remedy in which asafœtida is the only active ingredient; but Dr. Anderson, at Fort St. George, found nothing so beneficial as poultices of the *aloe littoralis*, applied to the part.

MEDITU'LLIUM, (from *medius*, the middle). See Diploe.

MEDLAR. See Mespilus.

MEDU'LLA, (*quasi in medio ossis*), marrow; the oily part of a bone, which is separated from the blood by small arteries, and deposited in proper cells. Its colour and consistence may therefore vary according to the state of the vessels, and their distribution on the membranes of the cells. Besides the arteries, which are sent from the bones to the marrow, there is at least one for each bone, but sometimes more, whose principal use is to convey and secrete this oily matter. After these arteries have pierced the solid side of a bone, they are divided into several branches; which soon are distributed every where on the internal periosteum, and afterwards spread their branches inwards on the medullary cells, and outwards through the tables of the bone. The blood which remains after the secretion of the marrow, is returned by proper veins, which are collected from the membranes into one or two large trunks, to pass out at the same holes or passages at which the arteries enter.

The general rule of the small vessels decreasing in their capacities as animals advance in age, to which many phenomena in the animal economy are owing, obtains here: for though the trunks of the medullary vessels enlarge as the animals grow older, yet the small branches become smaller; as is evident from injections, which cannot be made to pass near so far, in these vessels, in adults, as in those of children. Hence the marrow is bloody in the latter, oily in persons of middle age, and thin and watery in the aged.

The violent pain with which suppurations within bones are frequently attended, sufficiently proves that the membranes here are sensible, and consequently have nerves distributed to them. Hippocrates might therefore say justly, that a wound penetrating into the cavity of a bone may produce a delirium.

The vessels of the marrow, wrapt up in one common coat from the periosteum, pass through the bones by proper canals; the most considerable of which are about the middle of each bone, and are very oblique. Sometimes these vessels continue at a little distance in their passage, when the canal is divided by a small bony partition or two. From their structure, we may judge how these parts, as well as others, may be subject to œdema, phlegmon, &c. and may thence be led to proper methods of cure, in each, before a caries, which is the common consequence, takes place, and frequently occasions the loss of the limb, or the death of the patient.

The marrow is of very considerable use to the bones, but in what way is not well ascertained. By entering their transverse canals, and passing from them into the longitudinal ones, it is communicated to all the plates, as if to soften and connect their fibres, and preserve them from becoming too brittle. This, however, has been denied by Mr. Sheldon, who contends that it is merely an adventitious substance, that the marrow is never sensible but in a diseased state, and that the dropsy has the power of removing it. No marrow is found in the fœtus, but a kind of gelatinous fluid in its place. Animal oil never transudes in the living body from the bones, nor do those of birds contain any.

The marrow of animals is prescribed in some compositions, but it has no superior efficacy beyond the other oleaginous substances.

MEDU'LLA, in botany, the pith or pulp of vegetables.

MEDU'LLA OBLONGA'TA, a medullary substance, situated from before backward, in the middle part of the bases of the cerebrum and cerebellum (see Cerebrum), without any discontinuation, between the lateral parts of both these bases. It may therefore be looked upon as one middle medullary basis, common to both cerebrum and cerebellum, by the reciprocal continuity of their medullary substances, through the great notch in the transverse septum of the dura mater; which common basis lies immediately on that portion of the dura mater lining the basis of the cranium. The medulla oblongata is therefore justly esteemed to be a third general part of the whole mass of the brain, or as the common production, or united elongation, of the whole medullary substance of the cerebrum and cerebellum.

It is extremely difficult, if not altogether impossible, to examine or demonstrate this part in its natural situation; but we are obliged to do both on a brain inverted. The lower side of the medulla oblongata, in an inverted situation, presents to our view several parts, which are in general either medullary productions, trunks of nerves, or trunks of blood-vessels. See Pl. XVII. Vol. I.

The chief medullary productions are these: The large or anterior branches of the medulla oblongata, which have likewise been named *crura anteriora*, *femora*, and *brachia medullæ oblongatæ*, and *pedunculi cerebri:* The transverse protuberance, called likewise *processus annularis*, or *pons Varolii:* The small or posterior branches, called *pedunculi cerebelli*, or *crura posteriora medullæ oblongatæ:* The extremity or *cauda* of the medulla oblongata, with two pairs of tubercles; one of which is named *corpora olivaria*, the other *corpora pyramidalia;* and to all these productions we must add a production of the infundibulum and two medullary papillæ.

The great branches of the medulla oblongata are two very considerable medullary fasciculi; the anterior extremities of which are separated, and the posterior united, so that, taken together, they somewhat resemble a Roman V. These fasciculi are flat, much broader before than behind; their surfaces being composed of several longitudinal and distinctly prominent medullary fibres. Their anterior extremities seem to be lost at the lower part of the corpora striata; and, it is for that reason that they are esteemed the pedunculi of the cerebrum.

The transverse annular, or rather semi-annular protuberance, is a medullary production, which seems at first sight to surround the posterior extremities of the great branches; but the medullary substance of the protuberance is in reality intimately mixed with that of the two former. Varolius, an ancient Italian author, viewing these parts in an inverted situation, compared the two branches to two rivers, and the protuberance to a bridge over them both; and from thence it has the name of *pons Varolii.* Its surface is transversely streaked, and is divided into two lateral parts by a very narrow longitudinal depression, which does not penetrate into its substance. When we cut into the substance of the pons, we find much cortical substance within it, and this formed into striæ, which run in various directions. And the same thing will be found with respect to the medullary part of the brain; for there is scarcely any part of it but what has cortical striæ running through it.

The small branches of the medulla oblongata are lateral productions of the transverse protuberance, which by their roots seem to encompass that medullary portion in which the fourth ventricle or *calamus scriptorius* is formed. They form in the lobes of the cerebellum, on each side, those medullary expansions, a vertical section of which shows the white ramifications commonly called *arbor vitæ*, and Dr. Monro says, they may be justly enough styled *pedunculi cerebelli.*

The extremity is no more than the medulla oblongata contracted in its passage backward to the anterior edge of the foramen magnum of the os occipitis, where it terminates in the medulla spinalis. See MEDULLA SPINALIS.

MEDU'LLA SPINA'LIS, an elongation of the extremity of the medulla oblongata. See MEDULLA OBLONGÄTA. It has its name from its being contained in the bony canal of the spina dorsi. It is consequently a continuation or common appendix of the cerebrum and cerebellum, as well because of the two substances of which it is composed, as because of the membranes by which it is invested.

The dura mater, after it has lined the whole internal surface of the cranium, goes out by the foramen magnum occipitis, and forms a kind of funnel, in its progress downward, through the bony canal of the vertebræ. As it goes out at the occipital hole, it joins the beginning of the ligamentary substance which lines the inner cavity of the spinal canal, and adheres very strongly to it. That portion of the pericranium which terminates exteriorly at the edge of the great foramen, likewise joins this funnel, which, by all these accessions, becomes very strong, and capable of resisting great degrees of violence.

This adhesion of the dura mater to the ligamentary funnel is, however, gradually discontinued below the first vertebra; and from thence the dura mater forms a separate tube, which runs down the bony canal all the way to the os sacrum, the capacity of it answering to that of the canal; but it does not adhere closely to the sides, as it does to those of the cranium. It is surrounded by a slimy substance, which, near the lower end of the canal, resembles fat.

The spinal marrow consists of a cortical and medullary substance, like the cerebrum and cerebellum; but with this difference, that the ash-coloured substance lies within the other; and, in a transverse section of this medulla, the inner substance appears to be of the form of a horse-shoe, the convex side being turned forward and the extremities backward.

The body of the medulla spinalis runs down to the bottom of the first vertebra of the loins, where it terminates in a point. The size of it is proportionable to that of the bony canal, so that it is larger in the vertebræ of the neck than those of the back. It is a little flatted on the fore and back parts, so that we may distinguish in it two sides, one anterior, the other posterior, and two edges. It is likewise seemingly divided into two lateral halves, or cords, by a groove, which runs along the middle of its anterior and posterior surfaces, being a continuation of those in the extremity of the medulla oblongata. The cords are applied closely together, but may be easily separated before as well as behind, till we come to their middle or deepest part, where they are joined together by a thin layer of cineritious substance passing from the one cord into the other.

Each lateral portion sends off from both the fore and back sides, between the grooves and the edges, at different distances, flat fasciculi of nervous filaments turned toward the nearest edge. The anterior and posterior fasciculi are separated from each other by the ligamentum denticulatum; then passing outwards, they go through the dura mater by two distinct openings, very near each other. Having penetrated the dura mater, the posterior bundle forms a ganglion, from the opposite end of which the trunk comes out again, and is there joined by the anterior bundle.

The dura mater, which invests the medulla, sends out on each side the same number of vaginæ, as there are ganglions and nervous trunks. These vaginæ are productions of the external lamina; the internal lamina, which is very smooth and polished on the inside, being perforated by two small holes very near each other, where each vagina goes off, through which holes the anterior and posterior fasciculi are transmitted, and, immediately after their passage through the internal part, they unite.

The triangular spaces left between the anterior and posterior fasciculi and the edge of the medulla, are filled from one extremity to the other by an indented ligament, very thin and shining, having the same number of indentations as there are pairs of fasciculi. It is closely connected, by numerous threads, to the pia mater at each side of the medulla, while the opposite side sends out indentations, the greater number of which run transversely, though others go obliquely upwards or downwards; and all of them, after being split into threads, are fixed to the inner side of the dura mater. The under end of the ligamentum denticulatum, runs as far as the os coccygis, and is what authors have considered as the fortieth pair of nerves; from whence it sends filaments to the internal part of the dura mater, by which the anterior fasciculi are distinguished from the posterior.

The *tunica arachnoides* is here very distinct from the internal lamina of the pia mater; so that by blowing through a hole made in the arachnoides, it will swell from one end to the other, like a transparent gut. The internal lamina, called in this place simply the *pia mater*, adheres very closely to the medulla spinalis, and sends many productions and septa through its substance. If, by a hole made in the pia mater, we inflate the substance of one lateral portion of the medulla, the air penetrates through the whole of it, and the pia mater, which covers the other lateral portion, is separated from it.

The tunica arachnoides adheres more closely to the pia mater at the lower, than at the upper part, being, as it were, suspended by the indented ligament which runs along both edges of the medulla, and is fixed, as was mentioned above, by a filament to the internal lamina of the dura mater in each interstice between the nervous fasciculi. It also gives off elongations, in the same manner as the dura mater, to each of the nervous trunks or branches.

In Pl. XVII. is given a view of the *medulla spinalis* in two portions, but so delineated as to admit of their junction; the bottom of the first to the top of the second column, and both to the portion exhibited in Pl. XVIII. Vol. I. In the latter view, at *c*, the pia mater is seen inclosing the spinal marrow, but somewhat raised at its lower part, where it invests the *cauda equina*. The figures 1, 2, 3, &c. show the several pairs of nerves, as they spring from the medulla spinalis. From 1 to 9 are the origins of the cervical nerves, the first of which passes out at the third perforation of the os occipitis, and is reckoned the tenth of the brain. The rest proceed out between the sixth and seventh vertebræ of the neck. Those of 10 to 21, in Pl. XVII. are the dorsal nerves; and from 22 to 27, the lumbar. The rest go out at the foramina of the os sacrum.

The principal *arteries of the medulla spinalis*, called commonly *arteriæ spinales*, are two in number, one anterior, and one posterior, lodged in the grooves by which the medulla is divided into lateral portions on both sides. They arise from the vertebral arteries, a little above the great occipital foramen, where these arteries each send a small ramus downward, as soon as they enter the cranium; and having got under the extremity of the medulla oblongata, they send off two other branches backward.

The first two branches, uniting soon after their origin, form the arteria spinalis anterior, which runs down within the canal of the vertebræ, along the anterior groove of the medulla. The other two small branches are inverted on the sides of the medulla oblongata, and from thence running backward, they unite much in the same manner with the first two, and form the arteria spinalis posterior, which runs down along the posterior groove of the medulla spinalis.

The two spinal arteries, in their course downward along the medulla, send off on each side lateral ramifications, by which they frequently communicate with each other, and with the vertebral, intercostal, lumbar, and sacral arteries: sometimes they seem to divide for a little way, and then unite again.

The *veins* of the medulla spinalis terminate partly in the superior extremities of the two vertebral veins, partly in the two venal ropes termed *sinus venosi*, which run down laterally on the convex side of the production of the dura mater, and form, at different distances, reciprocal communications, by semiannular arches, as by so many subordinate sinuses. The two longitunal sinuses communicate likewise, in their passage, with the vertebral veins, in the same manner as the neighbouring arteries.

The nerves proceeding from the medulla spinalis are more particularly noticed under the article Nerves.

MEDULLA'RIS, (from *medulla*, marrow), medullary; like unto marrow. Thus anatomists distinguish, in the brain, a medullary substance. The white and internal substance of the cerebellum is likewise called medullary.

MEIMBOMIUS'S GLANDS; some small glands which are situated between the tunica conjunctiva of the eye and the cartilage of the eye-lid. They were first described by Meimbomius.

MEL; honey. See Honey. *Mel* is also a general title in the pharmacopœias for such syrups as are prepared with honey. Thus we have *Mel rosæ*, *Mel scillæ*, &c.

MELÆ'NA, (of the Gr. *μελαινα*, from *μελας*, *black)*, the black vomit or black bile. This is known by a discharge of black, grumous, viscid blood, or bloody fœtid matter, from the intestines by stool, or from the mouth by vomiting; with griping pains in the abdomen, a sense of great weight and distention in the epigastrium, loss of appetite, great debility, faintings, and pyrexia; and sometimes a discharge of scybala accompanies that of blood *per anum*.

Melæna is the *morbus niger* of Hippocrates, a disease not very common, but noticed by the ancient physicians. Hippocrates, Boerhaave, and Van Swieten, supposed it to be occasioned by atrabilis. But Dr. Home, in his Clinical Experiments, shows that it is owing to an effusion of blood from the meseraic vessels, which by its stagnation and corruption assumes that strange appearance. The disease, he says, frequently follows hæmorrhagy; and those of a scorbutic habit are most subject to it. It is an acute disease, and terminates soon; yet it is not attended with any great degree of fever. In one of Dr. Home's patients the crisis happened on the eighth day, by diarrhœa; in another, on the 14th, by sweat and urine; and a third had no evident critical evacuation.

In this disease, blood is effused into the intestines from the vena portarum, or meseraic veins; or into the stomach from the vasa brevia, or vena portarum, in general proceeding from a diseased liver. It is seldom idiophatic, or to be considered as a case of active hæmorrhagy; but arises most frequently from obstructions of some of the abdominal viscera pressing on the blood-vessels mentioned above; suppression of accustomed hæmorrhoidal discharges, or scurvy, or other putrid diseases. If it is attended with evident marks of plethora, and other symptoms of active hæmorrhagy, bleeding will be necessary, with all the other means, except strong internal astringents. The blood must also be evacuated from the intestines, by gentle laxatives, or by mild clysters. The putrefaction of the blood, collected in the intestines, must also be prevented; for which purpose the following will be proper, if given at intervals, between the laxative medicines.

℞ Muc. gum. arab. ℥iij.
Aq. puræ ℥iv.
Acid. vitriol. dil. gtt. c.
Syr. althææ ℥j.
M. f. mist. capt. cochl. ij. 3tia quaque hora.

Cold bathing of the lower extremities may be very useful, and bark with preparations of iron. The diet should be cooling and antiseptic; and port wine and water, acidulated, or old hock and water, will be very proper drink.

If it arises from suppressed customary evacuations, these must be restored; if from visceral obstructions, their removal must be attempted by the means pointed out under their proper heads. If it be an attendant on scurvy, or other putrid disease, the general putrid diathesis is to be corrected by the proper remedies, and in all these cases the discharge of the blood from the intestines, as has been said, must be promoted by gentle laxatives.

Dr. Home observes, that bleeding is always necessary where the pulse can bear it; nor are we to be deterred from it by a little weakness of the pulse, more than in the enteritis. Emetics are hurtful, but purgatives are useful. But the most powerful medicine for checking the hæmorrhagy is the vitriolic acid: and, that this might be given in greater quantity, he mixed it with mucilage of gum-arabic; by which means he was enabled to give double the quantity he could otherwise have done. The cold bath was tried in one instance, but he could not determine whether it was of any service or not. The cure was completed by exercise and the bark.

MELALEU′CA LEUCADE′NDRON; the systematic name of the plant which affords the cajeput oil. See CAJEPUT OIL.

MELAMPO′DIUM, (μελαμποδιον, from *Melampus*, the shepherd who first used it); black hellebore. See HELLEBORUS NIGER.

MELANCHO′LIA, (μελαγχολια, from μελας, *black*, and χωλη, *bile;* because the ancients supposed that it proceeded from a redundance of black bile), melancholy madness; a disease in the class *neuroses*, and order *vesaniæ*, of Cullen. It is characterized by erroneous judgment, but not merely respecting health, from imaginary perceptions or recollection influencing the conduct, and depressing the mind with ill-grounded fears; not combined with either pyrexia or comatose affections; often appearing without dyspepsia, yet attended with costiveness, chiefly in persons of rigid fibre and torpid insensibility. See MANIA.

MELANOPI′PER, (μελανοπιπερις, from μελας, *black*, and πιπερις, *pepper)*, black pepper. See PIPER NIGRUM.

ME′LAS, (from the Gr. μελας, *black)*, called also *Vitiligo nigra*, *Morphæ nigra*, and *Lepra maculosa nigra;* a disease of the skin, appearing in black or brown spots, which very frequently penetrate deep, even to the bone, yet do not give any pain or uneasiness. It is a disease very frequent in, and endemial to, Arabia, where it is supposed to be produced by a peculiar miasma.

MELA′SMA. (μελασμος, from μελας, *black*), or MELASMUS; a disease that appears not unfrequently upon the tibia of aged persons, in the form of a livid spot, which, in a short time, degenerates into a very foul ulcer.

MELIFO′LIUM, (from *mille*, a thousand, and *folium*, a leaf, so named from its numerous leaves). See MELISSA.

MELI′CERIS, (μελικηρις, from μελι, *honey*, and κερος, *wax)*, an encysted tumor, whose contents resemble honey, or soft wax, in consistence and appearance. Tumors of this kind are easily distinguished from all others, as having neither heat, pain, nor pulsation, such as is observed in those which incline to suppurate; and they are distinguished from each other, before they are laid open, by fluctuation being readily perceived in the meliceris. The atheroma, which is sometimes taken for it, is soft and compressible, but has no fluctuation; while the steatoma is commonly firm, and rolls under the skin. But these rules are liable to considerable exceptions. The meliceris and atheroma are most commonly found upon the head, and the steatoma upon the other parts of the body; while ganglions are situated over the tendons of the muscles. This tumor must be either extirpated entirely, or laid open so as to dispose the cyst to slough off or granulate. If the matter be fluid, we may evacuate it by an opening made with a lancet, or by means of a seton; but as the matter is apt to collect again, it is better to remove the sac entirely. If large vessels or nerves prevent this from being done, then it is to be laid freely open and exposed to the air, so that the bag may granulate, or be thrown off. When the tumor is to be extirpated, a longitudinal incision is to be made through the integuments; after which the whole may be frequently removed by the point of the finger, or by the end of a spatula, replacing the integuments with a view to heal by the first intention. In every pendulous tumor of this kind, with a narrow neck, we ought to divide the teguments near the bottom of the tumor in an oval form, so that the wound may be afterwards properly covered with the remaining integuments. After the tumor is removed, the skin is to be replaced over the wound, and fixed with adhesive straps, covering it with a pledget of cerate, and small compress of linen, with a bandage above all, to make a gentle pressure on the parts.

MELI′LOT. See MELILOTUS.

MELILO′TUS, (μελιλωτος, from μελι, *honey*, and λωτος, the *lotus;* so called from its smell, being like that of honey), also named *Lotus sylvestris*, and *Trifolium odoratum;* melilot. This plant is the *Trifolium melilotus officinalis* of Linnæus. It has been supposed resolvent, emollient, and anodyne, and to participate of the virtues of chamomile. Its taste is unpleasant, subacrid, subsaline, but not bitter. When fresh it has scarcely any smell, but in drying, it acquires a pretty strong one of the aromatic kind, yet not agreeable. Its principal use has been as an ingredient in glysters, fomentations, and other external applications, but it is now wholly neglected.

MELI′SSA, (from μελισσα, a *bee*, because bees gather honey from it), called by the various names of *Citraga*, *Citrario*, *Melyssophyllum*, *Melifolium*, *Melitis*, *Cedronella*, *Apiastrum*, and *Melissa citrina*, balm; the *Melissa officinalis* of Linnæus. It is a native of the southern parts of Europe, but very common in our gardens. In its recent state it has a roughish aromatic taste, and a pleasant smell of the lemon kind. It was formerly much esteemed as a medicine in nervous diseases, and very generally recommended in melancholic and hypochondriacal affections; but in modern practice it is only employed in the form of tea, as a grateful diluent drink in fevers, &c. and in this way it is very useful.

MELI'SSA CALAMINTHA; the systematic name of the field catmint. See CALAMINTHA.

MELI'SSA CITRI'NA. See MELISSA.

MELI'SSA GRANDIFLO'RA; the systematic name of mountain calamint. See CALAMINTHA MAGNO FLORE.

MELI'SSA OFFICINALIS; the systematic name of balm. See MELISSA.

MELI'SSA TU'RCICA. See MOLDAVICA.

MELI'TIS MELI'SSOPHYLLUM; the systematic name of the mountain-balm. See MELYSSOPHYLLUM.

ME'LO, (from the Gr. μελον, an *apple*, which it resembles in shape); the common or musk melon: *Cucumis melo*, Linn. This fruit, when ripe, has a delicious refrigerating taste, but must be eaten moderately, with pepper or some other aromatic, as all fruits of this class are obnoxious to the stomach, and liable to produce spasms and colic. The seeds possess mucilaginous qualities.

Of the properties of this fruit, Dr. Cullen says, "The melon in its ripe state, discovers some sweetness, and may therefore be more nourishing. On the same account, however, it comes nearer to the qualities of the fermentable fructus acido-dulces; and as at the same time, from the firmness of its texture, it may often show the effect of too great acescency, moderation is necessary in its use, especially by dyspeptic persons; and I think it is commonly rendered safer by the addition of sugar and aromatics. Some writers have mentioned its diuretic effects; but I cannot find these, from the melon, to be more than from other aqueous food. If Sanctorius found melons to diminish perspiration, they might thereby indeed increase urine, as he also observed; but all this I would impute to their refrigerant rather than to their directly diuretic powers. I have found no evidence of melons stimulating the kidneys; and the account given by Dr. Arbuthnot of their causing bloody urine, is a single fact, and seems to be extravagant."

ME'LOE VESICATORIUS; the systematic name of the Spanish fly. See CANTHARIDES.

MELON-COMMON. See MELO.

MELON-MUSK. See MELO.

MELON-WATER. See CITRULLUS.

MELO'THRIA PE'NDULA; the systematic name of the small creeping cucumber plant. The inhabitants of the West Indies pickle the berries of this plant, and eat them, as we do capers, with animal food.

MELYSSOPHY'LLUM, (μελισσοφυλλον, from μελισσα, *balm*, and φυλλον, *a leaf*), the mountain-balm or nettle; *Melitis melyssophyllum*, Linn. This elegant plant is seldom used in the present practice. It has been thought of service in uterine obstructions and calculous diseases.

MEMBRA'NA, a membrane; a thin expanded substance, composed of cellular texture, whose elastic fibres are so arranged and woven together, as to allow of great pliability. The membranes of the body are various, as the skin, peritoneum, pleura, dura mater, cellular membrane, &c.

MEMBRA'NA HYALOIDE'A, or *Membrana arachnoidea*; the transparent membrane which includes the vitreous humour of the eye.

MEMRBA'NA PUPILLA'RIS; a very delicate membrane, of a thin vascular texture, and an ash colour, arising from the internal margin of the iris, and totally covering the pupil in a fœtus of six months.

MEMBRA'NA RUYSCHIA'NA. The celebrated anatomist, Ruysch, discovered that the choroid membrane of the eye was compoſed of two laminæ. He gave his own name to the internal lamina, leaving the old name of choroides to the external.

MEMBRA'NA TY'MPANI, a membrane that covers the cavity of the tympanum, and separates it from the meatus auditorius externus. It is of an oval form, convex below the middle, towards the hollow of the tympanum, and concave towards the meatus auditorius; convex above the middle towards the meatus, and concave towards the hollow of the tympanum. According to the observations of anatomists, it consists of six laminæ; the first and most external is a production of the epidermis; the second is a production of the skin lining the auditory passage; the third is cellular membrane, in which the vessels form an elegant net-work; the fourth is shining, thin, and transparent, arising from the periosteum of the meatus; the fifth is cellular membrane, with a plexus of vessels like the third; and the sixth lamina, which is the innermost, comes from the periosteum of the cavity of the tympanum. This membrane, thus composed of several laminæ, has lately been discovered to possess muscular fibres. See EAR.

MEMBRANALO'GIA, (from *membrana*, a membrane, and λογος, a *discourse*); membranology, or the doctrine of the common integuments and membranes of the body.

MEMBRANA'TUS, a term applied to the stalk of a plant; and signifying that it is covered with a thick membrane.

MEMBRANOUS, in botany, a term applied to the leaves which have no distinguishable pulp between their surfaces.

MENAGOGUES. See EMMENAGOGUES.

MENECRATES, a physician of Syracuse, who flourished about 360 B. C. famous for his skill in his profession, but much more for his vanity. He would always be followed by some of the patients he had cured, and with whom he previously stipulated that they should follow him wherever he went. One appeared with the attributes of Hercules, another with those of Apollo, and others again with those of Mercury or Æsculapius; while he, clad in a purple robe, with a golden crown on his head and a sceptre in his hand, presented himself, to the admiration of the public, under the name of *Jupiter*, and travelled through different countries escorted by these counterfeit deities. He once wrote the following letter to the king of Macedon: "Menecrates-Jupiter to Philip, greeting. Thou reignest in Macedonia, and I in medicine: thou givest death to those who are in good health, I restore life to the sick: thy guard is composed of Macedonians; the gods themselves constitute mine." Philip answered him in a word, that he wished him restored to reason. Learning some time after that he was in Macedon, Philip sent for him, and invited him to an entertainment. Menecrates and his companions were placed on rich and lofty couches; before which was an altar, covered with the first fruits of the harvest; and whilst an excellent repast was served up to the other guests, perfumes and libations only were offered to these new gods, who, unable to endure the affront, hastily left the palace, in which they never more made their appearance.

ME'NINX, (*μυνιηξ*, from *μεηω*, *to remain*), a Greek term denoting the membranes enveloping the brain. See Dura mater and Pia mater.

ME'NINX DURA. See Dura mater.

MENISPE'RMUM COCCULUS, the systematic name of the plant whose berries are well known by the name of *Cocculus Indus*, Indian berries, or Indian cockles. Whilst green, these berries are used to catch fish, which they have the power of intoxicating and killing. In the same manner they catch birds, making the berry into a paste, forming it into small round masses, and putting these in places where they frequent. The dried berries, prepared in the same manner, are used to intoxicate fish in this country.

MENINGO'PHYLAX, (*μηνιγγοφυλαξ*, from *μηνιγξ a membrane*, and *φυλασσω*, *to guard*); an instrument used in wounds of the head, largely described by Celsus, but more accurately, with its use, by Scultetus, *Arm. Chirurg.* part i. tab. 2. fig. 10. Gorræus takes notice of somewhat like it under the name *Vectis*, the same as the *Mochlion* of the Greeks.

MENORRHA'GIA, (*μενοῤῥαγια*, from *μηνεω*, *the menses*, and *ρηγνυμι*, *to break out*); an immoderate flow of the menses. It is a genus of disease in the class *pyrexia*, and order *hæmorrhagia* of Cullen. The species are, 1. *Menorrhagia rubra*, proper; from women neither with child nor in childbirth. 2. *Menorrhagia abortus*. See Abortio. 3. *Menorrhagia lochialis*. See Lochia. 4. *Menorrhagia vitiorum*, from some local disease. 5. *Menorrhagia alba*, serous; the fluor albus. See Leucorrhoea. 6. *Menorrhagia nabothi*; serous, in pregnant women. See Pregnancy.

The quantity of the menstrual flux is different in different women, and likewise in the same woman at different times. An unusual quantity therefore is not always to be considered as morbid: but when a large flow of the menses has been preceded by head-ach, giddiness, or dyspœna; has been ushered in by a cold stage, and is attended with much pain of the back and loins, with a frequent pulse, heat and thirst; it may then be considered as preternaturally morbid. On the other hand, when the face becomes pale, the pulse weak, an unusual debility is felt in exercise, and the breathing hurried by little labour; when the back becomes pained from any continuance in an erect posture, when the extremities become frequently cold, and when at night the feet appear with œdematous swelling; from all these symptoms we may conclude, that the flow of the menses has been immoderate, and has already induced a dangerous state of debility. The debility, indeed in this case, often appears also by the affections of the stomach, an anorexia, and other symptoms of dyspepsia: by a palpitation of the heart, and frequent faintings; by a weakness of mind, liable to strong emotions from slight causes, especially those presented by surprise. A large flow of the menses, attended with barrenness in married women, may generally be considered as preternatural and morbid. Generally, also, that flow of the menses may be considered as immoderate, which is preceded and followed by a leucorrhœa.

The proximate cause of the menorrhagia is either the effort of the uterine vessels preternaturally increased, or a preternatural laxity of the extremities of the uterine arteries.—The remote causes may be, 1. Those which increase the plethoric state of the uterine vessels; as a full and nourishing diet, much strong liquor, and frequent intoxications. 2. Those which determine the blood more copiously and forcibly into the uterine vessels; as violent strainings of the whole body; violent shocks from falls; strokes or contusions on the lower belly; violent exercise, particularly dancing; and violent passions of the mind. 3. Those which particularly irritate the vessels of the uterus: as excess in venery; the exercise of venery in the time of menstruation; a costive habit, giving occasion to violent straining at stool; and cold applied to the feet. 4. Those which have forcibly overstrained the extremities of the uterine vessels; as frequent abortions, frequent child-bearing without nursing, and difficult or tedious labours. Or, lastly, those which induce a general laxity; as living much in warm chambers, and drinking much of warm enervating liquors, such as tea, coffee, &c.

The treatment and cure of the menorrhagia, must be different according to the different causes of the disease. The means employed, however, are chiefly used with one or two intentions; either with the view of restraining the discharge when present, or of preventing the return of an excessive discharge at the succeeding period. The first is chiefly to be accomplished by employing such remedies as diminish the force occasioning the discharge of blood, or as augment the resistance to its passage though the vessels by which it is to be discharged. The last is in some degree to be obtained by avoiding causes which either increase the general impetus of the blood, or the impetus at the uterus in particular; but principally by giving additional vigour to the uterine vessels.

In all cases, the first attention ought to be given to avoiding the remote causes, whenever that can be done; and by such attention, the disease may be often entirely cured. When the remote causes cannot be avoided, or when the avoiding them has been neglected, and a copious menstruation has come on, it should be moderated as much as possible, by abstaining from all exercise at the coming on, or during the continuance, of the menstruation; by avoiding even an erect posture as much as possible, by shunning external heat, and of course warm chambers and soft beds; by using a light and cool diet; by taking cold drink, at least as far as former habits will allow; by avoiding venery; by obviating costiveness, or removing it by laxatives which give little stimulus.—The sex are commonly negligent, either in avoiding the remote causes, or in moderating the first beginnings of this disease. It is by such neglect that it so frequently becomes violent and of difficult cure; and the frequent repetition of a copious menstruation may be considered as a cause of great laxity in the extreme vessels of the uterus.

When the coming on of the menstruation has been preceded by some disorder in other parts of the body, and is accompanied with pains in the back, somewhat like parturient pains, with febrile symptoms, and when at the same time the flow seems to be copious, a bleeding at the arm may be proper, but is not often necessary; and it will in most cases be sufficient to employ, with great attention and diligence, those means already mentioned for moderating the discharge.

When the immoderate flow of the menses shall seem to be owing to a laxity of the vessels of the uterus, as may be concluded from the general debility and laxity of the woman's habit; from the remote causes that have occasioned the disease; from the absence of the symptoms which denote increased action in the vessels of the uterus; from the frequent recurrence of the disease; and particularly from this, that the female in the intervals of menstruation is liable to a leucorrhœa:" in such a case, the disease is to be treated not only by employing all the means above mentioned for moderating the hæmorrhagy, but also by avoiding all irritation, every irritation having a greater effect in proportion as the vessels are more lax and yielding. If, in such a case of laxity, it shall appear that some degree of irritation concurs, opiates may be employed to moderate the discharge; but in using these much caution is requisite. If, notwithstanding these measures have been taken, the discharge shall prove very large, astringents both external and internal may be employed. In such cases, Dr. Cullen asks, may not small doses of emetics be of service?

When the menorrhagia depends upon a laxity of the uterine vessels, it will be proper, in the intervals of menstruation, to employ tonic remedies; as cold bathing and chalybeates. The exercise of gestation also may be very useful, both for strengthening the whole system, and for taking off the determination of the blood to the internal parts.

These remedies may be employed in all cases of menorrhagia, from whatever causes it may have proceeded: if it shall have already induced a considerable degree of debility in the body.

ME'NSES, (from *mensis*, a month): called also *catamenia*, *menstrua*, &c. the periodical discharges of blood from the uterus, vagina, or both, which take place in females from about the age of fourteen to about fifty. In warm climates these appear as early as eight or nine years of age; but, with us, not till after twenty in some instances, though usually at the ages of thirteen or fourteen. The quantity evacuated is supposed to be from about four to ten ounces; but in this there is no certainty. In some women this discharge continues to flow for two days, others have it three or four, or perhaps a week. In warm climates the quantity discharged may be from two to twenty-four ounces. On their first eruption the quantity of the menses is small; but in women arrived to maturity it is more considerable. The more lax the system in general is, the larger is the discharge, other circumstances being favourable. Lean women, and those who are plethoric, evacuate more than such as are fat and of a colder temperament; and those who lead luxurious and idle lives have a larger quantity than those who use much exercise and live on a spare diet. Usually, the sooner the menses appear the sooner they disappear. They mostly continue, in this country, to return till the fortieth, the forty-eighth, or sometimes the fiftieth year.

The menses flow chiefly from the vessels of the uterus, but sometimes from the vagina. Some women have the flux by other passages, manifested by periodical vomiting, coughing of blood from the lungs, bleeding from the hæmorrhoidal veins, nose, &c. but when the menstrual blood passes by these preternatural passages, it generally indicates disease.

The menses form one of the most difficult phenomena in the human economy; and many unsuccessful endeavours have been made to account for them in a satisfactory manner. Some have supposed it arose from the influence of the moon, and some attributed it to a fermentation. With much more appearance of reason, Freind and Haller contend, that this discharge is from a plethora, and they support this opinion by anatomical remarks. Boerhaave also joins them, with many other physicians of eminence; though others consider menstruation only as a law of the animal economy, and do not pretend to account for it any further.

The latest opinion respecting the cause of the *menses* is, that *they depend upon a topical congestion.* Dr. Cullen adopts this, and in his lectures observes, that "the growth of the body depends upon the increase of the quantity of fluids giving occasion to the distention of the vessels, and thus producing the gradual evolution and full growth of the whole system. This evolution does not happen equally in every part of the body at the same time, but successively, according to the different size and density of the several vessels determined by the original stamina. Thus the upper parts of the body first acquire their natural size, and then the lower extremities. By the same constitution it seems to be determined, that the uterus of the human species should not be considerably evolved till the rest of the body is nearly arrived at its full bulk. But as the vessels of every part, by their distention and growth, increase in density, and give thereby more resistanee to their further growth, at the same time, by the same resistance, they determine the blood in greater quantity in the parts not yet equally evolved. By this means the whole of the system must be successively evolved, till every part is brought to that degree of distention which is necessary to bring them to a balance with respect to density and resistance with one another. Upon these principles there will be a period in the growth of the body, whence the vessels of the uterus will be distended till they are in balance with the rest of the system; and their constitution may be such, that their distention may proceed so far as to open their extremities, terminating in the cavity of the uterus, so as to pour out blood there; or it may happen, that a certain degree of distention may be sufficient to irritate and increase the action of the vessels, and thereby to produce an hæmorrhagic effort, which may force the extremities of the vessels with the same effect of pouring out blood. In either way, he accounts for the first appearance of a flow of blood from the uterus in women. In order to this, he does not suppose any more of a general plethora in the system than what is constantly necessary to the successive evolution of the several parts of it; and he proceeds upon the supposition that the evolution of each particular part must especially depend upon the plethora, or increased congestion, in its proper vessels. Thus he supposes it happens with respect to the uterus: but as its plethoric state, he observes, produces an evacuation of blood from its vessels, this evacuation must empty these vessels more especially, and put them again into a relaxed state with respect to the rest of the system. This emptied and relaxed state of the vessels of the uterus will give occasion to a new congestion of blood in them, till they are again brought to that degree of distention that may either force their extremities, or produce a new hæmorrhagic effort that may have the same effect. Thus, an evacuation of the blood from the uterus being once begun, by the causes before mentioned, it must, by the operation of the same causes, return after a certain period, and must continue to do so, till particular circumstances occasion a considerable change in the constitution of the uterus. What determines the periods of these returns to be nearly in the space of a month he cannot exactly explain, but supposes it to depend upon a certain balance between the vessels of the uterus and those of the other parts of the body. This must determine the first periods: and when it does so, it can be understood that a considerable increase or diminution of the quantity of the blood in the whole system will have but little effect in increasing or diminishing the quantity distributed to the uterus. It may also be further observed, that when the evacuation has been repeated for some time at regular periods, it may be supposed that the power of habit, which so readily takes place in the animal system, may have a great share in determining the periodical motions of the uterus to be with great regularity, though, in the mean time, considerable changes may have happened with respect to the whole system."

There are two critical periods in the lives of females which require their particular attention. In order to escape the chlorosis, and other similar diseases, incident to that period of life when the menses commence, they should avoid indolence and inactivity, and accustom themselves to exercise in the open air as much as possible. Unwholesome food, want of exercise, and strait clothes are very injurious. The discharge in the beginning is seldom so instantaneous as to surprise them unawares. The eruption is generally preceded by symptoms that indicate its approach; such as a sense of heat, weight, and dull pain in the loins; distention and hardness of the breasts, head-ach, loss of appetite, lassitude, paleness of the countenance, and sometimes a slight degree of fever. When these symptoms occur, every thing should be carefully avoided which may obstruct the menstrual flux, and all means used to promote it; as sitting frequently over the steam of warm water, drinking warm diluting liquors, &c. When the menses have begun to flow, great care should be taken to avoid every thing that tends to obstruct them; such as fish, and all kinds of food that are hard of digestion, and cold acid liquors. Cold is likewise hurtful at this period; as also anger, fear, grief, and other affections of the mind. From whatever cause this flux is obstructed, except in the state of pregnancy, proper means should be used to restore it; and if exercise in a dry, open, and rather cool air, wholesome diet, generous liquors in a weak and languid state of the body, cheerful company, and amusement fail, recourse must be had to medicine. —When obstructions proceed from a weak relaxed state of the solids, such medicines as tend to promote digestion, to brace the solids, and strengthen the system, ought to be used. See CHLOROSIS.

When the menstrual flux is too great, the patient becomes weak, the colour pale, the appetite and digestion bad, and œdematous swellings of the feet, dropsies, and consumptions, often ensue. This frequently happens to women about the age of forty-five or fifty, and is very difficult of cure. It may proceed from a sedentary life; a full diet, consisting chiefly of salted, high-seasoned, or acrid food; the use of spirituous liquors; excessive fatigue; relaxation; a dissolved state of the blood; violent passions of the mind, &c. In order to restrain the flux, the patient should be kept easy both in body and mind. If it be very violent, she ought to lie in bed with her head low; to live upon a cool and slender diet, as veal or chicken-broths with bread, and to drink decoctions of nettle-roots or the greater comfrey. If these fail, recourse must be had to stronger astringents, &c. See MENORRHAGIA.

The discharge of the menses is interrupted naturally during pregnancy: but this is not always the case, because some have them three months, some six months, and some during the whole time of gestation, though in less quantity than at other times. The menses are mostly interrupted during the time of giving suck, though many women have a return about the third or fourth month after delivery, and almost all have them again in the ninth or tenth month. In cases of obstruction, the menstrual blood has sometimes discharged itself by other outlets.

It usually happens that this periodical discharge ceases between the age of forty and fifty: and the juncture in which this takes place is critical to the sex. However, those who survive this period without contracting any chronic disease, become more healthy and vigorous than they were before. About this time, some are afflicted with the well known symptoms of plethora, heat, flushings, restless nights, troublesome dreams, and unequal spirits; others are attacked with inflammations of the bowels, or other internal parts; spasmodic affections of various parts, stiffness in the limbs, swelled ankles, with pain and inflammation, the piles, and other effects of plenitude. Those of full plethoric habits, accustomed to copious evacuations, will find great relief by bleeding frequently in moderate quantities, keeping the bowels lax, moderating their diet, and using sufficient exercise that is not too heating. If an immoderate flux of the menses happens at this period, it should be restrained by gentle laxatives, cooling medicines, rest, anodynes, a sparing but not too liquid diet, rather than by very copious bleedings and astringents of any kind. Dr. Fothergill observes, that various purgations of aloes, the old tinctura sacra, pil. Ruffi, elixir proprietatis, and other compositions of this kind, are by some recommended as proper purgatives to be used on the cessation of the menses. But many inconveniences have arisen from these heating medicines, as piles, strangury, immoderate discharges of the menses, pains in the loins, and other similar complaints. Rhubarb, senna, magnesia, sulphur, castor oil, and such like medicines of moderate activity, or, at the most, small doses of jalap, may be substituted, and will afford sufficient variety to the patient.

When the menses are about to go off, they appear irregularly both in time and quantity; once in a fortnight, three, five, or six weeks; sometimes very sparingly, at other times in immoderate quantities. Great losses of this kind are often prevented by taking away four or five ounces of blood a few days after the first menstrual suppression. If a patient has in early life been subject to cutaneous eruptions, sore eyes, glandular swellings, or other obvious marks of morbid humours subsisting in the constitution, and all of which may have disappeared about the time the menses became regular, an issue is an advisable drain, and may prevent many inconveniences. If at this time ulcerous sores break out about the ankles, or in other parts of the body, they ought to be continued open, or artificial drains substituted in their stead; for those who will have them dried up are soon after carried off by acute diseases, or fall into those of a chronic nature.

MENSTRUATION, the periodical discharge of blood from the uterus of healthy women who are not pregnant, or who do not give suck. See MENSES. It is said that some women never menstruate; some menstruate while they continue to give suck; and others are said to menstruate during pregnancy: some are said to menstruate in early infancy, and others in old age; but such discharges, Dr. Denman is of opinion, may, with more propriety, be called morbid, or symptomatic: but the definition is generally true.

ME'NSTRUUM, or *Solvent*. All liquors are so called, which are used as dissolvents, or to extract the virtues of ingredients by infusion, decoction, tincture, *&c*. The principal *menstrua*, made use of in Pharmacy, are water, vinous spirits, oils, acid, and alkaline liquors. Water is the menstruum of all salts, of vegetable gums, and of animal jellies. Of the first it dissolves only a determinate quantity, though of one kind of salt more than another; and being thus saturated, leaves any additional quantity of the same salt untouched. It is never saturated with the two latter, but unites readily with any proportion of them, forming with different quantities, liquors of different consistencies. It takes up likewise, when assisted by trituration, the vegetable gummy resins, as ammoniacum and myrrh; the solutions of which, though imperfect, that is, not transparent, but turbid and of a milky hue, are nevertheless applicable to valuable purposes in medicine. Rectified spirit of wine is the menstruum of the essential oils and resins of vegetables, of the pure distilled oils of animals, and of soaps, though it does not act upon the expressed oil and fixed alkaline salt, of which soap is composed. Hence, if soap contains any superfluous quantity of either the oil or salt, it may, by means of this menstruum, be excellently purified therefrom. It dissolves, by the assistance of heat, volatile alkaline salts; and more readily the neutral ones, composed either of fixed alkali and the acetous acid, as the sal diureticus, or of volatile alkali and the nitrous acid. Oils dissolve vegetable resins and balsams, wax, animal fats, mineral bitumens, sulphur, and certain metallic substances, particularly lead. The expressed oils are, for most of these bodies, more powerful menstrua than those obtained by distillation; as the former are more capable of sustaining without injury a strong heat, which is in most cases necessary to enable them to act. All acids dissolve alkaline salts, alkaline earths, and metallic substances. The different acids differ greatly in their action, upon these last: one dissolving some particular metals; and another, others. The vegetable acids dissolve a considerable quantity of zinc, iron, copper, and tin; and extract so much from the metallic part of antimony as to become powerfully emetic: they likewise dissolve lead, if previously calcined by fire; but more copiously if corroded by their steam. The marine acid dissolves zinc, iron, and copper; and though it scarce acts on any other metallic substance in the common way of making solutions, may nevertheless be artfully combined with them all except gold. The muriated mercury and antimonial caustic of the shops, are combinations of it with mercury and the metallic part of antimony, effected by applying the acid in the form of fume, to the subjects at the same time strongly heated. The nitrous acid is the common menstruum of all metallic substances, except gold and the antimonial semi-metal, which are soluble only in a mixture of the nitrous and marine. The vitriolic acid easily dissolves zinc, iron, and copper; and may be made to corrode, or imperfectly dissolve, most of the other metals. Alkaline lixivia dissolve oils, resinous substances, and sulphur. Their power is greatly promoted by the addition of quicklime, instances of which occur in the preparation of soap and in the common caustic. Thus assisted, they reduce the flesh, bones, and other solid parts of animals, into a gelatinous matter. Solutions made in water and spirit of wine, possess the virtue of the body dissolved; whilst oils generally sheathe its activity, and acids and alkalies vary its quality. Hence watery and spirituous liquors are the proper menstrua of the native virtues of vegetable and animal matters. Most of the foregoing solutions are easily effected, by pouring the menstruum on the body to be dissolved, and suffering them to stand together for some time, exposed to a suitable warmth. A strong heat is generally requisite to enable oils and alkaline liquors to perform their office; nor will acids act on some metallic bodies without its assistance. The action of watery and spirituous menstrua is likewise expedited by moderate heat, though the quantity which they afterwards keep dissolved, is not, as some suppose, by this means increased. All that heat occasions these to take up, more than they would do in a longer time in the cold, will, when the heat ceases, subside again. The action of acids on the bodies which they dissolve, is generally accompanied with heat, effervescence, and a copious discharge of fumes. The fumes which arise during the dissolution of some metals in the vitriolic acid, prove inflammable: hence in the preparation of the artificial vitriols of iron and zinc, the operator ought to be careful, especially where the solution is made in a narrow-mouthed vessel, lest, by the imprudent approach of a candle, the exhaling vapour be set on fire. There is another species of solution in which the moisture of air is the menstruum. Fixed alkaline salts and those of the neutral kind, composed of alkaline salts and the vegetable acids, or of alkaline earths, and any acid except the vitriolic, and some metallic salts on being exposed for some time to a moist air, gradually attract its humidity, and at length become liquid. Some substances, not dissoluble by water in its grosser form, as the butter of antimony, are easily liquified by this slow action of the aerial moisture. This process is termed *Deliquation.* The cause of solution assigned by some naturalists, namely, the admission of the fine particles of one body into the pores of another, whose figure fits them for their reception, is not just or adequate, but hypothetical and ill-presumed; since it is found that some bodies will dissolve their own quantity of others, as water does of Epsom salt, alkohol of essential oils, mercury of metals, one metal of another, *&c.* whereas the sum of the pores or vacuities of every body, must be necessarily less than the body itself, and consequently those pores cannot receive a quantity of matter equal to the body wherein they reside.

How a menstruum can suspend bodies much heavier than itself, which very often happens, may be conceived by considering, that the parts of no fluids can be so easily separated, but they will a little resist or retard the descent of any heavy bodies through them: and that this resistance is, *cæteris paribus*, still proportional to the surface of the descending bodies. But the surfaces of bodies do by no means increase or decrease in the same proportion as their solidities do: for the solidity increases as the cube, but the surface only as the square, of the diameter; wherefore it is plain, very small bodies will have much larger surfaces, in proportion to their solid contents, than larger bodies will, and consequently, when grown exceeding small, may easily be buoyed up in the liquor.

MENSU'RA, a measure, in botany. Plants are generally so various in their dimensions, that their parts can only be measured relatively to each other; Tournefort, however, introduced positive geometrical *mensuration:* but Linnæus, thinking it inconvenient for a botanist to carry an artificial scale in his pocket, makes a natural scale of the human body, the degrees of which are these, *capillus*, *linea*, *unguis*, *pollex*, *palmus*, *dodrans*, *spithama*, *pes*, *cubitus*, *brachium*, *orgya.* See the particulars under the article Measure.

ME'NTAGRA, (from *mentum*, the chin, and *αγρα, a prey*), an eruption about the chin, that forms a tenacious crust, like that which we see on scald heads.

MENTA'STRUM, (dim. of *mentha*, mint), the red water-mint. See *Mentha aquatica.*

ME'NTHA AQUA'TICA, or *Mentastrum*; water-mint. This plant is frequent in moist meadows, marshes, and on the banks of most rivers. It is less agreeable than the spearmint, and in taste more bitter and pungent. It may be used with the same intentions as the spearmint, to which, however, it is much inferior as a medicine.

ME'NTHA CATA'RIA. See Nepeta.

ME'NTHA CERVI'NA; the systematic name of the hart's pennyroyal. See Pulegium cervinum.

ME'NTHA CRISPA, a species of mentha. It has a strong and fragrant smell, its taste is warm, aromatic, and slightly bitter. In flatulencies of the primæ viæ, hypochondriacal and hysterical affections, it may be given with advantage.

ME'NTHA PIPERI'TA; the systematic name of the peppermint. See Mentha piperitis.

ME'NTHA, PIPERI'TIS, (*Mentha* from *Minthe*, the harlot who was changed into this herb), the well known herb peppermint. *Mentha piperita*, Linn. *Mentha floribus capitatis, foliis ovatis petiolatis, staminibus corolla brevioribus.* Class, *Didynamia.* Order, *Gymnospermia.* The spontaneous growth of this plant is said to be peculiar to Britain. It has a more penetrating smell than any of the other mints; a strong pungent taste, glowing like pepper, sinking as it were into the tongue, and followed by a sense of coolness. The stomachic, antispasmodic, and carminative properties of peppermint, render it useful in flatulent cholics, hysterical affections, retchings, and other dyspeptic symptoms, acting as a cordial, and often producing an immediate relief. Its officinal preparations are an essential oil, a simple water, and a spirit. Its use in prescription is very frequent.

ME'NTHA PULE'GIUM; the systematic name of the pennyroyal. See Pulegium.

ME'NTHA SARACE'NICA. Balsamita mas.

ME'NTHA SATI'VA, spearmint; the *Mentha viridis* of Linnæus. *Mentha spicis oblongis, foliis lanceolatis nudis serratis sessilibus, staminibus corolla longioribus.* Class, *Didynamia.* Order, *Gymnospermia.* This plant grows wild in many parts of England. It is not so warm to the taste as peppermint, but has a more agreeable flavour, and is therefore preferred for culinary purposes. Its medicinal qualities are similar to those of peppermint; but the different preparations of the former, though more pleasant, are, perhaps, less efficacious. The officinal preparations of spearmint are an essential oil, a conserve, a simple water, and a spirit. These are in very general use.

MEN'THA VI'RIDIS; the systematic name of the spearmint. See Mentha sativa.

ME'NTI LEVA'TOR. See Levator labii inferioris.

MENYA'NTHES TRIFOLIA'TA; the systematic name of the buckbean. See Trifolium paludosum.

MEPHI'TIS, (μεφιτις; from *mephuhith*, Syr. a blast), a poisonous vapour or exhalation. See Contagion, and Fumigation.

MERCURIA'LIS, (from *Mercurius*, its discoverer), the herb French mercury; *Mercurialis annua*, Linn. The leaves of this plant have no remarkable smell, and very little taste. It is ranked among the emollient oleraceous herbs, and is said to be greatly aperient. Their principal use has been in glysters, but this plant is now neglected.

MERCURIA'LIS A'NNUA; the systematic name of the French mercury. See Mercurialis.

MERCURIA'LIS MONTA'NA; dog's-mercury. See Cynocrambe.

MERCURIA'LIS PERE'NNIS, the systematic name of dog's-mercury. See Cynocrambe. According to Mr. Lightfoot, this species is of a soporific deleterious nature, noxious both to man and beast. There are instances of those who have eaten it by mistake, instead of *Chenopodium bonus Henricus*, or English mercury, and have thereby slept their last. In the isle of Skye, it is called *lusglenbracadale*; and an infusion of it is said to be taken to bring on a salivation; but our author knows not how the experiment answers. Tournefort informs us, that the French make a syrup of the juice of the annua, two ounces of which is given as a purge; and that they use it in pessaries and clysters, mixing one quantity of honey to one and a half of the juice. Dr. Withering differs greatly, however, from Lightfoot concerning the qualities of the mercurialis perennis. "This plant (says he), dressed like spinach, is very good eating early in the spring, and is frequently gathered for that purpose; but it is said to be hurtful to sheep." Mr. Ray relates the case of a man, his wife, and three children, who experienced highly deleterious effects from eating it fried with bacon; but this was probably when the spring was more advanced, and the plant had become acrimonious. When steeped in water, it affords a fine deep blue colour.

MERCURIALIS (Jerom), an eminent Italian physician, born at Forli in 1530, where he first practised; but afterwards was professor of medicine successively at Padua, Bologna, and Pisa. His writings in physic are very numerous; besides giving an edition of Hippocrates in Greek and Latin, with notes, which, however, did not answer the expectations of the learned. He died in 1606; and in 1644 some pieces of his were published at Venice in one volume folio.

MERCU'RIUS, the figurative name of quicksilver, from its activity. See Mercury.

MERCU'RIUS ACETA'TUS. See Hydrargyrus acetatus.

MERCU'RIUS CALCINA'TUS. See Hydrargyrus calcinatus.

MERCU'RIUS CORROSI'VUS. See Hydrargyrus muriatus.

MERCU'RIUS CORROSI'VUS RU'BER. See Hydrargyrus nitratus ruber.

MERCU'RIUS CORROSI'VUS SUBLIMA'TUS. See Hydrargyrus muriatus.

MERCU'RIUS EME'TICUS FLAVUS. See Hydrargyrus vitriolatus.

MERCU'RIUS PRÆCIPITA'TUS ALBUS. See Calx hydrargyri alba.

MERCU'RIUS PRÆCIPITA'TUS DULCIS. See Hydrargyrus muriatus mitis.

MERCU'RIUS PRÆCIPITA'TUS RUBER. See Hydrargyrus nitratus ruber.

MERCURY, or Quicksilver. See Hydrargyrus, under which head its chemical properties are chiefly considered. Dr. Cullen describes this medicine fully, as being one of the most useful and universal remedies known. The use of mercury in medicine seems to have been little known before the 15th century. The ancients indeed looked upon it as a corrosive poison, though of itself perfectly void of acrimony, taste, and smell. Dr. Cullen asserts, that mercury, in its native or running state, is a perfectly inert substance with respect to the human body. About seventy years ago, upon the authority of Dr. Dover, crude mercury was brought into frequent, and even into fashionable use. Many instances occurred in which it was employed very largely, and for a long time; but upon the most fair and strict examination that could be made, it never had any sensible effects, or cured any one disease. Indeed, since these trials took place, it has hardly ever been employed in practice, except upon the supposition that, by its weight, it may overcome some strictures or obstructions in the intestinal canal. But the theory even of this has been mistaken; nor have any decisive instances occurred of its success.

To render quicksilver therefore active with respect to the human body some changes in its chemical state, or some additions to its substance, are found to be necessary. What are the various means of rendering it thus active, are principally shown under the article Hydrargyrus, already referred to; but as Dr. Cullen is disposed to judge that the effects of it, in all its active states, however various, are always very nearly the same, his remarks on this head cannot but be highly acceptable to the reader.

"Universally mercury, in its active state, seems to be a stimulus to every sensible and moving fibre of the body to which it is immediately applied; and in consequence, it is particularly a stimulus to every excretory of the system to which it is externally or internally applied. Besides its noted effects upon the excretories of the saliva, it seems to operate upon the whole of those of the alimentary canal. It proves often diuretic; and we have particular proofs of its reaching and acting upon the organs of perspiration. Although it may sometimes operate more upon certain excretions than upon others, it may be presumed, that when any tolerable quantity is thrown into the body, it is in part distributed over the whole: and therefore its medicinal effect is, that it is the most universal aperient deobstruent known: and to how many cases of disease this operation may be applicable, will be sufficiently obvious."

Here, however, Dr. Cullen thinks it necessary to observe, that the effects here mentioned of its producing evacuations, depend entirely upon the stimulus given to the excretories, and not at all on any change produced in the state of the fluids. This he maintains against common opinion; as, he says, upon many occasions of mercury thrown into the body very largely, he found no difference in the appearance of the state of the blood drawn from the veins. From the stimulus given by mercury to the whole system, he always found the blood putting on the same appearance that it does in inflammatory diseases; neither, particularly, did he observe any circumstance that implied any diminution of its ordinary consistence. Nevertheless, it has been the common opinion, that mercury does *diminish the consistence of the blood*, so as very much to increase its fluidity; but no evidence or proof of this as a fact has been produced: and Dr. Cullen believes it to have been taken up upon mistaken facts, and supported by a theory, which seems to him without foundation. This theory, although so common and universal, the doctor shows to be false, upon the following considerations.

"Besides the general objections that may be justly made to the doctrine of the *attenuantia* and *incidentia*, the particular application of mercury to the purpose seems to be very ill founded. It has been supposed that the specific gravity of the particles of mercury might give it more than usual force in dividing the coherent portions of our fluids: but if it is attended to, that as the particles of all bodies, by being divided, have their surfaces so much enlarged, in proportion to their quantity of matter, that the resistance to their passage through other fluids is so much increased, that the heaviest of bodies, gold, can be so divided as to be suspended in water; and though we cannot precisely determine how much the particles of mercury may be divided in its different preparations, yet it may be confidently presumed, that in all of them they are so much divided as to take off entirely the effect of their gravity."

A grain of hydrarg. muriat. may be diffused in eight ounces of water, so that a portion of it may be rendered sensible in every drop of that water; there is therefore no probability of mercury acting upon the fluids by its specific gravity. Whether, however, by its chemical qualities, it may not have effects on the state of the fluids, cannot be so positively maintained. Dr. Cullen candidly owns, that its effects in the scurvy seem to point out some effects of it upon the mass of blood; but however it may be in this special case, he is persuaded, from what has been said above, and from many other circumstances hereafter to be mentioned, that the chief effects of mercurial medicines are to be ascribed to *their general stimulus of the system, and especially to their stimulating the various excretories.*

Mercury may, by the circumstances of the constitution, or perhaps by the nature of the preparation employed, be disposed to pass off rather by one excretory than another: but there is nothing more remarkable respecting this medicine, than its very constant tendency to pass off by the salivary glands. It discovers this indeed so readily, that unless diverted by art to another excretion, a small quantity of it will always take that course.

"This determination," says Dr. Cullen, "gives a problem which has always been considered as a principal one in the consideration of mercury; and the solution of it has been variously attempted. The specific gravity has been again here employed; and upon the supposition of its retaining the direct line in which it is impelled, it is supposed that it will thereby be more certainly determined to the vessels of the head: but as we do not admit of the effect of the specific gravity, so we say, that though it were admitted, the application of it here is not founded on a correct anatomy, and that the whole of the reasoning on this subject is manifestly frivolous. Here, from every consideration, the mechanical operation of mercury will be readily deserted; and we must seek for the solution of our problem from chemical considerations, which, however, is also attended with much difficulty. The supposition of its dissolving the blood in such a manner as to render it particularly fit and disposed to pass off more copiously by the salivary glands, cannot, after what has been said against the dissolving power in general, be admitted; and we must still therefore seek for another solution of our problem. I shall here offer a conjecture on the subject; but as a conjecture only I allow it to be received.

"I suppose that mercury has a particular disposition to unite with ammoniacal salts: and an ammoniacal salt increasing the solubility of corrosive sublimate is to me strongly in proof of this. In illustration of it, I would observe, that the union of mercury with the ammoniacal salt of the serosity, explains well, why mercury is so much disposed, and more universally than any other substance we know of, to pass off by the various excretories of the body. At the same time, if we can allow, what is very probable, that ammoniacal salts pass off by the salivary glands more copiously than by any other excretion, we shall find a reason why mercury, associated with such ammoniacal salt, will readily pass to the salivary glands; and, being thus applied to their excretories, will produce the salivation that so readily happens."

In order to obviate some objections that seem to arise to this doctrine, Dr. Cullen says, "The fœtor of the breath attending salivation is supposed to show that some putrid dissolution of the fluids has taken place: but however we may account for that fœtor, we must still maintain, from what has been said above, that there is no such general putrescency taking place." He adds, that "there is not only no symptoms of putrescency in the other parts of the fluids, appearing during the time of the highest salivation, but that mercury has no tendency to induce any such state appears from hence, that when the body has been long and largely treated with mercury, as soon as the irritation of this ceases, there is not the smallest symptom of putrescency, or of any tendency to it, in the state of the fluids, which, on the contrary, immediately appear in their most natural and perfect state." The fœtor, therefore, attending salivation, he concludes, must be referred to a peculiar operation upon the saliva itself.

"However it may be," says he, "it is most probable, that the operation of mercury is almost entirely in the mouth; and it is proper to observe, that the business commonly proceeds in this manner. The operation of the mercury is always first perceived by a disagreeable taste in the mouth, which is commonly such as if some preparation of copper had been applied to it. This is always attended with some degree of redness and swelling in the gums and other parts of the mouth. As these symptoms increase, the saliva flows more copiously; and commonly these symptoms of irritation, and the largeness of the salivation, are in proportion to one another; so that there can be no doubt that the flow of saliva depends upon an irritation applied to the excretories of that fluid: and though we should not be able to explain the whole of the phenomena attending it, we have no occasion to seek for any other cause of the excretion produced."

After these remarks upon the operation of mercury, Dr. Cullen speaks of its effects in curing diseases; and here, he says, nothing more remarkable presents itself than its peculiar power in curing the venereal disease. How it is peculiarly adapted to this, is difficult to explain; and the explanation has been attempted in different ways.

Some ingenious men have thought that mercury is an antidote to the poison which occasions the disease; and though they have not brought any evidence in proof of this, they have shown that other explanations are so unsatisfying, that we are in a manner obliged to have recourse to this; and Dr. Cullen allows there are some facts on record that are very favourable to this supposition.

Not however, to mention the difficulties which occur in explaining the application of the antidote to the poison, in this case, Dr. Cullen only offers one consideration; which is, that "if mercury be an antidote to the venereal poison, the cure of the disease should be always more or less readily finished, according to the quantity of mercury thrown into the body: and considering how universally the poison is diffused, it should seem that a pretty large quantity of mercury should always be necessary; but practitioners will hardly allow that either of these circumstances constantly take place; and we maintain that the most active preparations are most speedy in curing the disease.

"Whether corrosive sublimate be always the most proper remedy may be doubtful; but we maintain, that in many instances it cures the disease by a smaller quantity of mercury than can be done by any other preparation, though the latter introduces the mercury in much larger proportion. This must render it very probable, and almost certain, that mercury does not cure the disease by being an antidote to the poison, but in some other way, whether we can explain this or not.

"The most specious argument in favour of mercury's being an antidote, is its being applied to parts of the body in which the venereal poison is accumulated more largely, and so proving readily a cure of the local disease. This appears especially in the case of chancres, which are readily cured by the immediate application of mercury to them: but this does not afford a conclusion; for mercury in like manner cures many ulcerations in which no venereal poison is suspected. And if any body should imagine that mercury cures those ulcerations by its being an antidote to the poison they contain, such an imagination must be corrected, when it is considered that balsams, and more certainly copper, will answer the purpose of curing those ulcerations as well as mercury. The cure of chancres therefore, by the application of mercury, does not necessarily infer its power as an antidote."

Dr. Cullen uses the following arguments in attempting to explain in what manner mercury actually does cure the venereal disease. "We are well persuaded," says he, "that it does it *by increasing the excretions, by which the poison is thrown out of the body*. In support of this opinion we observe, that we have not known any instance of the disease being cured without an excretion taking place. It seems commonly to be especially by the mouth; but we always observe, that this excretion is attended with some degree of inflammation of the mouth; and commonly it is so much as to affect the whole system, so as to induce in it a phlogistic diathesis. This mark of mercury's stimulating the whole system, with what was said above of its affecting the whole excretories, will sufficiently show, that in its ordinary operation, by its promoting all the excretions, it may thereby evacuate every poison that shall happen to be present in the mass of blood, and may thereby cure the venereal disease. But although its most evident operation seems to be in the mouth, I hold this to be necessary only to show, that mercury, in an active state, has been introduced into the body; nor does it necessarily imply, that the venereal poison passes out of the body more readily by the excretories of the saliva than by any other course; for when a salivation is excited, there is at the same time marks of the other excretions being excited: and practitioners now know very well, that by a longer continuance of the other excretions, the disease may be cured without salivation; and if there are instances of salivation's being more effectual than any other measure, it may imply no more than that, in certain cases, a larger quantity of evacuation is necessary than in certain others."

That salivation alone is often insufficient, Dr. Cullen gives us a convincing proof. He mentions several instances, where, in the use of mercury, salivation happened to arise and continued for some time, without the cure being advanced in any proportion. It is his opinion, that it is the due continuance of increased excretions that affords the most certain cure of the disease. This leads him to consider why, if the disease is to be cured by evacuation, other evacuations, however diligently employed, are not found to cure the disease? The answer to this, he says, may be, that all other evacuations are partial only: "they may largely diminish the quantity of the fluids, but they draw them off by one way only, and without being attended with any general increase of excretion. They for the most part diminish all the excretions except that which is on the occasion, by special means, increased; and it is mercury only that, under proper management, can be employed to increase the whole excretions at the same time. It seems to be by this peculiar mode of operation that it is peculiarly fitted to cure the venereal disease."

With regard to the way in which the various operations and effects of mercury are modified by the various preparations of it which have been employed by practitioners, Dr. Cullen thinks the chemical changes produced upon running mercury may all be referred to four heads. Thus the mercury may be changed, by being converted into vapour; by calcination; by triture with viscid fluids; and lastly, by being combined with acids of different kinds. See HYDRARGYRUS CALCINATUS, MURIATUS, &c.

1. "The employment of mercury *in vapour*, may, perhaps, be the best adapted to some local complaints; but its application to the whole body is attended with so much hazard and uncertainty in the administration, as hardly ever to be an eligible practice.

2. "The preparation *by calcination* is not, as had been formerly supposed, of any peculiar power or advantage, and is therefore, I believe, little employed in the present practice: justly, as I judge, because the calcination seems to have no other effect than putting the mercury in a condition to be acted upon by the acids of the stomach, and therefore that this preparation does not differ from those made by a combination with acids.

3. "The preparations *by triture*, seem to be milder than those formed by a combination with acids; but from the incomplete triture that happens often to be given, they render the practitioner often uncertain of their use. The triture with unguinous substances gives the advantage of its being introduced by unction upon the skin; and when it has been properly prepared, and is properly administered, it gives a manner of introducing mercury which is often less liable to purging, and therefore more convenient than the employment of the saline preparations.

4. "The *saline preparations* are different according to the acid employed. Those made by the vegetable acid are milder, and more manageable, than those formed with any of the fossil acids. Of these, the combination with the muriatic acid, when the acid is in its full proportion to the mercury, as it is in the corrosive sublimate, is certainly more active and powerful than any other saline preparation. The use of it has been often convenient and effectual; but its operation is so different in men of different constitutions, that the employment of it often requires a good deal of management and discretion."

Dr. Cullen finally observes, that mercury is rendered much milder in the preparation called calomel, which has given occasion to this being so frequently employed, but it does not seem to him to be a very eligible preparation. He apprehends it is not so readily diffusible in the system as many others, and that because it is more ready than many others, to operate upon the intestines, and run off by stool. This, he says, may give it some advantage for its being combined with purgatives; but for that very reason it is less fit for being employed to act upon the salivary glands, or upon the other excretions of the system.

Under the article LUES VENEREA, the various ways in which the different preparations of mercury may be applied, in treating that disease, are fully set forth. With regard to the general medicinal powers of mercury as a remedy in other diseases, it will readily appear to any one who duly considers the general deobstruent powers here assigned to it, and at the same time the various effects of it when employed as a purgative, that this invaluable mineral is of very extensive use in the practice of physic. Mercury is used in the rabies canina, in worms, in hydrocephalus internus, and in tetanus, and it is by some considered as an antidote to the variolous matter. More, however, has been attributed to it, in the first and two last of these, than it has any just pretensions to. In the other cases, the modes of its exhibition are pointed out under the different articles.

MERCURY, DOG'S, the mercurialis perennis. See that article.

MERCURY, ENGLISH. See ALLGOOD, and BONUS HENRICUS.

MERCURY, FRENCH. See MERCURIALIS.

MEROCE'LE, (μεροκηλη, from μερος, *the thigh*, and κηλη, *a tumor)*; a femoral hernia. See HERNIA.

MESENTERIC, the same as *Meseraic*; belonging to the mesentery. See MESENTERY.

MESENTERIC ARTERIES. These are two branches of the aorta in the abdomen. See ARTERIES. The superior mesenteric is the second branch; it is distributed upon the mesentery, and gives off the superior or right colic artery. The inferior mesenteric is the fifth branch of the aorta: it sends off the internal hæmorrhoidal.

MESENTERIC GLANDS. These are conglobate glands, situated here and there in the cellular membrane of the mesentery. The chyle from the intestines passes through these glands to the thoracic duct. See MESENTERY.

MESENTERIC PLEXUS, of nerves. The superior, middle, and lower plexuses of nerves are formed by the branches of the great intercostal nerves. See NERVES.

MESENTERIC VEINS. These all run into one trunk, which evacuates its blood into the vena portæ. See VENA PORTÆ.

MESENTERI'TIS, (μεσεντεριτις, from μεσεντεριον, *the mesentery)*, inflammation of the mesentery; a species of peritonitis of Cullen. See PERITONITIS.

MESENTERY, (*Mesenterium*, μεσεντεριον; from μεσος, *the middle*, and εντερον, *an intestine)*; the membranaceous viscus in the cavity of the abdomen, attached to the vertebræ of the loins, and to which the intestines adhere. It is formed of a duplicature of the peritoneum, and contains within it adipose membrane, lacteals, lymphatics, lacteal glands, mesenteric arteries, and veins. Its use is to sustain the intestines. These are kept from entangling with one another by the *mesentery*, which is a fat membrane placed in the middle of the abdomen, almost of a circular figure, with a narrower production, to which the end of the colon and beginning of the rectum are tied. It is about four fingers breadth and a half in diameter; its circumference, being full of plaits and foldings, is about three ells in length. The intestines, which are tied like a border on this circumference, are about eight or nine ells long; so that to every inch of the circumference of the mesentery, there are three inches of intestine fastened. The mesentery itself is strongly tied to the three first vertebræ of the loins. It is composed of three laminæ: the inner, upon which the glands and fat lie, and the veins and arteries run, is its own proper membrane; and the other two, which cover each side of the proper membrane, come from the peritoneum. Between the two external laminæ of the mesentery, run the branches of the arteria mesenterica superior and inferior, which bring the blood to the intestines, and the venæ mesaraicæ, which, being branches of the portæ, carry the blood back to the liver. Here all the large branches, both arteries and veins, communicating with one another, pass directly to the guts, where, with the nerves from the plexus mesentericus, they divide into an infinite number of small branches, which spread themselves exceeding finely upon the coats of the intestines. The venæ lacteæ and lymphatic vessels run likewise upon the mesentery, in which there are also several vesicular glands, the biggest of which, in the middle of the mesentery, is called *Pancreas Asellii*. These glands receive the lymph and chyle from the LACTEALS, which see.

MESERAIC; the same as mesenteric. See MESENTERIC.

MESOCO'LON, (*μεςοκωλον*, from *μεσος*, *the middle*, and *κωλον*, *the colon)*; the portion of the mesentery to which the colon is attached. The mesentery and mesocolon are the most important of all the productions of the peritoneum. The mesocolon is the continuation of the mesentery; which, having reached the extremity of the ileum, contracts and changes its name. At this place, the particular lamina, which is turned to the right side, forms a small transverse fold, called *ligamentum coli dextrum*. Afterwards the mesocolon ascends toward the right kidney, where it seems to be lost by the immediate adhesion of the colon to that kidney, and to the first incurvation of the duodenum. Then it appears again, and, increasing in breadth, it continues its course almost transversely under the liver, stomach, and spleen, where it begins to turn downward, under the left hypocondrium, toward the kidney on the same side.

Through this whole course the mesocolon extends in breadth, and forms nearly a transverse semicircular plane, very little plaited at its great circumference. By this circumference or edge, it is connected to the colon, and hides that ligamentary band of this intestine, which runs along its small curvature. By its short or small edge, it forms the triangular case of the duodenum; and, by its great edge, the external coat of the colon, in the same manner as the mesentery does that of the small intestines. As it passes under the large extremity of the stomach, it adheres a little to the lower portion of that extremity, as the diaphragm does to the upper.

Having got below the left kidney, it contracts, and forms another transverse fold, called *ligamentum coli sinistrum*. Afterwards it expands again, but not so much as in the upper part; and runs down on the left psoas muscle, toward the last vertebra of the loins. This descending portion is fixed to the convolutions of the colon, in the same manner as the superior portion is to the arch of that intestine.

MESORE'CTUM, (from *μεςος*, *the middle*, and *rectum*, the straight gut); the portion of peritoneum, which connects the rectum to the pelvis. This production is very narrow, and about the middle of the fore-side of the rectum it forms a transverse semicircular fold, which appears when the gut is empty, but is lost when it is filled.

MESOTHE'NAR, a flat, and nearly a triangular muscle, lying between the first phalanx of the thumb and the bottom of the palm of the hand. It is inserted into the ligament which connects the os magnum of the carpus to that which supports the thumb, and it is inserted into that bone of the metacarpus which supports the middle finger, as well as to that which answers to the index: from thence, the fibres contracting to an angle, form a tendon, which is inserted into the head of the first phalanx of the thumb.

ME'SPILUS, (*μεσπιλος, οτι εν τω μεσο πιλος*, because it has a cap or crown in the middle of it), the medlar: a fruit which, as well as its seeds, has been used medicinally. The tree which bears them is the *Mespilus Germanica*, Linn. The immature fruit is serviceable in checking diarrhœas; and the seeds were used formerly to allay the pain attendant on nephritic diseases.

ME'SPILUS GERMA'NICA; the systematic name of the medlar tree. See MESPILUS.

METACARPAL BONES; the five longitudinal bones that are situated between the wrist and the fingers: they are distinguished into the metacarpal bones of the thumb, fore-finger, &c. See METACARPUS.

METACA'RPUS, (*μετακαρπος*, from *μετα*, *after*, and *καρπος*, *the wrist)*; that part of the hand between the wrist and fingers. The metacarpus consists of four bones which sustain the fingers. Each bone is long and round, with its ends larger than its body. The upper end, which some call the base, is flat and oblong, without any considerable head or cavity; but it is however somewhat hollowed, for the articulation with the carpus: it is made flat and smooth on the sides, where these bones are contiguous to each other. Their bodies are flatted on their back-part by the tendons of the extensors of the fingers. The anterior surface of these bodies is a little concave, especially in their middle; along which a sharp ridge stands out, separating the musculi interossei placed on each side of these bones, which are there made flat and plain by these muscles.

Their lower ends are raised into large oblong smooth heads, whoſe greateſt extent is forwards from the axis of the bone. At the fore-part of each side of the root of each of these heads, one or two tubercles stand out, for fixing the ligaments that go from one metacarpal bone to another, to preserve them from being drawn asunder. Round the heads a rough ring may be remarked, for the capsular ligaments of the first joints of the fingers to be fixed to; and both sides of these heads are flat, by pressing on each other.

The substance of the metacarpal bones is the same with that of all long bones. In infants, at the time of birth, these bones are cartilaginous at both ends, which afterwards become epiphyses.

The metacarpal bones are joined above to the bones of the carpus, and to each other, by nearly plain surfaces. These connexions are not fit for large motions. The articulation of their round heads at the lower ends with the cavities of the first bones of the fingers, is taken notice of under the article Digitus.

The concavity on the fore-part of these metacarpal bones, and the placing their bases on the arched carpus, cause them to form a hollow in the palm of the hand, which is often useful to us. The spaces between them lodge muscles, and their small motion makes them fit supporters for the fingers to play on. Though the ossa metacarpi so far agree, yet they may be distinguished from each other by evident marks, which have been described by anatomists.

METALS, or *Metallic Substances.* These substances are distinguished from all the other productions of nature by an absolute opacity, a much greater specific gravity than that of any other substance, and a degree of brilliancy peculiar to bodies of this kind. One of the distinctive characters of metals is their opacity. The most opaque stone, divided into very thin laminæ, becomes transparent; whereas the thinnest plate of metal preserves the same opacity as the mass itself. Gold must, however, be excepted, as that metal has been found to transmit light of a beautiful green colour, when beaten into leaf of about the two hundred and eighty thousandth part of an inch in thickness. This truly characteristic property has induced artists to employ metals to reflect the images of objects. Another character by which metallic substances may be distinguished is their relative weight. A cubic foot of marble weighs but two hundred and fifty-two pounds; a cubic foot of tin, which is the lightest of all metals, weighs five hundred and sixteen pounds. This superior gravity of metals, which so much exceeds that of earthy matters, depends most probably on their extraordinary density.

Metals, in general, likewise possess a facility of being extended and flattened, when struck, or subjected to a strong and gradual pressure: this property is known by the name of *Ductility.* All the metals do not possess this quality; but those which possess the metallic qualities most eminently, exhibit this also.

Every metal is fused at a certain degree of heat, more or less intense; and in this situation its surface is convex. Mr. Macquer and Mr. Lavoisier having exposed gold to the focus of a lens, observed that this metal exhaled in fumes, without being decomposed; as was proved by collecting it unaltered upon presenting a plate of silver, which became gilt. Silver is volatilized in the same manner without decomposition. When these substances are fused, and cooled slowly, they exhibit crystallizations of considerable regularity. Both the abbé Mongez and Mr. Brogniart have succeeded in crystallizing most of the metals, by varying the process used by Mr. Rouelle in the crystallization of sulphur. Almost all the metals, when kept in a state of fusion, lose their metallic brilliancy, and become converted into an opaque powder called *Oxid*, or *Metallic Calx;* and the oxids, when urged by a stronger heat, are reduced into a vitriform substance, known by the name of *Metallic Glass.* They acquire weight in their transition to the state of oxid; a circumstance that, at first, led several chemists into error, who imagined they had increased the weight of the metal. Stahl pretended that the calcination of metals arose from disengagement of phlogiston; and he considered their calces as an earth, or metallic basis. Mr. Boyle affirmed that the increase of weight in calcined metals was owing to the combination of the matter of fire; and Boerhaave ventured to attribute it to the surrounding bodies, which deposited themselves upon the metal.

We find, however, that Jean Rey, a physician, in the year 1630, attributed the increase of weight in calcined metals to the combination of air with the metal. But it is, as we have already seen, to Mr. Lavoisier that we are indebted for the proofs that the calcination of metals is owing merely to the fixation of oxigenous gas, and their reduction to the disengagement of this gas, effected by simple heat, or by its combination with various bases, in such instances wherein its adhesion to the metal is too strong to be overcome by mere heat. The facts upon which this celebrated chemist has established his opinion, are the following: Metals are not oxidated either in a vacuum, or in air which contains no part of oxigenous gas; though several chemists, as Dr. Priestley, Mr. Lametherie, &c. appear to have oxidated lead, tin, and mercury, in the carbonic acid. But this supposed oxid is nothing but a metallic carbonate, or the combination of a metal with an acid, which is very far from calcination or oxidation.

Metals inclosed under a glass, and properly heated, are oxidated only by absorbing the oxigenous gas contained in the mass of air which is insulated; and when this absorption is ended, it is impossible to carry the oxidation any further. The metals oxidated in an atmosphere of oxigenous gas, absorb it to the last drop; and such oxidated metals as are capable of being reduced in close vessels, give out, on their return to the metallic state, the same quantity of oxigenous gas as they had before absorbed. This doctrine seems to be established on sufficient proof. The concurrence of air and of humidity singularly assists the alteration of metals. The water is decomposed in this process, and its hydrogen is dissipated, while its oxigen combines with the metal. This is doubtless the theory of such oxidations as are effected beneath the surface of water; and when we find oxids, or metallic calces, in the bowels of the earth, defended from the contact of air, the facts ought to be referred only to the decomposition of water, or of acids which have oxigen for their base. Hence it follows that the alteration of a metal will be the more speedy: 1. In proportion as the affinity of the metal to oxigenous gas is stronger. 2. As the quantity of oxigenous gas is greater. 3. As the air is more humid, &c. Metals decompose certain substances in order to unite with their oxigen, and by that means to pass to the state of oxid. This is observable in cases where the nitric acid is digested upon certain metals.

In the classification of metals, *ductility* serves as a leading character. They may be distinguished into such as are ductile, and such as do not possess this property. The name of *Metal* has been peculiarly applied to the former, and that of *Semi-metal* to the latter kind. Among the metals there are also some which are changeable by exposure to air, while others are not sensibly altered in the same situation. This difference has caused a subdivision of the metals into *perfect* and *imperfect* metals. The chemical student should begin by treating of the semi-metals, as approaching, in general, the nearest to the saline or stony substances in their qualities; and may conclude with the perfect metals, as possessing the metallic qualities in a greater degree.

Medicine is greatly indebted to this class of substances, metals of almost every kind, when combined with different acids, or modified in various other ways, having furnished us with the most powerful of all other means of counteracting and curing those diseases to which the human body is obnoxious.

METAMORPHO'PSIA, (*μεταμορφοψια*; from *μεταμορφωσις*, *a change*, and *οφις*, *sight)*, or *Visus defiguratus*, distorted vision; a defect in the sight, by which persons perceive objects changed from their natural figures. The species are; 1. *Metamorphopsia acuta*, when objects appear much larger than their size. 2. *Metamorphopsia diminuta*, when objects appear diminished in size, arising from the same causes as the former. 3. *Metamorphopsia mutans*, in which objects seem to be in motion. To vertiginous and intoxicated persons, every thing seems to stagger. 4. *Metamorphopsia tortuosa seu flexuosa*, when objects appear tortuous or bending. 5. *Metamorphopsia inversa*, when all objects appear to be inverted. 6. *Metamorphopsia imaginaria*, the vision of a thing not present, as may be observed in the delirious, and in maniacs. 7. *Metamorphopsia from a remaining impression.* It happens to those who very attentively examine objects, particularly in a great light, to perceive the impression some time after. This is particularly the case in viewing the sun or any highly luminous body.

METASTA'SIS, (*μεταστασις*; from *μεθιστημι*, *to change*, or *translate)*; the removal of a disease from one place to another. A very common instance of this is the translation of inflammation to a different part.

METATARSAL BONES; the five longitudinal bones between the tarsus and toes. They are distinguished into the metatarsal bone of the great toe, fore toe, &c. See Metatarsus.

METATA'RSUS, (*μεταταρσιος*; from *μετα*, *after*, and *ταρσος*, *the tarsus)*; that part of the foot between the tarsus and toes. The metatarsus is composed of five bones, which, in their general characters, agree with the metacarpal bones; but may be distinguished from them by the following marks: 1. They are longer, thicker, and stronger. 2. Their anterior round ends are not so broad, and are less in proportion to their bases. 3. Their bodies are sharper above and flatter on their sides, with their inferior ridge inclined more to the outside. 4. The tubercles at the lower part of the round head are larger. The first or internal metatarsal bone is easily distinguished from the rest by its thickness. The one next to it is the longest, and with its sharp edge almost perpendicular. The others are shorter and more oblique, as their situation is more external. These general remarks, without a particular description of each, may be sufficient to distinguish them from each other, though each is described, in books of anatomy, under a distinct appellation, as *Os metatarsi pollicis, &c.*

METE'LLA NUX. See Nux vomica.

METHODICS, a sect of physicians who followed the doctrines of Themison, a disciple of Asclepiades; whose practice, however, differed but little from that of his master. See Themison.

METRI'TIS, (*μετριτις*; from *μητρα*, *the womb)*; inflammation of the uterus. See Hysteritis.

METRODORUS, a Greek physician born at Chios, was the disciple of Democritus the philosopher, and the master of Hippocrates the physician and Anaxarchus the philosopher. He maintained that the universe is infinite and eternal; but his works are lost. He lived about 444 years before Christ.

METROPTO'SIS, (*μετροπτωσις*, from *μητρα*, *the uterus*, and *πιπτω*, *to fall down)*, a *Prolapsus uteri*, or descent of the uterus through the vagina. See Prolapsus.

MEU. See Meum athamanticum.

ME'UM ATHAMA'NTICUM, (*meum*, of the Gr. *μηον*, or *μειον*; from *μειων*, *less*, so called, according to Minshew, from its diminutive size), also called *Meu*; spignel, or baldmoney. The root of this plant, *Æthusa mæum*, Linn. is recommended as a carminative, and stomachic remedy. It appears to be nearly of the same nature as lovage, differing in its smell being rather more agreeable, somewhat like that of a parsnip, but stronger, and being in its taste less sweet, and more warm or acrid.

MEXICO SEED. See Ricinus,

MEXICO TEA. See Botrys mexicana.

MEZE'REON. See Mezereum.

MEZE'REUM, (of the Gr. *μεζαιρεον*; a word of some barbarous dialect); mezereon, spurge-olive, or widow-wail. It is the *Daphne mezereum*, Linn. *Daphne floribus sessilibus ternis caulinis, foliis lanceolatis deciduis.* Class, *Octandria.* Order, *Monogynia.* This plant is extremely acrid, especially when fresh, and if retained in the mouth, excites great and long continued heat and inflammation, particularly of the tongue and fauces: the berries also have the same effects, and when swallowed, prove a powerful corrosive poison, not only to man, but to dogs, wolves, and foxes.

The bark of the root is the part employed in the *Decoctum sarsaparillæ compositum* Lond. Dubl. and in the *Decoct. mezer.* Edin. both which are given to assist mercury in resolving nodes and other obstinate symptoms of syphilis. The antisyphilitic virtues of mezereum, however, have been, by many writers, very justly doubted. Mr. Hunter, though he found it of use in the removal of anomalous symptoms, denies its power over the venereal virus; and Mr. Pearson, Surgeon of the Lock Hospital, in London, dissents from the representation given of this root by various writers. "From all that I have been able to collect," says he, "in the course of many years observation, I feel myself authorized to assert unequivocally, that *the mezereum has not the power of curing the venereal disease in any one stage, or under any one form.* If a decoction of this root should ever reduce a venereal node, where no mercury has been previously given, yet the patient will by no means be exempted from the necessity of employing mercury, for as long a space of time, and in as large a quantity, as if no mezereum had been taken. With respect to the power it is said to possess, of alleviating the pain, and diminishing the bulk of membranous nodes, nothing peculiar and appropriate can be ascribed to the mezereum on these accounts; since we obtain the same good effects from sarsaparilla, guaiacum, volatile alkali, blistering plasters, &c. Nevertheless, venereal nodes which have subsided under the use of any of these articles of the materia medica, will appear again, and often with additional symptoms, if a full and efficacious course of mercury be not submitted to. It has indeed been alleged, that mezereum always alleviates the pain occasioned by a venereal node, and generally reduces it, where the periosteum only is affected; and that it seldom fails of removing those enlargements of the periosteum which have not yielded during the administration of mercury.

"That some instances of success, in cases like these, may have fallen to the share of those who made the assertion, it would not become me to deny; but I have met with few such agreeable evidences of the efficacy of this medicine. I have given the mezereum in the form of a simple decoction, and also as an ingredient in compound decoctions of the woods, in many cases, where no mercury had been previously employed, but never with advantage to a single patient. I have also tried it in numerous instances, after the completion of a course of mercury; yet, with the exception of two cases, where the thickened state of the periosteum was removed during the exhibition of it, I never saw the least benefit derived from taking this medicine. In a few cases of anomalous pains, which I supposed derived from irregularities during a mercurial course, the mezereum was of service, after I had tried the common decoction of the woods without success; but even in this description of cases I have always found it a very uncertain remedy.

"I have made trial of this vegetable in a great number of scrofulous cases, where the membranes covering the bones were in a diseased state, and I am not sure that one single patient obtained any evident and material benefit from it."

Dr. Cullen, whose reports may justly claim attention from all medical men, when treating of the mezereum, in his materia medica, says, he frequently employed it in different cutaneous affections, and sometimes with success. "It is the bark of the root of this shrub that should only be employed: the woody part of the root is quite insipid; and apothecaries deceive themselves in taking any part of the wood along with the bark. This bark contains a very acrid matter, which, applied to the skin, readily excites a blister and a considerable discharge of serum: and as, by repeated applications, this can be continued without any erosion of the part, it has been frequently employed in France as a perpetual issue, with all the usual effects.

"The mezereum, to be used internally, is taken in a decoction of two drachms of the root, boiled in three pounds of water to two; and the whole of this is taken, at several draughts, in the course of twenty-four hours. In this proportion it proves somewhat warm on the stomach; and in larger proportion, it gives a painful warmth, with sickness, and even vomiting. It sometimes renders the pulse frequent, and heats the whole body." The Doctor adds, that "in one case of ulcerations in many different parts of the body, which remained after mercury had been long and largely employed," he found them entirely cured by the use of the decoction of mezereum for two or three weeks.

Dr. Home, of Edinburgh, says he not only found this decoction to cure scirrhous tumors which remain after the venereal disease, and after the use of mercury, but that it also healed some scirrhous tumors proceeding from other causes.

MIA'SMA, (from *μιαινω, to pollute)*, a particle of poison, in a volatile state, borne on the wings of the atmosphere, and capable of attaching itself to an animal body so as to produce disease. *Miasmata*, as they relate to diseases, are productive of some of the febrile kinds, and of them only, as in the case of CONTAGION. They are, in the atmosphere, not observed to act, except when a healthy body approaches the sources from whence they arise; or else is brought into contact with some substances, which are imbued with the noxious effluvia. The idea of *contagion* properly implies a matter arising from a body under disease; and that of *miasma*, a matter arising from other substances, as from putrefying vegetables, &c.

Dr. Cullen remarks, that the substances imbued with the effluvia from the bodies of the diseased may be called *fomites;* and that it is probable, that contagions, as they arise from fomites, are more powerful than as they arise immediately from the human body. Further, that though the fomites are possessed of matter from the human body, yet this matter passing from the fomites is called *miasma;* which requires further to be distinguished from the *miasmata* arising from marshes, &c. by the epithets *human* and *marsh* miasmata.

On this subject Dr. Cullen observes, that as fevers are so generally epidemic, it is probable that some matter floating in the atmosphere, and applied to the bodies of men, ought to be considered as the remote cause of fevers. Contagions have been supposed to be of great variety; and it is possible that they may be so; but that they truly are, does not appear clearly from any thing that we know at present. The number of genera and species of contagious diseases, of the class *pyrexiæ*, at present known, is not very great. They belong to the order of fevers of *exanthemata*, or of *profluvia*. Whether there be any belonging to the order of *Phlegmasiæ* is doubtful; and, though it should be supposed, it will not much increase the number of contagious pyrexiæ. Of the contagious exanthemata and profluvia, the number of species is nearly ascertained; and each of them is so far of a determined nature, that though they have now been observed and distinguished for many ages, and in many different parts of the earth, they have been always found to retain the same general character, and to differ only in circumstances, which may be imputed to season, climate, and other external causes, or to the peculiar constitution of the several persons affected. It is therefore probable, that, in each of these species, the contagion is of one specific nature, and that the number of the contagious exanthemata, or profluvia, is hardly greater than the number of species taken notice of in the system of nosology. While the contagious exanthemata and profluvia are thus limited, it is probable that the contagions which produce the continued fevers are not many; nay, it is not evident that there are more than one common source of them. It is well known, that the effluvia constantly arising from the living human body, if long retained in the same place, without being diffused in the atmosphere, acquire a singular virulence, and, in that state, applied to the bodies of men, become the cause of a fever which is very contagious. The late observations on jail and hospital fevers have fully proved the existence of such a cause; and it is sufficiently obvious, that the same virulent matter may be produced in many other places. At the same time, the nature of the fevers arising renders it probable that the virulent state of human effluvia is the common cause of such fevers; as they differ only in a state of their symptoms, whch may be imputed to the circumstances of season, climate, &c. concurring with the contagion, and modifying its force.

Miasmata arise from various sources, and are of different kinds; but we know little of their variety or of their several effects. We know with certainty only one species of *miasma* which can be considered as the cause of fever; and from the universality of this, it may be doubted if there be any other. This miasma, so universally the cause of fever, is that which arises from marshes or moist ground, acted upon by heat. So many observations have now been made with respect to this, in so many different regions of the earth, that there is neither any doubt of its being in general the cause of fevers, nor of its being very universally the cause of intermittent fevers in all their different forms. The similarity of the climate, season, and soil, in which intermittents arise, and the similarity of the diseases arising in different regions, concur in proving that there is one common cause of these diseases, and that this is the *marsh miasma*. What is the particular nature of this miasma we know not; nor do we certainly know whether or not it differs in kind: but it is probable that it does not, and that it differs only in the degree of its power, or perhaps in its quality, in a given space.

It remains then probable, that the remote causes of fevers are chiefly contagions of miasmata, and neither of them of great variety. *Miasmata* are supposed to cause intermittents, and *contagions* to cause continued fevers, strictly so named. It may further be added, that both contagion and miasmata are of a debilitating or sedative quality; as both arise from putrescent matter. Their production is favoured, and their power increased, by circumstances which favour putrefaction; and they often prove putrefactive ferments with respect to the animal fluid. Though fevers generally arise from marsh or human effluvia, other remote causes of fevers, which have been commonly supposed, cannot with any certainty be excluded. See the articles CONTAGION, and GALL-SICKNESS.

MI′CA, called by the different names of *Daze*, *Talc*, *Muscovy-glass*, *Glimmer*, or *Glist*; a genus of magnesian earths, known by the following characters: 1. They consist of thin flexible particles, divisible into plates or leaves, having a shining surface. 2. These leaves or scales, exposed to the fire, lose their flexibility and become brittle, separating afterwards into thinner leaves: but in a quick and strong fire they curl or crumple, which is a step towards fusion; though it is very difficult to reduce them into pure glass without addition. 3. They melt easily with borax, the microcosmic salt, and alkaline salt: and, by means of the two former salts, may be brought to a clear glass before the blow-pipe. That which contains iron, however, is more fusible than the uncoloured earths of this kind. No loose or friable mica has yet been discovered, but all of an indurated kind. Its specific gravity, according to Fabbroni, is about 3000. Kirwan tells us, that the specific gravity of this substance, when it contains much iron, is from 2535 to 3000. An hundred parts of colourless mica contain 38 of silex, 28 of argill, 20 of magnesia, and 14 of the most dephlogisticated calx of iron. Martial mica contains also 10 or 12 *per cent.* of a more phlogisticated calx of iron; whence its various colours are derived, and a proportionably smaller quantity of the other ingredients. There are two species, viz. *Mica alba*, colourless or pure mica, and *Mica colorata martialis*, of both which there are several varieties. None of these have hitherto been employed in medicine.

MICROCOSMIC BEZOAR. See CALCULUS.

MIDWIFERY, the art of assisting women in the birth of children. As a science, however, it is not confined strictly to this, but also comprehends the management of women both before and after delivery, as well as the treatment of the diseases of children.

This art is certainly almost coëval with mankind. The first *midwife* of whom mention is made under that name, assisted at the second labour of Rachael, the wife of Jacob. Another midwife is spoken of in Genesis, at the lying-in of Thamar, who was delivered of twins. But the most honourable mention of midwives is that in Exodus, when Pharaoh, king of Egypt, who had a mind to destroy the Hebrews, commanded the midwives to kill all the male children of the Hebrew women; which command they disobeyed, and thereby obtained the favour of God.

From all the passages in Scripture where midwives are mentioned, it is plain, that women were the only practitioners of this art among the Hebrews. Among the Greeks also, women assisted at labours. Phanarete, the mother of Socrates, was a midwife. Plato speaks at large of midwives, explains their functions, regulates their duties, and remarks that they had, at Athens, the right of proposing or making marriages. Hippocrates makes mention of midwives, as well as Aristotle, Galen, and Aetius. This last even frequently quotes a woman called *Aspasia*, who was probably a midwife. They were called, among the Greeks, Μαιαι, or Ιατρομαιαι; that is to say, *mamma*, or *grand-mamma.*

We are still better acquainted with the customs of the Romans, and know that they employed women only. This may be deduced from the comedies of Plautus and Terence alone. We there see that they are women only who are called to assist persons in labour. Besides, Pliny, in his Natural History, frequently speaks of midwives and their duties; and names two, *Sotira* and *Salpe*, who had apparently the greatest reputation. Women were also employed after the fall of the empire; and it is certain that, till lately, all civilized nations have employed women only as midwives. This appears even from their names, in many different languages, which are all feminine. There were, however, especially in great cities, surgeons who applied themselves to the art of midwifery, and made it their peculiar study. They were sent for in difficult cases, where the midwives found their incapacity; and then the surgeon endeavoured to deliver the woman by having recourse to instruments useful in those cases, as by crotchets, blunt-hooks, &c. but as these cases happened but seldom, women remained in possession of this business. It is certain, according to Astruc, that Maria Theresa, wife of Louis XIV. employed women only in her labours; and the example of the queen determined the conduct of the princesses and court-ladies, and likewise even of the ladies of the city. The same author tells us, that he has been assured, that the epoch of the employment of men-midwives, goes no further back than the first lying-in of Madame de la Valiere in 1663. As she desired it might be kept a profound secret, she sent for Julian Clement, a surgeon of reputation. He was conducted with the greatest secrecy into a house where the lady was, with her face covered with a hood; and where, it is said, the king was concealed in the curtains of the bed. The same surgeon was employed in the subsequent labours of the same lady; and, as he was very successful with her, men-midwives afterwards came into repute; and the princesses made use of surgeons on similar occasions; and as soon as this became fashionable, the name of *accoucheur* was invented to signify this class of surgeons. Foreign countries soon adopted the custom, and likewise the name of *accoucheurs*, though they had no such term in their own language; but in Britain they have more generally been called *men-midwives.*

In opposition to this account, which is taken from Astruc, that author tells us, that he is aware of an objection from Hyginus, who asserts that the ancients had no midwives; which made the women, through modesty, rather choose to run the risk of death than to make use of men on this occasion. For the Athenians, he adds, had forbid women and slaves to study physic, that is to say, the art of midwifery. A young woman, named *Agnodice*, desirous of learning this art, cut off her hair, dressed herself in the habit of a man, and became a scholar to one Hierophilus. She afterwards followed this business. The women at first refused assistance from her, thinking she was a man; but accepted of it when she had convinced them she was a woman.

To this account our author replies, that the authority of Hyginus is by no means to be depended upon. His book is full of solecisms and barbarisms; and therefore cannot be attributed to any writer who lived before the fall of the empire; but must be the work of an author who lived when the Latin tongue was corrupted; that is, about the seventh or eighth century. The contradictions met with in this book also give room to suspect, that it is not the work of one hand, but of several. The authority of such a work, therefore, is by no means sufficient to destroy the testimonies of those writers who affirm, that among the Greeks the care of lying-in women was committed entirely to others of their own sex.

The art of midwifery seems not to have been so soon improved as that of physic. Hippocrates, though an excellent physician, seems to have been a very bad midwife. He was acquainted with no other kind of natural labour than that in which the head presents; and condemns footling labour as fatal both to mother and child: he would have the children in such cases turned, so that the head may present. "If," says he, "the arm, or leg, or both, of a living child present, they must, as soon as discovered, be returned into the womb, and the child brought into the passage with its head downwards." For this purpose he advises to roll the woman on the bed, to shake her, and make her jump; he proposes the same expedients to procure the child's delivery; and if they do not succeed, he advises to extract it with crotchets, and, whatever happens, to dismember it.

From the time of Hippocrates to that of Celsus, who lived in the reign of the emperor Tiberius, we have no accounts of any improvements in midwifery; but the latter gives two very useful directions. 1. In dilating the womb: "We must," says he, "introduce the fore-finger, well moistened with hog's lard, into the mouth of the womb, when it begins to open, and in like manner a second, and so on till all the fingers are introduced, which are then to be used by separating them, as a kind of dilater, to distend the orifice, and facilitate the introduction of the hand which is to act in the womb. 2. Children may be delivered by the feet easily and safely, without crotchets, by taking hold of their legs. For this purpose we must take care to turn children, which are otherwise placed in the womb, with their head or feet downwards." It is true, Celsus speaks of a dead child only; but it was easy to conclude from thence, that the same practice might be used with success to deliver a living child. Nevertheless, this was not done; and, notwithstanding the authority of Celsus, the former prejudice continued for a long time. Though Pliny, who lived under the emperors Vespasian and Titus, was not a physician himself, yet by condemning footling labour, he attests the opinion of the physicians of his time. He asserts, as a known fact, that footling labour was a preternatural kind of labour: he adds, that children which came into the world in this manner were called *Agrippa*, that is to say, born with a great deal of difficulty.

But however common this opinion was, it was never universally received; and several physicians of character rose up, who, without suffering themselves to be dazzled with the common prejudice, or seduced by the authority of Hippocrates or Galen, recommended and approved of footling delivery. The question then was a long time undecided; and even in 1657, Riverius, a physician of reputation, condemned footling labour. Mauriceau also remarks, in the first edition of his book on the disorders of pregnant women, printed in 1664, that many authors were still of opinion, that when the child presented with its feet, it should be turned to make it come with its head foremost: but after having observed that it is difficult, if not impossible, to execute this, he concludes, "it is much better to extract the child by its feet, when they present, than to run the hazard of doing worse by turning it." All practitioners, however, are now of the same opinion; and the knowledge of midwifery has been so much increased within this century, that it seems to have nearly attained its ultimate perfection, and its operations reduced almost to a geometrical certainty: and this, says Astruc, is not surprising; for, after all, the art of midwifery is reduced to the following mechanical problem, "An extensible cavity of a certain capacity being given, to pass a flexible body of a given length and thickness through an opening dilatable to a certain degree." This might be resolved geometrically, if the different degrees of elasticity of the womb, and strength and weakness of the child, the greater or lesser disposition of the blood to inflammation, and the greater or lesser degree of irritability of the nerves, did not occasion that uncertainty which physical facts constantly produce in all physico-mathematical questions.

The study of midwifery in Britain, as a science, is not of very ancient date. The first book published on the subject appeared in the year 1540, and was entitled *The Byrthe of Mankind*, otherwise named, *The Woman's Booke*, by Thomas Raynold, physician. It underwent a second edition by Thomas Ray, a printer, whose name is not much known. It was adorned with prints, and went through several editions, and appears to have been held in high estimation. In 1653 the celebrated William Harvey published his Treatise on Generation; and afterwards, engaging in the practice of midwifery, published his *Exercitatio de Partu*. Some notice is also taken, by Sydenham, of the diseases incident to child-bed women, and of those of young children. About this time several other tracts on subjects relating to midwifery appeared, by Wharton, Charleton, Mayow, &c.; but, till about the year 1634, Dr. Denman considers the treatise of Raynold already mentioned as being the standard. The appearance of the works of Ambrose Paré, which were now first published, depressed the reputation of Raynold's book; and Dr. Chamberlen, a celebrated physician, likewise applied himself about the same time to midwifery. He introduced an instrument into the art called a *forceps*, but which Dr. Denman supposes to have been a *vectis*. He had three sons who likewise practised midwifery, and, as well as himself, obtained considerable character; and one of the young men went over to Paris with a view to sell the secret, or advance his fortune by a practice which he had found so successful in England. In this, however, he was disappointed; the first case in which he was engaged proved unsuccessful, and he suffered much reproach in consequence. Returning to England, therefore, in 1672, he published a translation of Mauriceau's Midwifery, which continued in great estimation for many years.

Dr. Willoughby, who wrote a treatise on midwifery, quoted, from his manuscript, by Dr. Denman, complains of the practice of midwives about this time. He says, "I haue read many bookes, with all the late writers on midwifery, and I do perceiue, that they all follow one common roade, taking their seueral scheemes and figures one from another.

"In seueral of these scheemes uarious things may be perceiued which will be troublesome to the labouring woman, which a judicious practicioner will not followe. Let midwiues mark whatt hath been written in my obseruations, let them consider diligently the seueral reportes not faigned, or the surmised thoughtes, nuctors, or man's fantasie, sitting and meditating in his studye, but which really haue been performed in the trauailing woman's chambre.

"From mine and their directions let midwiues choose the best and facilest waies of relieuing women in affliction, and to decide all disputes, let reason be the judge, let experience argue the dubious points of practice; and, after a full debate, let unspotted truth recorde to succeedinge times what is most fitt to be followed and used, &c."

This is a specimen of his illustration. "Let midwiues obserue the waies and proceedinges of nature for the production of her fruit on trees, or the ripening of walnutts and almondes, from theire first knotting to the opening of the huskes and falling of the nutt; the greene huskes sticking so close that it is not possible to separate the huske from the shell, whilest it is unripe; but as the fruite ripeneth the huske choppeth and with a fissure openeth, and by degrees separateth the fruite without any enforcement.

"An egge representeth the wombe: now the henne with keeping the egge warm doth breed the chicken, which when it comes to maturitie doth chip the shell, and is by degrees hatched without injurie. These signatures may teach midwiues patience, and persuade them to let nature alone to performe her owne worke, and not to disquiet women by their strugglings, for such enforcements rather hinder the birthe than any waie promote it, and often ruinate the mother and usually the childe; and let midwiues knowe, that they be nature's seruantes, &c."

It seems Dr. Willoughby's practice was not much different from that of the present time. He divides labours into two kinds only, natural and unnatural. "The particular rules," says Dr. Denman, "I cannot pretend to describe in this place; but the following letter, which he has quoted from a scarce work, corresponds so nearly with an observation it was my fortune to make some years before I saw this manuscript, that I may be excused relating it.

'Referam hoc casu, quid beatæ meæ conjugi acciderit. Tertio fœtu gravidam, nono prægnationis mense, labores parturientium arripiunt circa noctem. Mox rupta aqua (ut hic mulieres loqui amant) extra genitale, infantuli manus propendit. Ubi obstetrix advenisset, uxorem meam in sedili collocavit, eumque ad continuos conatus (me nolente nec instigante natura) adegit. Cum vero res eo modo non succederet, meamque conjugem supra sedem continuo detineret, ac diris cruciatibus illapsum ex uteri cervice manum brachiumque retrudere niteretur, quo fœtum ad exitum commodius disponeret. Ego præ dolore charæ meæ conjugis impatiens, ac indesinenter obstetricem admonens, ne quidem elapsi membri reductionem in uterum cogitaret possibile, multo minus moliretur, secundam obstetricem accersiri jussi, præsertim cum uxor mihi nunciaret, quod obstetrix eam dilaceraret per illam præconceptam ac miseram elapsi membri repulsionem. Cum insequenti die, obstetrix altera venisset, illa manus ad opus applicans remque diligenter explorans, uxorem meam in lectum deposuit, mandavitque ut se quietam detineret, nullosque conatus excitaret, nisi quando natura eam sui admoneret officii.

'Interim obstetrix illa prudens et expertissima prædixit mihi amicisque præsentibus, uxorem meam non ante parturam, quam fœtus in utero, ex indebito situ, conatibus strangularetur, quod eventus docuit. Multiplicati sunt labores parturientis, et fœtus inflexo ad dorsum capite (salva matre) prodiit in lucem.' "

Dr. Willoughby was the grandson of Sir Francis Willoughby, so much celebrated in the time of Queen Elizabeth; and Dr. Denman is of opinion, that the fame and fortune acquired by Dr. Chamberlen, induced so many gentlemen as now practised midwifery to undertake the study of it, and to make use of instruments as he did. Among these was Dr. Bamber; but others attempted to raise their reputation by a quite contrary practice. In 1723, Dr. Maubray published a book on midwifery, entitled *The Female Physician, or the Whole Art of New Improved Midwifery*, in which he violently declaims against the use of instruments; and next year he published an appendix, under the title of *Midwifery brought to Perfection*, in which he sets forth in a pompous manner the improvements he had made. This, however, was no more than a syllabus of his lectures; he having been the first public teacher of midwifery in Britain.

Dionis's Midwifery made its appearance in 1719, and Deventer's in 1729. The latter, in Dr. Denman's opinion, was more esteemed than it deserved, as he generally condemns the use of instruments; notwithstanding which, he thinks it was a considerable acquisition to the science in this country.

In 1727 appeared Dr. Simson's work, entitled *The System of the Womb;* "a work," says Dr. Denman, "of sufficient ingenuity, but not of much use in practice, even if his theory had been true." Chapman's *Treatise on the Improvement of Midwifery* appeared in 1733. He was the second public teacher of midwifery in London, and was the first who described the *forceps;* the description appearing in the third volume of the Edinburgh Medical Essays. His work contains many useful observations. Next year Dr. Hody published a collection of cases in midwifery, written by Mr. William Giffard. They are two hundred and seventy-five in number, occurred in his own practice, and appear to be written with great fidelity. He also gave a plate of the forceps: and, in Dr. Denman's opinion, was among the first who asserted that the placenta might be attached over the *os uteri*. In 1736, Thomas Dawke published a book, entitled *The Midwife rightly Instructed;* and, the following year, *The Midwife's Companion*, by Henry Bracken: but these, as well as some others which made their appearance about this period, are of no importance.

About the same time also, Sir Richard Manningham quitted the profession of pharmacy, and applied to the study and practice of midwifery. He had received the honour of knighthood in 1730; and in 1739 he established a small hospital or ward for lying-in women, which was the first thing of the kind in the British dominions. Here also he gave lectures; and at the same time qualified his students for practice. He became very eminent in his profession, which he exercised with great humanity, and was accounted a man of great learning. He published a work, entitled *Compendium Artis Obstreticæ;* and another, called *Aphorismata Medica*, relating also chiefly to the art of midwifery. In 1741, Sir Fielding Oulde of Dublin, published *A Treatise of Midwifery;* the most important parts of which are some observations on the continued thickness of the uterus during pregnancy, with his description of the manner in which the head of the child passes through the pelvis at the time of the birth; the truth of which observations have since been universally acknowledged.

From this time the English, according to Dr. Denman, might be said "to have been in full possession of the subject; all the books written in the neighbouring countries being translated, public lectures given, and an hospital established for the further improvement of the art; and as all the books printed since that time may readily be procured, every gentleman has an opportunity of forming his own opinion of their respective merits. But the College of Physicians (adds he), having been pleased, in the year 1783, to form a rank in which those who dedicate themselves to the study of midwifery are placed, it is likely that future accounts will be more correct; and that this measure adopted by the college will promote the public benefit, by confining the industry and abilities of one class of men to this branch of the profession."

Both in England and Scotland, though there have for a long time, been professors of midwifery, yet the surgeons likewise practise that art as well as their own. Several approved treatises on the subject have appeared; particularly a system by the late Dr. Smellie, which was long held in the highest estimation in these kingdoms; and, within these few years, several excellent performances by Dr. Alexander Hamilton of the university of Edinburgh. Indeed, we may venture to affirm, that both the theory and practice of midwifery are better understood in Britain than in any other part of the world.

The articles GENERATION, PREGNANCY, ABORTION, LABOUR, PELVIS, FORCEPS, HYSTEROTOMIA, &c. afford the reader full information on the subject of midwifery.

On account of the original smallness of the cavity of the female pelvis relatively to the head of the child, of the structure of the uterus and placenta, of the passions of the mind, and of the diseases to which mankind are by nature, or by the customs of society, rendered peculiarly liable, the causes of many difficulties and dangers, which attend parturition, must be evident; and of course, the necessity of establishing midwifery as an art for the relief of women will be evinced. The sum of Dr. Denman's observations on this interesting branch of medical practice is comprised in the following propositions:

1. All viviparous animals bring forth their young with pain.

2. The degree of pain, which they suffer, will depend upon the degree of their sensibility, natural or acquired, and upon the difficulty with which they bring forth their young.

3. The difficulty with which they, in general, bring forth their young, depends upon their construction.

4. By their construction, they are also endued with powers capable of overcoming all the difficulties, to which such construction generally renders them liable.

5. The process of parturition in animals is therefore to be esteemed a natural process, requiring no other assistance, than the exertion of those powers, which depend upon their construction. And,

6. From the very nature of their construction, and from their modes of living, they will not, in general, be liable to any material deviation from the ordinary process of their parturition.

7. The construction of the females of the human species is different from that of the females of any order of brute animals.

8. The construction of the females of the human species is such, as to render them unavoidably subject, in general, to greater pain and difficulty in parturition, than the females of any order of brutes.

9. But by the construction of the females of the human species, and by the original formation of the head of the human *fœtus*, provision is made for overcoming all the difficulties, to which the peculiarities of their construction may render them liable.

10. With regard to the act of parturition, when natural, women are therefore to be esteemed on a similar footing with other animals.

11. But as women are by their construction, and by the customs of society, rendered subject to diseases and accidents, which increase the natural difficulties, and produce new causes of danger attending their parturition, from which the females of every order of animals are free—

12. It will follow, that the occasions, which require assistance at the time of parturition, do, and must, of necessity, occur more frequently in women, than in the females of any order of animals.

From these premises, the expediency and necessity of establishing midwifery as an art for the relief of the human species will appear, and the art be directed to its proper objects.

Under the articles LABOUR, &c. some general circumstances and appearances have been mentioned, and considered as presumptive signs of difficulty; it will not be improper to enumerate these in this place, though much stress cannot be laid upon them with a view to practice, or even to prognostic. Dr. Denman says, if these were certain and invariable, it would be incumbent upon us to understand the degree and extent of their influence, and to apply ourselves to the discovery of some means, by which we might prevent or remedy the evils which threaten in such cases.

1. "The kind of labour, which any particular woman will probably have, has been supposed to be indicated, in some degree, by her complexion. Women with very fair, or very dark complexions, have been supposed equally subject to difficulties or inconveniencies in parturition; whilst those of the intermediate shades were considered as having advantages in their favour. Now, as far as any particular complexion can indicate a general state of health, this observation is reasonable and true, with respect to labours; those who have the best health, usually passing through that process in the best and safest manner. But as those who are of complexions in either extreme may have perfect health, and easy labours, any inference drawn from this principle must be liable to many exceptions.

2. "By the general size of the body, it has been conjectured, that we might foresee whether an ensuing labour would be easy or difficult. This observation will stand upon the same ground with the foregoing; that is, it may hold good, as far as any particular size may be found best suited for performing all the functions of the body, and for the general purposes of life. Those who are very tall, are not often very active, or capable of bearing much fatigue; and those who are very short, may have been cramped or become deformed in consequence of ill health in the early part of their lives: those, on the contrary, who are of a middle size, or rather below it, being presumed to be more generally healthy, and best adapted to the common occasions of life, may be expected to have the best labours, as they have sufficient power, and a readier disposition to act.

3. "The habits of life, and the dispositions of pa-

tients, have been supposed to have some influence in forwarding or retarding labour. Those women, who are indolent in their tempers and habits, perform all the functions of the constitution in a slow and indolent manner, and of course may be expected to have tedious labours. But those who are of lively dispositions and active habits, being in the constant exercise of their powers, have not only these powers strengthened and improved, but greater energy also; and the activity of the parts concerned in the parturition will partake of that of the body in general.

4. "The regularity, together with the ease or difficulty of a labour, may, in some measure, depend upon the strength or weakness of the faculties of the mind. But this must be a very general observation, and can only hold good in that extensive way, in which it is admitted in other occurrences of life, in which weakness of judgment may pervert regularity into disorder, fancy evils that do not exist, or add to the weight of those which are unavoidable.

5. Labours are generally affected by the climate, in which women are born and reside. In hot climates, all natural labours are said to be more easy, than in those that are cold; probably, because the disposition to relax and dilate is sooner assumed, and more perfectly accomplished. But in cold climates, from the native or acquired rigidity and firmness of all the parts of the body, there will be occasion for greater exertion, though there may be greater power; yet if the labours are slower, perhaps the feelings are less, so that they may terminate with equal safety, and probably, on the whole, without greater suffering. In the same climate there will generally be some variations in labour at different seasons; and there is reason to believe, that in Britain, women have easier labours in summer than in winter, and that they are less liable to diseases in the state of child-bed."

In pl. XIV. are exhibited some instances of difficult parturition, and some of the application of the forceps, not noticed in the particular articles to which they severally belong, but too obvious to require a verbal description. In pl. XIX. are delineated, from the drawings of Mr. Savigny, the principal instruments now employed in the practice of midwifery.

Fig. 1, 2. 3, 4, are a set of portable midwifery instruments, consisting of a vectis, crotchet, and blunt-hook, with one handle, into which any one of them may be occasionally connected, by introducing the square extremity of the blade into the socket of the handle, in which it is secured by a spring. Fig. 5, The *tire tete* of the late Mr. Cruikshank, acting occasionally as a blunt-hook. Fig. 6, The position in which the head is to be placed when first introduced into the head of the child. Fig. 7. A pair of perforators for opening the head. Fig. 8. The vectis, or single blade of Dr. Lowder. Fig. 9. The same, made more portable by a joint at the handle. Fig. 10. Dr. Denman's single crotchet. *a.* Is a front view of its point. All the foregoing instruments are represented exactly of half their proper size.

MILFOIL, COMMON. See MILLEFOLIUM.

MILIA'RIA, (from *milium*, millet: so called because the small pustules or vesicles upon the skin resemble millet-seed), miliary fever; a genus of disease in the class *pyrexia* and order *exanthemata* of Cullen. This disease is said to have been unknown to the ancients, and that it appeared for the first time in Saxony, about the middle of the last century. It is said to have since spread from thence into all the other countries of Europe; and since the period mentioned, to have appeared in many countries in which it had never appeared before.

From the time of its having been first taken notice of, it has been described and treated of by many different writers; and by all of them, till very lately, has been considered as a peculiar idiopathic disease. It is said to have been constantly attended with peculiar symptoms. It comes on with a cold stage, which is often considerable. The hot stage, which follows, is attended with great anxiety, and frequent sighing. The heat of the body becomes great, and soon produces profuse sweating, preceded, however, with a sense of pricking, as of pin-points in the skin; and the sweat is of a peculiar rank and disagreeable odour. The eruption appears sooner or later in different persons, but at no determined period of the disease. It seldom or never appears upon the face; but appears first upon the neck and breast, and from thence often spreads over the whole body.

The eruption named *miliary* is said to be of two kinds; the one named the *red*, the other the *white miliary*. The former, which in English is strictly named a *rash*, is commonly allowed to be a symptomatic affection; and as the latter is the only one that has any pretensions to be considered as an idiopathic disease, it is this only that we shall more particularly describe and treat of under this genus.

What is then called the *white miliary eruption*, appears at first like the red, in very small red pimples, for the most part distinct, but sometimes clustered together. Their little prominence is better distinguished by the finger than by the eye. Soon after the appearance of this eruption, and, at least, on the second day, a small vesicle appears upon the top of the pimple. At first the vesicle is whey-coloured, but soon becomes white, and stands out like a little globule on the top of the pimple. In two or three days, these globules break, or are rubbed off, and are succeeded by small crusts, which soon after fall off in small scales. While one set of pimples takes this course, another set arises to run the same; so that the disease often continues upon the skin for many days together. Sometimes when one crop of this eruption has disappeared, another, after some interval, is produced. And it has been further observed, that in some persons there is such a disposition to this disease, that they have been affected with it several times in the course of their lives.

This disease is said to affect both sexes, and persons of all ages and constitutions; but it has been observed at all times to affect especially, and most frequently, lying-in women. It is often accompanied with violent symptoms, and has frequently proved fatal. The symptoms, however, attending it are very various;

and they are, upon occasions, every one attending febrile diseases; but no symptom, or concourse of symptoms, are steadily the same in different persons, so as to give any specific character to the disease. When the disease is violent, the most common symptoms are phrenetic, comatose, and convulsive affections, which are also symptoms of all fevers treated by a very warm regimen.

While there is a variety of symptoms appearing in this disease, it is not to be expected that any one particular method of cure can be proposed; and, accordingly, we find, in different writers, different methods and remedies prescribed; frequent disputes about the most proper; and those received and practised by some, opposed and deserted by others. It appears, however, to Dr. Cullen, very improbable, that this was really a new disease, when it was first considered as such. There are very clear traces of it in authors who wrote long before that period; and though there were not, we know that ancient descriptions were often inaccurate and imperfect, particularly with respect to cutaneous affections; and we know also that those affections which commonly appeared as symptomatic only, were often neglected, or confounded together into a general appellation.

The antecedent symptoms of anxiety, sighing, and pricking of the skin, which have been spoken of as peculiar to this disease, are, however, common to many others; and perhaps to all those in which sweatings are forced out by a warm regimen. Of the symptoms said to be concomitant of this eruption, there are none which can be affirmed to be constant and peculiar but that of sweating. This, indeed, always precedes and accompanies the eruption; and, while the miliary eruption attends many different diseases, it never, however, appears in any of these but after sweating: and in persons labouring under the same diseases it does not appear, if in such persons sweating be avoided. It is therefore probable, that the eruption is the effect of sweating: and that it is the effect of a matter not before prevailing in the mass of blood, but generated under particular circumstances in the skin itself. That it depends upon particular circumstances of the skin, is also probable from its being observed, that the eruption seldom or never appears upon the face, although it affects the whole of the body besides; and that it comes upon those places especially which are more closely covered; and that it can be brought out upon particular places by external applications.

It is to be observed, that this eruptive disease differs from the other exanthemata in many circumstances, especially the following: that it is not contagious, and therefore never epidemic; that the eruption appears at no determined period of the disease; that the eruption has no determined duration; that successive eruptions frequently appear in the course of the same fever, and that such eruptions frequently recur in the course of the same person's life. All this renders it very probable, that, in the miliary fever, the morbific matter is not a subsisting contagion communicated to the blood, and thence, in consequence of fever and assimilation, thrown out upon the surface of the body, but a matter occasionally produced in the skin itself by sweating.

This conclusion is further rendered probable from hence, that, while the miliary eruption has no symptoms or concourse of symptoms peculiar to itself, it, upon occasions, accompanies almost every febrile disease, whether inflammatory or putrid, if these happen to be attended with sweating; and from thence it may be presumed, that the miliary eruption is a symptomatic affection only, produced in the manner we have said.

But as this symptomatic affection does not always accompany every instance of sweating, it may be proper to inquire, what are the circumstances which especially determine this eruption to appear? And to this Dr. Cullen gives no full and proper answer. He cannot say that there is any one circumstance which in all cases gives occasion to this eruption; nor can he say what different causes, in different cases, may give occasion to it. There is only one observation that can be made to the purpose of this inquiry; and it is, that these persons sweating, under febrile diseases, are especially liable to the miliary eruption, who have been previously weakened by large evacuations, particularly of blood. This will explain why it happens to lying-in women more frequently than to any other persons; and to confirm this explanation, he has observed, that the eruption has happened to other women, though not in child-bed, but who had been much subjected to a frequent and copious menstruation, and to an almost constant *fluor albus*. He has also observed it to have happened to men in fevers, after wounds from which they had suffered a great loss of blood.

Further, that this eruption is produced by a certain state of debility, is, he thinks probable, from its so often attending fevers of the putrid kind, which are always attended with great debility. It is true, that it also sometimes attends inflammatory diseases, when it cannot be accounted for in the same manner; but he believes it may be observed, that it especially attends those inflammatory diseases in which the sweats have been long protracted, or frequently repeated, and which have thereby produced a debility, and perhaps a debilitating putrid diathesis.

That, however, the miliary eruption is not necessarily or even generally connected with a certain state of debility, is abundantly evident from its being entirely wanting in by much the greater number of instances of typhoid fever, and in a variety of other diseases where every possible degree of debility occurs: and that it is not connected with any certain state of debility, still farther appears, both from the condition of those affected with it in different instances, which in point of strength is very various; and likewise from the continuance of fresh eruptions with the same individual, although during that time in very different states with respect to debility. It appears, therefore, much more probable, that it depends on some peculiar state of the surface, induced by the concurring influence of certain predisposing and occasional causes.

It appears so clearly that this eruption is always a symptomatic and factitious affection, that Dr. Cullen is persuaded it may be, in most cases, prevented merely by avoiding sweats. Spontaneous sweatings, in the beginning of diseases, are very rarely critical; and all sweatings not evidently critical, should be prevented, or at least moderated; and the promoting them, by increasing external heat, is commonly very pernicious. Even critical sweats should hardly be encouraged by such means. If, therefore, spontaneous sweats arise, they are to be checked by the coldness of the chamber; by the lightness and looseness of the bed-clothes; by the persons laying out their arms and hands; and by their taking cold drink: and in this way, Dr. Cullen thinks, he has frequently prevented miliary eruptions, which were otherwise likely to have appeared, particularly in puerperal women.

But it may happen, when these precautions have been neglected, or from other circumstances, that a miliary eruption does actually appear; and the question will then be put, how the case is to be treated? This question is of consequence; as there is reason to believe, that the matter here generated is often of a virulent kind: it is often the offspring of putrescency; and, when treated by increasing the external heat of the body, it seems to acquire a virulence which produces those symptoms mentioned above, and proves certainly fatal.

It has been an unhappy opinion with most physicians, that eruptive diseases were liable to be hurt by cold; and that it was therefore necessary to cover up the body very closely, and thereby increase the external heat. We know now that this is a mistaken opinion; that increasing the external heat of the body is very generally mischievous; and that several eruptions not only admit, but require, the application of cold air. Dr. Cullen is persuaded, therefore, that the practice which formerly prevailed in the case of miliary eruptions, of covering up the body closely, and both by external means and internal remedies, encouraging the sweatings which accompany this eruption, was highly pernicious, and commonly fatal. He is consequently of opinion, that even when a miliary eruption has appeared, in all cases in which the sweating is not manifestly critical, we should employ all the means of stopping the sweating that are mentioned above; and he has sometimes had occasion to observe, that even the admission of cool air was safe and useful.

This is, in general, the treatment of miliary eruptions: but at the same time, the remedies suited to the primary disease are to be employed; and therefore, when the eruption happens to accompany inflammatory affections, and the fulness and hardness of the pulse or other symptoms show an inflammatory state present, the case is to be treated by blood-letting, purging, and other antiphlogistic remedies. On the other hand, when the miliary eruption attends diseases, in which debility and putrescency prevail, it will be proper to avoid all evacuations, and to employ tonic and antiseptic remedies, particularly the Peruvian bark, cold drink, and cold air.

The most distressing circumstance attending this affection, is the almost insupportable sickness at stomach which frequently occurs, and which is often observed to precede fresh eruptions taking place during the course of the disease. With the view of counteracting and alleviating this symptom, recourse is had to wine and other cordial medicines. But with many patients nothing is found to have so much influence as the use of camphor, particularly when introduced gradually in small doses, under the form of the *Mistura camphorata* of the London Pharmacopœia, or of the *Emulsio camphorata* of that of Edinburgh.

We shall conclude this subject with observing, that the venerable octogenarian practitioner de Fische, when treating of this subject, in laying down the indications of cure, has given this as one of them: "*Excretionis periphericæ non primariam habere rationem.*"

For an account of the eruption similar to miliaria, but unattended with fever, see the article Damina.

MILITA'RIS HERBA. See Millefolium.

MI'LIUM; a very white and hard tubercle, in size and colour resembling a millet-seed. Its seat is immediately under the cuticle, so that when pressed it escapes, the contents appearing of an atheromatous nature. It has also been called *Grutum.*

MI'LIUM SOLIS. See Lithospermum.

MILK, a well known fluid, prepared by nature in the breasts of women, and the udders of brute animals, for the nourishment of their young. According to Dr. Cullen, milk is a connecting and intermediate substance between animals and vegetables. It seems immediately to be secreted from the chyle, both being a white liquor of the same consistence: it is most copiously secreted after meals, and of an acescent nature. In most animals who live on vegetables, the milk is acescent; and it is uncertain, though at the same time no observation proves the contrary, whether it is not so likewise in carnivorous animals. But, whatever be in this, it is certain that the milk of all animals who live on vegetables is acescent. Milk being derived from the chyle, we thence conclude its vegetable nature; for those who live on both promiscuously, more milk is got, and more quickly, from the vegetable than the animal food. Milk, however, is not purely vegetable; though we have a vegetable liquor that resembles its taste, consistence, colour, acescency, and the separability of the oily part, viz. an emulsion of the nuces oleosæ and farinaceous substances. But these want the coagulable part of the milk, which seems to be of an animal nature, approaching to that of the coagulable lymph of the blood. Milk, then, seems to be of an intermediate nature, between chyle taken up from the intestines and the fully elaborated animal fluid.

Its contents are of three kinds: first, an oily part, which, whatever may be said concerning the origin of other oils in the body, is certainly immediately derived from the oil of the vegetables taken in, as with these it agrees very exactly in its nature, and would entirely if we could separate it fully from the coagulable part. Another mark of their agreement is the separability, which proves that the mixture has been lately attempted, but not fully performed. 2dly, Besides this oily, there is a proper coagulable part: And 3dly, Much water accompanies both, in which there is dissolved a saline saccharine substance. These three can be got separate in cheese, butter, and whey; but never perfectly so, a part of each being always blended with every other part.

Nothing is more common, from what has been said of its immediate nature, than to suppose that it requires no assimilation; and hence has been deduced the reason of its exhibition in the most weakly state of the human body. But wherever we can examine milk, we always find that it coagulates, suffers a decomposition, and becomes acescent. Again, infants, who feed entirely on milk, are always troubled with eructations, which every body observes are not of the same quality with the food taken; and therefore it appears, that, like all other food, milk turns naturally ascescent in the stomach, and only enters the chyle and blood in consequence of a new recomposition. It approaches then to the nature of vegetable aliment, but is not capable of its noxious vinous fermentation, and therefore has an advantage over it; neither from this quality, like animal food, is it heating in the stomach, and productive of fever; though at the same time, from its quantity of coagulable matter, it is more nourishing than vegetables.

Milk is the food most universally suited to all ages and states of the body; but it seems chiefly designed by nature as the food of infants. When animals are in the fœtus state, their solids are a perfect jelly, incapable of an assimilatory power. In such state nature has perfectly assimilated food, as the albumen ovi in the oviparous, and in the viviparous animals certainly somewhat of the same kind, as it was necessary the vessels should be filled with such a fluid as would make way for an after-assimilation. When the infant has attained a considerable degree of firmness, as when it is separated from the mother, yet such a degree of weakness still remains as makes somewhat of the same indication necessary, it behoves the infant to have an alkalescent food ready prepared, and at the same time its noxious tendency to be avoided. Milk is then given, which is alkalescent, and, at the same time, has a sufficient quantity of acidity to correct that alkalescency. As the body advances in growth, and the alkalescent tendency is greater, the animal, to obviate that tendency, is led to take vegetable food, as more suited to its strength of assimilation.

Dr. Cullen observes, that milk is almost suited to all temperaments; and it is even so to stomachs disposed to acescency, more than those substances which have undergone the vinous fermentation; nay, it even cures the heart-burn, checks vinous fermentation, and precipitates the lees, when, by renewal of fermentation, the wine happens to be fouled. It therefore very properly accompanies a great deal of vegetable aliment; although sometimes its acescency is troublesome, either from a large proportion taken in, or from the degree of it; for, according to certain unaccountable circumstances, different acids are formed in the stomach in different states of the body; in a healthy body, *e. g.* a mild one; in the hypochondriac disease, one sometimes as corrosive as the fossil acid. When the acidity of milk is carried to a great degree, it may prove remarkably refrigerant, and occasion some crudities, and the recurrence of intermittent fevers. To take the common notion of its passing unchanged into the blood, it can suffer no solution. But if we admit its coagulum in the stomach, then it may be reckoned among soluble or insoluble foods, according as that coagulum is more or less tenacious. Formerly rennet, which is employed to coagulate milk, was thought an acid; but, from late observations, it appears, that, if it be an acid, it is very different from other acids, and that its coagulum is stronger than that produced by acids. It has been imagined, that a rennet is to be found in the stomachs of all animals, which causes coagulation of milk; but to Dr. Cullen the coagulation of milk seems to be owing to a weak acid in the stomach, the relics of our vegetable food, inducing, in healthy persons, a weak and soluble coagulum: but in different stomachs this may be very different, in these becoming heavy and less soluble food, and sometimes even evacuated in a coagulated undissolved state both by vomit and stool.

As milk is acescent, it may be rendered sometimes purgative by mixing with the bile; and some examples of this have been remarked. More commonly, however, it is reckoned among those foods which occasion costiveness.

Hoffman, in his experiments on milk, found that all kinds of it contained much water; and, when this was dissipated, the residua were very different in their solubility. But we must not thence conclude, that the same insolubility takes place in the stomach; for extracts made from vegetables with water are often very insoluble substances, and hardly diffusible through water itself; therefore, in Hoffman's extracts, if we may so call them, of milk, somewhat of the same kind might have appeared; and these substances, which in their natural state were not so, might appear very insoluble. However, we may allow, that milk is always somehow insoluble in the intestines, as it is of a drying nature, and as cheese, &c. is very costive. And this effect shows that milk is always coagulated in the stomach: for, if it remained fluid, no fæces would be produced, whereas sometimes very hard ones are obtruded. In the blood-vessels, from its animal nature, it may be considered as nutritious; but when we consider its vegetable contents, and acescency in the primæ viæ, we find that, like animal food, it does not excite that degree of fever in the time of digestion, and that from its acescency it will resist putrefaction. Hence its use in hectic fevers, which, whatever be their cause, appear only to be exacerbations of natural feverish paroxysms, which occur twice every day, commonly after meals, and at night. To obviate these, therefore, we give such an aliment as produces the least exacerbation of these fevers: and of this kind is milk, on account of its acescent vegetable nature.

There appears also somewhat peculiar to milk, which requires only a small exertion of the animal powers in order to its assimilation; and besides, in hectic complaints there is wanted an oily, bland food, approaching to the animal nature; so that on all these accounts milk is a diet peculiarly adapted to them, and, in general, to most convalescents, and to those of inflammatory temperaments. So far of milk in general.—We shall now speak of the particular kinds which are in common use.

The milks of women, mares, and asses, agree very much in their qualities, being very dilute, having little solid contents, and, when evaporated to dryness, having these very soluble, containing much saccharine matter, of a very ready acescency, and, when coagulated, their coagulum being tender and easily broke down. From this view they have less oil, and seem to have less coagulable matter than the rest.

The milks of cows, sheep, and goats, agree in opposite qualities to the three just mentioned; but here there is somewhat more of gradation. Cow's milk comes nearest to the former milk: goat's milk is less fluid, less sweet, less flatulent, has the largest proportion of insoluble part after coagulation, and indeed the largest proportion of coagulable part; its oily and coagulable parts are not spontaneously separable, never throwing out a cream, or allowing butter to be readily extracted from it. Hence the virtues of these milks are obvious, being more nourishing, though at the same time less easily soluble in weak stomachs, than the three first, less acescent than these, and so more rarely laxative, and peculiarly fitted for the diet of convalescents without fever. The three first again are nourishing, more soluble, more laxative, as more acescent, and adapted to the convalescents with fever.

These qualities, in particular milks, are considerably diversified by different circumstances. First, Different animals, living on the same diet, give a considerably different milk; for there seems to be something in the constitution, abstracting from the aliment, which constitutes a considerable diversity of milk, not only in the same species of animals, but also in the same animal, at different ages, and at different distances after delivery; this applies to the choice of nurses. Secondly, Milk follows the nature of the aliment more than any other juice in the human body, being more or less fluid and dilute, more or less solid and nourishing, in proportion as these qualities are more or less in the aliment. The nature of the aliment differs according to its time of growth, *e. g.* old grass being always found more nourishing than young. Aliment, too, is always varied according to the season, as that is warm or dry, moist or cloudy.

The milk of each particular kind of animal is fitter for particular purposes, when fed on proper food.—Thus the cow delights in the succulent herbage of the vale: if the sheep be fed there he certainly rots, but on the higher and more dry side of the mountain he feeds pleasantly and is healthy; while the goat never stops near the bottom, but ascends to the craggy summit: and certainly the milks of these animals are always best on their proper soil, and that of goats is best on a mountainous country. From a dissertation of Linnæus, we draw many observations concerning the diversity of plants on which each animal chooses to feed. All the Swedish plants which could be collected together, were presented alternately to domestic animals, and then it appeared that the goat lived on the greatest variety, and even on many which were poisonous to the rest; that the cow chose first succulent shoots of the plant, and neglected the fructification; which last was preferred by the goat. Hence may be deduced rules concerning the pasturage of different animals. Farmers have found, that, in a pasture which was only fit to feed a certain number of sheep, an equal number of goats may be introduced, while the sheep are no less nourished than before.

It is not easy to assign the difference between milk fresh-drawn and that detained in the open air for some time: but certainly there is some material one, otherwise nature universally would not have directed infants to sucking; and indeed it seems better than the other fitted for digestion and nourishment. Physicians have supposed that this depended on the evaporation of some *spt. recior;* but our author cannot conceive any such, except common water here; and besides, these volatile parts can hardly be nutritious. A more plausible account seems deducible from mixture; milk newly drawn has been but lately mixed, and is exposed to spontaneous separation, a circumstance hurtful to digestion; none of the parts being, by themselves, so easily assimilated as when they are all taken together. Hence, then, milk newly drawn is more intimately blended, and therefore then is most proper for the weakly and for infants.

Another difference in the use of milk exposed for some time to the air, is taking it boiled or unboiled. Physicians have generally recommended the former; but the reason is not easily assigned. Perhaps it is this: Milk kept for some time exposed to the air has gone so far to a spontaneous separation; whereas the heat thoroughly blends the whole, and hence its resolution is not so easy in the stomach; and thus boiled milk is more costive than raw, and gives more fæces. Again, when milk is boiled, a considerable quantity of air is detached, as appears from the froth on the surface; and air is the chief instrument of fermentation in bodies; so that after this process it is not liable to acescency: for these reasons it is proper for the robust and vigorous.

Another difference of milk is, according as it is fluid or coagulated. The coagulated is of two kinds, as induced by rennet, or the natural acescency of the milk. The former preparation makes the firmer and less easily soluble coagulum; though, when taken with the whey unseparated, it is less difficult of solution, though more so than any other coagulum in the same case. Many nations use the latter form, which is easier soluble, but very much acescent, and therefore, in point of solution, should be confined to the vigorous, in point of acescency, to those who live on alkalescent food; and in the last case, the Laplanders use it as their chief acescent condiment. From the same considerations it is more cooling, and in its other effects like all other acescent vegetables.

Milk by evaporation yields a sweet saline matter, of which Dr. Lewis gives the following proportion:

Twelve ounces of	Left of dry matter	From which water extracted a sweet saline substance amounting to
Cow's milk	13 drams.	$1\frac{1}{2}$ drams.
Goat's milk	$12\frac{1}{2}$	$1\frac{1}{2}$
Human milk	8	6
Asses milk	8	6

The saline substance extracted from asses milk was white, and sweet as sugar; those of the others brown or yellow, and considerably less sweet; that from cow's milk had the least sweetness of any.

On distilling twelve quarts of milk *in balneo mariæ*, at least nine quarts of pure phlegm were obtained: the liquor which afterwards arose was acidulous, and by degrees grew sensibly more and more acid as the distillation was continued. After this came over a little spirit, and at last an empyreumatic oil. The remaining solid matter adhered to the bottom of the retort, in the form of elegant shining black flowers, which being calcined and elixated yielded a portion of fixed alkaline salt.

Milk set in a warm place throws up to the surface an unctuous cream, from which, by agitation, the butter is easily separated. The addition of alkaline salts prevents this separation, not (as some have supposed) by absorbing an acid from the milk, but by virtue of their property of intimately uniting oily bodies with watery liquors. Sugar, another grand intermedium betwixt oils and water, has this effect in a greater degree, though that concrete is by no means alkaline, or an absorbent of acids.

The sweet saccharine part of the milk remains dissolved in the whey after the separation of the curd or cheesy matter, and may be collected from it in a white crystalline form, by boiling the whey till all remains of the curdled substance have fallen to the bottom; then filtering, evaporating to a due consistence, setting it to shoot, and purifying the crystals by solution in water and second crystallization. Much has been said of the medicinal virtues of this sugar of milk, but it does not seem to have any considerable ones: it is from cow's milk that it has been generally prepared; and crystals obtained from this kind of milk have but little sweetness.

When milk is suffered to coagulate spontaneously, the whey proves acid, and on standing grows more and more so till the putrefactive state commences. Sour whey is used as an acid, preferably to the directly vegetable or the mineral acids, in some of the chemical arts: as for dissolving iron in order to the staining of linen and leather. This acid was commonly made use of in the bleaching of linen, for dissolving and extracting the earthy particles left in the cloth by the alkaline salts and lime employed for cleansing and whitening it. Butter-milk is preferred to plain sour-milk or sour-whey: this last is supposed to give the cloth a yellow colour. Dr. Home, in his ingenious treatise on this subject, recommends water acidulated with vitriolic acid (in the proportion of about half an ounce, or at most three quarters of an ounce, to a gallon), as preferable in many respects to the acid of milk, or of the more directly vegetable substances. He observes, that the latter are often difficultly procurable, abound with oleaginous particles, and hasten to corruption; whilst the vitriolic acid is cheap, and pure, and indisposed to putrefy: that milk takes five days to perform its office, whilst the vitriolic acid does it in as many hours, perhaps in as many minutes: that this acid contributes also to whiten the cloth, and does not make it weaker though the cloth be kept in it for months. He finds, that acids as well as alkalies extract an oily matter from the cloth, and lose their acidity and alkalescence. Since this treatise appeared, the use of sour milk is very generally superseded by oil of vitriol.

It is observable, that asses milk is greatly disposed, on standing for a little time, to become thick and ropy. In the Breslau collection for the year 1720, there is a remarkable account of milk (which probably was that of the ass) grown so thick and tenacious as to be drawn out into long strings, which, when dried, were quite brittle.

New cow's milk, suffered to stand for some days on the leaves of butterwort or sun-dew, becomes uniformly thick, slippery, and coherent, and of an agreeable sweet taste, without any separation of its parts. Fresh milk added to this is thickened in the same manner, and this successively. In some parts of Sweden, as we are informed in the Swedish Memoirs, milk is thus prepared for food.

New milk has a degree of glutinous quality, so as to be used for joining broken stone-ware; but there is a far greater tenacity in cheese properly prepared.

Milk, when examined by a miscroscope, appears composed of numerous globules swimming in a transparent fluid. It boils in nearly the same degree of heat with common water; some sorts rather sooner, and some a little later: after boiling, it is less disposed to grow sour than in its natural state. It is coagulated by acids both mineral and vegetable; and by alkalies both fixed and volatile. The coagulum made by acids falls to the bottom of the serum; that made by alkalies swims on the surface, commonly forming (especially with volatile alkalies) a thick coriaceous skin. The serum, with alkalies, proves green or sanious; with acids, it differs little in appearance from the whey that separates spontaneously. The coagulum formed by acids is dissolved by alkalies, and that formed by alkalies is re-dissolved by acids; but the milk does not in either case resume its original properties. It is coagulated by most of the middle salts, whose basis is an earth or a metallic body; as solution of alum, fixed sal ammoniac, acetite of lead, green and blue vitriol; but not by the chalybeate or purging mineral waters, nor by the bitter salt extracted from the purging waters. Among the neutral salts that have been tried, there is not one that produces any coagulation. They all dilute the milk, and make it less disposed to coagulate with acids or alkalies: nitre seems to have this effect in a greater degree than the other neutral salts. It is instantly coagulated by highly-rectified spirit of wine, but scarcely by a diluted spirit. It does not mingle with expressed oils. All the coagula are dissolved by the gall of animals.

It has generally been supposed by medical authors, that the milk of animals is of the same nature with chyle, and that the human milk always coagulates on the stomach of infants; but in a late dissertation upon the subject by Mr. Clarke, member of the Royal Irish Academy, we find both these positions controverted. According to him, woman's milk, in a healthy state, contains no coagulum, mucilaginous, or cheesy principle in its composition; or it contains so little, that it cannot admit of any sensible proof. Dr. Rutty states, that it does not afford even a sixth part of the curd which is yielded by cow's milk; and Dr. Young denies that it is at all coagulable either by rennets or acids. This is confirmed by Dr. Ferris, who, in 1782, gained the Harveian prize-medal at Edinburgh, by a dissertation upon milk. Mr. Clarke informs us, in the Royal Irish Transactions for 1788, that he has made a vast number of experiments upon woman's milk with a view to determine this point. He made use of ardent spirits, all the different acids, infusions of infant's stomachs, and procured the milk of a great many different women; but in no instance, excepting one or two, did he perceive any thing like curd. This took place in consequence of a spontaneous acescency; and only a small quantity of soft flaky matter was formed, which floated in the serum. This he looked upon to be a morbid appearance.

The general opinion that woman's milk is coagulable, has arisen from a singular circumstance, viz. that infants frequently vomit the milk they suck in a state of apparent coagulation. This greatly perplexed Dr. Young; who, after having tried in vain to coagulate human milk artificially, concluded, that the process took place spontaneously in the stomach; and that it would always do so if the milk were allowed to remain in a degree of heat equal to about 96 degrees of Fahrenheit. Mr. Clarke took equal quantities of three different kinds of milk, and put them into bottles slightly corked, and these bottles into water, the temperature of which was kept up by a spirit-of-wine lamp as near as possible to 96° of Fahrenheit: but after frequently examining each bottle during the course of the experiment, at the expiration of several hours there was not the smallest tendency towards coagulation to be perceived in any of them: the cream was only thrown to the surface in a thick and adhesive form, and entirely separated from the fluid below, which had something of a grey and wheyish appearance. As the matter vomited by infants is sometimes more adhesive than we can suppose cream to be, Mr. Clark supposed that the curd might be so entangled with the cream, as to be with difficulty separated from it; but having collected a quantity of rich cream from the milk of different women, he repeated the experiment with precisely the same event, not being able in any one instance to produce the smallest quantity of curd. To determine, however, what effects might be produced upon milk by the stomach of an infant, Mr. Clarke made the following experiment: having taken out the stomach of a fœtus which had been deprived of life by the use of instruments, he infused it in a small quantity of hot water, so as to make a strong infusion. He added a tea-spoonful of this infusion to equal quantities of cow's and human milk; the consequence of which was, that the cow's milk was firmly coagulated in a short time, but the human milk was not altered in the least; neither was the least coagulation produced by adding a second and a third spoonful to the human milk. "Upon the whole, then," says Mr. Clarke, "I am persuaded it will be found, that human milk, in an healthy state, contains little or no curd, and that the general opinion of its nature and properties is founded upon fallacious analogy and superficial observations made on the matter vomited by infants. We may presume, that the cream of woman's milk, by its inferior specific gravity, will swim on the surface of the contents of the stomach; and, being of an oily nature, that it will be of more difficult digestion than any other constituent part of milk. When an infant then sucks very plentifully, so as to over-distend the stomach, or labours under any weakness in the powers of digestion, it cannot appear unreasonable to suppose, that the cream shall be first rejected by vomiting. Analogous to this, we know that adults affected with dyspepsia often bring up greasy fluids from the stomach by eructation, and this especially after eating fat meat. We have, in some instances, known this to blaze when thrown into the fire, like spirits of wine or oil." Our author derives a confirmation of his opinion from the following observation, viz. that curds vomited by infants of a few days old are yellow, while they become white in a fortnight or three weeks. This he accounts for from the yellow colour of the cream thrown up by the milk of women during the first four or five days after delivery.

Mr. Clarke likewise controverts that common opinion of the human milk being so prone to acidity, that a great number of the diseases of children are to be accounted for from that principle. "Whoever" says he "takes the trouble of attentively comparing human milk with that of ruminant animals, will soon find it to be much less prone to run into the acescent or acid process. I have very often exposed equal quantities of human and cow's milk in degrees of temperature, varying from the common summer heat of 65° to 100°; and I have constantly found that cow's milk acquires a greater degree of acidity in thirty-six hours than the human did in as many days: cow's milk becomes offensively putrid in four or five days; a change which healthy human milk, exposed in the same manner, will not undergo in many weeks, nay, sometimes in many months. I once kept a few ounces of a nurse's milk, delivered about six or seven days, for more than two years in a bottle moderately corked. It stood on the chimney-piece, and was frequently opened to be examined. At the end of this period it showed evident marks of moderate acidity, whether examined by the taste, smell, or paper stained by vegetable blues or purples; the latter it changed to a florid red colour, whereas cow's milk kept a few days changed the colour of the same paper to a green, thereby clearly showing its putrescent tendency."

Our author next goes on to consider of the probability there is of milk becoming so frequently and strongly acid, as to occasion most of the diseases of infants. He begins with an attempt to show, that the phenomena commonly looked upon to be indications of acrimony are by no means certain. Curdled milk has already been shown to be no sign of acidity; and the other appearance, which has commonly been thought to be so certain, viz. green fæces, is, in the opinion of Mr. Clarke, equally fallacious. In support of this he quotes a letter from Dr. Sydenham to Dr. Cole; in which he says that the green matter vomited by hysterical women is not any proof of acrid humours being the cause of that disease, for sea-sick people do the same. The opinion of green fæces being an effect of acidity, proceeds on the supposition that a mixture of bile with an acid produces a green colour; but it is found, that the vegetable acid, which only can exist in the human body, is unable to produce this change of colour, though it can be effected by the strong mineral acids. As nothing equivalent to any of these acids can be supposed to exist in the bowels of infants, we must therefore take some other method of accounting for the green fæces frequently evacuated by them. "Why should sour milk, granting its existence, give rise to them in infants and not in adults? have butter-milk, summer-fruits of the most acescent kind, lemon or orange juice, always this effect in adults by their admixture with bile?" This is a question which, we believe, cannot be answered in the affirmative.

On the whole, Dr. Clarke considers the disease of acidity in the bowels, though so frequently mentioned, to be by no means common. He owns, indeed, that it may sometimes occur in infancy as well as in adults, from weakness of the stomach, costiveness, or improper food; and an indubitable evidence is afforded by fæces which stain the blue or purple colour of vegetables to a red, though nothing can be inferred with certainty from the colour or smell.

The Doctor next proceeds to state several reasons for his opinion, that the greater number of infantile diseases are not owing to acidity: 1. Woman's milk in an healthy state contains little or no coagulable matter or curd. 2. It shows less tendency out of the body to become acescent than many other kinds of milk. 3. The appearances which have been generally supposed to characterise its acidity do not afford satisfactory evidence of such a morbid cause. 4. Granting this to be the case, we have plenty of mild absorbents, capable of destroying all the acid which can be supposed to be generated in the bowels of an infant; yet many children are observed to die in consequence of these diseases supposed to arise from acidity. 5. Though the milk of all ruminant animals is of a much more acescent nature than that of the human species, yet the young of these animals never suffer any thing like the diseases attributed to acidity in infants. 7. History informs us, that whole nations use sour curdled milk as a considerable part of their food, withont feeling any inconvenience; which, however, must have been the case, if acidity in the stomach were productive of such deleterious effects as have been supposed.

The reasoning of Dr. Clarke seems here to be very plausible, and nothing has yet been offered to contradict it. The Reviewers in taking notice of the treatise only observe, that the Doctor's positions are supported by great probability; yet, "they have seen them, or think they have seen them, contradicted by the appearance of diseases and the effects of medicines:" if so, we must necessarily leave the subject to farther examination.

In a memoir by Messrs. Parmentier and Deyeux, members of the royal college of pharmacy, &c. in Paris, we have a great number of experiments on the milk of asses, cows, goats, sheep, and mares, as well as women. The experiments on cow's milk were made with a view to determine whether any change was made in the milk by the different kinds of food eaten by the animal. For this purpose some were fed with the leaves of *mais* or Turkey wheat, some with cabbage, others with small potatoes, and others with common grass. The milk of those fed with the *mais* or Turkey wheat was extremely sweet; that from the potatoes and common grass much more serous and insipid; and that from the cabbages the most disagreeable of all. By distillation, only eight ounces of a colourless fluid were obtained from as many pounds of each of these milks; which from those who fed upon grass had an aromatic flavour, a disagreeable one from cabbage, and none at all from the potatoes and Turkey wheat. This liquor became fetid in the space of a month, whatever substance the animal had been fed with, acquiring at the same time a viscidity, and becoming turbid; that from cabbage generally, but not always, becoming first putrid. All of them separated a filamentous matter and became clear on being exposed to the heat of 25° of Reaumur's thermometer. In the residua of the distillations no difference whatever could be perceived. As the only difference, therefore, existing in cow's milk lies in the volatile part, our authors conclude, that it is improper to boil milk either for common or medicinal purposes. They observed also, that any sudden change of food, even from a worse to a better kind, was attended by a very remarkable diminution in the quantity of milk. All the residua of the distillation yielded, in a strong fire, a yellow oil, an acid, a thick and black empyreumatic oil, a volatile alkali, and towards the end, a quantity of inflammable air, and at last a coal remained containing some fixed alkali with muriatic acid.

On agitating, in long bottles, the creams from the milk of cows fed with different substances, all of them were formed into a kind of half-made butter; of which that formed from the milk from *mais* was white, firm, and insipid; that from potatoes was softer, and more pinguedinous; but that from common grass was the best of all. Cabbage, as in other cases, gave a strong taste.

In the course of their experiments, it was endeavoured to determine whether butter is actually contained in the cream, or whether it be a chemical production of the operation of churning. They could not find any reason absolutely satisfactory on either side, but incline to the latter opinion; because, when cream is allowed to remain among the milk, and the whole curdled promiscuously, only fat cheese, without any butter, is produced. The oily parts cannot be separated into butter either by acids or any other means than churning: even the artificial mixture of oil with the cream is insufficient for the purpose.

The serum of milk was reduced by filtration to a clear and pellucid liquor; and, by mixture with fixed alkali, deposited a portion of cheesy matter which had been dissolved in the whey. The sugar of milk was also found in this liquor.

In their experiments upon the milk of various animals, it was found that the milk of asses yielded by distillation an insipid liquor, and deposited a liquor similar to the lymph of cow's milk. It is coagulated by all the acids, but not into an uniform mass, exhibiting only the appearance of distinct flocculi. It affords but little cream, which is converted with difficulty into a soft butter that soon becomes rancid. It has but a small quantity of saccharine particles, and these are often mixed with muriatic selenite and common salt. Goat's milk has thick cream, and agreeable to the taste; and the milk itself may be preserved longer in a sound state than any other species, the scum on its surface being naturally convertible into palatable cheese. It is easily made into firm butter, which does not soon become rancid, and has a good flavour. The butter-milk contains a large quantity of cheesy matter, which readily coagulates; but has still less saccharine matter than that of asses. Sheep's milk can scarce be distinguished from that of a cow, and easily parts with its cream by standing. It is of a yellow colour, an agreeable flavour, and yields a great proportion of butter; but this is not solid, and soon becomes rancid. Mare's milk is the most insipid and least nutritious of any; notwithstanding which it has been much recommended for weak and consumptive patients: in which cases, it is probable that it proves efficacious, by being more consonant than any other to the debilitated powers of digestion. It boils with a smaller fire than any other kind of milk, is easily coagulated, and the distilled water does not so soon change its nature. It has but a small quantity of cheesy matter, and very few oily particles: the cream cannot be made into butter; and the whey contains about as much sugar as cow's or goat's milk.

In this memoir the authors remark, that in order to augment the quantity, as well as to improve the quality, of the milk of animals, they should be well fed, their stalls kept clean, and their litter frequently renewed: they should be milked at stated hours, but not drained: great attention should also be paid to the breed: because inferior cattle are maintained at as great expence as the most valuable kinds. No change ought to be made in the food; though, if the milk be employed for medicinal purposes, it may be improved by that means.

In their experiments on woman's milk, Messrs. Parmentier and Deyeux differ somewhat from Dr. Clarke. They first tried the milk of a woman who had been delivered four months; and observed, that after the cream had been separated, the other part appeared of a more perfect white, and that it could not be coagulated either by vinegar or mineral acids; which they attributed to a superabundance of serum. But they found that in proportion to the age of the milk it was found to be more easily coagulable; and this was confirmed by experiments made upon the milk of twenty nurses. Its coagulability was not increased by heat. The cream, by agitation, formed a viscid unctuous matter, but could not be changed into perfect butter: but they found that it was extremely difficult to determine the proportions of the various component parts in human milk, as it differs remarkably, not only in different subjects, but in the same subject at different times. In a nurse aged about thirty-two years, who was extremely subject to nervous affections, the milk was one day found almost quite colourless and transparent. In two hours after, a second quantity drawn from the breast was viscid, like the white of an egg. It became whiter in a short time, but did not recover its natural colour before the evening. It was afterwards found that these changes were occasioned by her having some violent hysteric fits in the mean time.

For an account of the *lactic acid* and *sugar of milk*, see those Articles.

MILK, a name formerly given to substances very different from *milk* properly so called, and which resemble milk only in colour. Such is water, in which quicklime has been flaked, which acquires a whiteness from the small particles of the lime being suspended in it; and has hence been called the *milk of lime.* Such also is the solution of *sulphurated kali*, when an acid is mixed with it, by which white particles of sulphur are made to float in the liquor.

MILK, of vegetables. For the same reason that milk of animals may be considered as a true animal emulsion, the emulsive liquors of vegetables may be called *vegetable milks.* Accordingly emulsions made with almonds are commonly called *milk of almonds.* But besides this vegetable milk, which is in some measure artificial, many plants and trees contain naturally a large quantity of emulsive or milky juices. Such are lettuce, spurge, fig-tree, and the tree which furnishes the elastic American resin. The milky juices obtained from all these vegetables derive their whiteness from an oily matter, mixed yet undissolved, in a watery or mucilaginous liquor. Most resinous gums were originally such milky juices, which afterwards became solid by the evaporation of their most fluid and volatile parts. These natural milky juices have not been fully examined by chemists. Such an examination would, however, procure much essential knowledge concerning vegetable economy. We should probably find examples of all kinds of oils reduced into milky juices; and this knowledge cannot fail of throwing much light on the nature of resins and their gummy compounds.

MILK ABSCESS. See MILK-BREAST.

MILK-BREAST, or *Milk Abscess*, an inflammation and abscess arising in the breasts of lying-in women. This disorder occurs most frequently in nurses by the stoppage of the milk, which is often occasioned by sudden or imprudent exposure to cold.

In the early stages of the affection, resolution is always to be attempted, unless the swelling appears to have an evident tendency towards suppuration, in which case it is to be promoted by the methods commonly practised. The remedies used in inflammation, in general, but particularly the early application of leeches, seem useful in every case of inflammation of the breasts. When the patient happens to be nursing indeed, a sudden evacuation of blood is apt to diminish the quantity of milk: in such cases, therefore, blood is to be extracted in small quantities at a time, if bleeding, from the system, should be deemed necessary. The application of cooling poultices of vinegar and water, thickened with crumb of bread and linseed meal, is advisable. When suppuration has taken place, the matter is to be discharged by making an incision in the most depending part of the tumor, as will be presently noticed.

The late Mr. Justamond, who paid particular attention to this disorder, remarks, that this is usually made very light of by practitioners in surgery, from a supposition that it always gets well, in time, without any thing being done to it, except keeping the part covered with a large bread and milk poultice, and that it never degenerates into a scirrhous tumor or cancer. He thinks, however, that this is a misconceived opinion; for the testimony of Astruc, and many other writers, may be adduced in support of a contrary doctrine; and some instances certainly have occurred, of cancers, which were traced by the patients themselves to a milk-abscess.

Though this is to be considered as a *possible*, rather than a probable event; yet even this proves the necessity of paying due attention to a disease which is in any case capable of so unhappy a result.

One argument advanced in support of the induration of the milk-breast not degenerating into a scirrhus, is, that these are diseases of different parts; the scirrhus being a hardness of the mammary glands, and the other complaint being merely an induration of the cellular and adipose membrane of the breast. This we apprehend to be a position, erroneous both in itself and in the consequences deduced from it. For, the disease being acknowledged, on all sides, to consist originally in a coagulation of the milk, it follows that it must necessarily exist in those parts destined by nature for the secretion, reception, and conveyance of that fluid; which are the mammary glands, and the lactiferous tubes proceeding from them. These lactiferous tubes pervade the whole substance of the breast, and it is by their being distended with coagulated milk, that the cells of the cellular substance become compressed on all sides, so as to exhibit the appearance of the induration being seated in them. It may be urged, indeed, that this compression of the sides of the cellular substance being continued for a long time, the cells will not be able to recover their tone, even though the obstruction of the lactiferous tubes that run through them should be removed; and that the induration will therefore still subsist. Whether this be the case or not, which it is impossible to determine, yet, admitting that the induration existed only in the cellular membrane, this would be no sort of proof that the complaint would not degenerate. For all ulcerated cancers are accompanied with indurations of the cellular and adipose membrane, which, indeed, is one of the strongest marks of the true cancer. These scirrhous hardnesses of the cellular membrane are, indeed, as difficult to cure as any other part of the disease; and from the consideration of that dreadful species of scirrhus or occult cancer, before described, which seizes the whole substance of the breast, seem to be of a more malignant nature than a scirrhus of the mammary glands alone. So that in whatever point of view we may consider the affection of the milk-breast, whether as a disease of the mammary glands and of the lactiferous tubes proceeding from them, or merely as a disorder of the cellular and adipose substance of the breast, it is equally possible that it may degenerate into a scirrhus.

It must be acknowledged, however, that the instances of this degeneracy are rare, when compared with the number of persons who are troubled with the milk-breast. Neither is it necessary to suppose, that the diseases, though seated in the same parts, are originally the same. The milk induration seems to become a scirrhus merely from inattention, neglect, or improper treatment; but the possibility of such an event calls for every exertion in our power to prevent it. Astruc observes, that abscesses of the breasts often leave indurations of the glands, when some of the obstructed parts remain unsuppurated. This seems to be the exact state of the case, and, like most of that accurate author's observations, very just. The matter is brought about, probably, in the following manner, which, if it be really the case, will serve not only to account for the variety of opinions on this head, but also to reconcile them. These complaints last four, six, eight, and ten months, when treated with the constant application of a bread and milk poultice, and when at length the abscess has been healed, and there has appeared no further disposition to suppuration, the complaint has been considered as cured; and though there should remain *some of the obstructed part unsuppurated*, yet there being no more pain, it is concluded that these remains will go away of themselves, merely by keeping the part warm. This, indeed, does frequently happen; but it also happens sometimes that the patient, finding such great difference between her present state and that when she was exposed to the sufferings occasioned by a fresh abscess, collecting and bursting every three or four weeks, perhaps thinks herself well for months together, and neglects this trifling induration: which may, at the same time, be so small as scarce to be distinguished by an unskilful touch. Should she chance to feel a little pain in it now and then, she attributes this to the change of weather, or possibly to the necessary consequence of what she cannot but have considered as a grievous complaint. Thus the disease being neglected, may remain for a long time in a tolerably quiet state, till some accidental circumstance puts its virulence into action. Even then it may continue for a long time almost imperceptibly increasing, till it arrive to such a height as to be no longer mistaken. This event may take place too at so considerable a distance of time from the formation of the abscess in the breast, that this complaint shall no longer be remembered as the cause.

But even setting aside these considerations, it must be owned that the coagulation of the milk, and the subsequent formation of matter in the breasts, is a disease attended with so much pain, and frequently of so long duration, that the health is often impaired by it. It is a very disagreeable thing to see a woman labouring for several months under a teizing and painful disorder, which, for the most part, may be prevented, or the duration of which may at least be considerably shortened. The consideration of these circumstances led some surgeons to a more expeditious and improved mode of treating the milk-breast. Mr. Justamond, particularly, abandoning the old practice of persevering in the use of poultices and other relaxing applications, advised the free use of spirituous lotions. He directed three ounces of sal ammoniac to be dissolved in a pint of common water, to which an equal quantity of Hungary-water, or of common proof spirit, was added. Rags dipped in this liquor, made a little warm, were applied to the whole surface of the breast. These rags were wetted again as often as they became dry, and so flattering were the effects of this application in those cases where there was a coagulation of the milk soon after lying-in, that it appeared as if this solution had actually the property of keeping the milk fluid; for, after it had been applied a few hours, the grumous feel was dispersed, and the breast was in general restored to its natural state, while the milk flowed freely from the nipple. The same application was tried, and with great success. in a number of cases, where it was used *before the suppuration was formed.*

There is one circumstance more to be considered with regard to this complaint, and that is, whether it be best to suffer the abscess, when formed, to break of itself, or to open it with a lancet. Some surgeons are inclined to favour the latter method, and for the following reasons: When abscesses in any part, say they, are near the skin, and preparing to burst through it, the distention the inflamed skin suffers at this time is extremely painful, and this natural vent may be obstructed from many causes which we cannot account for. Hence the making a small opening with a lancet, when the skin is thin, seems to save the patient, perhaps, eight and forty hours of excruciating pain; and besides, the opening with the lancet, however small, is still larger than that made by the spontaneous bursting of the matter. But we see that nature sometimes makes way for the matter by five or six different openings; and though a small opening with a lancet may save the patient some hours' pain, it will not afford so ample and uninterrupted a vent to the matter as an orifice formed by nature herself. We prefer, therefore, those means which hasten suppuration, and, of these, none will better promote the object in view, than the conjunctly stimulant and sedative qualities of camphor.

℞ Olei palmæ unc. iv.
Camphoræ in pulv. trit. unc. ss.
Misce fiat linimentum.

A simple decoction of poppy heads should be made into a poultice with bread and linseed meal; and, on every application, the suppurating part should be smeared with the liniment.

It frequently happens that the suppuration is repeated a number of times in the same part; nor can this be easily prevented. In some cases the internal exhibition of the bark is attended with the best effects, more especially if there be any signs of general debility.

MILK-FEVER, a febrile affection of the constitution, in lying-in women, in consequence of an irregular or defective secretion of the milk. About the fourth day after delivery, the breasts generally begin to grow turgid and painful. During the time of uterine gestation, the breasts in most women gradually increase till the delivery, growing softer as they are enlarged by the vessels being more and more filled with fluids; and, by this gradual distention, they are prepared for secreting the milk from the blood after delivery. During the two or three first days after parturition, especially when the woman has undergone a large discharge, the breasts have been sometimes observed to subside and grow flaccid; and about the third or fourth day, when the lochia begin to decrease, the breasts swell again to their former size, and stretch more and more, until the milk, being secreted, is either sucked by the child, or frequently of itself runs out at the nipples.

Most of the complaints incident to women after delivery proceed either from the obstruction of the lochia in the uterus, or of the milk in the breasts, occasioned by any thing that will produce a fever; such as catching cold, long and severe labour, eating food that is hard of digestion, and drinking fluids that quicken the circulation of the blood in the large vessels; by which means the smaller, with all the secretory and excretory ducts, are obstructed.

The discharge of the lochia being so different in women of different constitutions, and, besides, in some measure, depending upon the method of management, and the way of life peculiar to the patient, we are not to judge of her situation from the colour, quantity, and duration of them, but from the other symptoms that attend the discharge; and if the woman seems hearty, and in a fair way of recovery, nothing ought to be done with a view to augment or diminish the evacuation. If the discharge be greater than she can bear, it will be attended with all the symptoms of inanition; but as the lochia seldom flow so violently as to destroy the patient of a sudden, she may be supported by a proper nourishing diet, assisted with cordial and restorative medicines. Let her, for example, use broths, jellies, and ass's milk; if the pulse is languid and sunk, she may take moderate doses of the confect. aromat. with mixtures composed of the cordial waters and volatile spirits: subastringents and opiates frequently administered, with the cinchona in different forms, and austere wines, are of great service. On the other hand, when the discharge is too small, or has ceased altogether, the symptoms are more dangerous, and require the contrary method of cure: for now the business is to remove a too great plenitude of the vessels in and about the uterus, occasioning tension, pain, and labour in the circulating fluids; from whence proceed great heat in the part, restlessness, fever, a full, hard, quick pulse, pains in the head and back, nausea, and difficulty in breathing. These complaints, if not at first prevented, or removed by rest and plentiful sweating, must be treated with venesection and the antiphlogistic method.

When the obstruction is recent, let the patient lie quiet, and encourage a plentiful diaphoresis, by drinking frequently of warm, weak, diluting fluids, such as water gruel, barley-water, tea, or weak chicken-broth.

Should these methods be used without success, and the patient, far from being relieved by rest, plentiful sweating, or a sufficient discharge of the obstructed lochia, labour under a hot dry skin, anxiety, and a quick, hard, and full pulse, the warm diaphoretics must be laid aside (because, if they fail of having the desired effect, they must necessarily increase the fever and obstruction), and recourse be had to bleeding at the arm or ankle to more or less quantity, according to the degree of fever and obstruction; and this evacuation must be repeated as there is occasion. When the obstruction is not total, it is supposed more proper to bleed at the ankle than at the arm; and at this last, when the discharge is altogether stopped. The ordinary drink ought to be impregnated with nitre.

If she is costive, emollient and gently opening clysters may be occasionally injected; and her breasts must be fomented with a decoction of poppy heads, and sucked, either by the mouth or pipe-glasses. If by these means the fever is abated, and the necessary discharges return, the patient commonly recovers; but if the complaints continue, the antiphlogistic method must still be pursued. If, notwithstanding these efforts, the fever is not diminished or removed by a plentiful discharge of the lochia from the uterus, the milk from the breasts, or by a critical evacuation by sweat, urine, or stool, and the woman is every now and then attacked with cold shiverings, an abscess or abscesses will probably be formed in the uterus or neighbouring parts, or in the breasts; and sometimes the matter will be translated to other situations, and the seat of it foretold from the parts being affected with violent pains: these abscesses are more or less dangerous according to the place in which they happen, the largeness of the suppuration, and the good or bad constitution of the patient. See the articles HYSTERITIS and MILK-BREAST.

If, when the pain in the epigastric region is violent, and the fever increased to a very high degree, the patient should all of a sudden enjoy a cessation from pain, without any previous discharge or critical eruption, the physician may pronounce that a mortification is begun; especially if, at the same time, the pulse becomes low, quick, wavering, and intermitting; if the woman's countenance, from being florid, turns dusky and pale, while she herself, and all the attendants, conceive her much mended; in that case, she will grow delirious, and die in a very short time.

What we have said on this subject regards that fever which proceeds from the obstructed lochia, and in which the breasts may likewise be affected; but the milk-fever is that in which the breasts are originally concerned, and which may happen though the lochia continue to flow in sufficient quantity; nevertheless, they mutually promote each other, and both are to be treated in the manner already explained; namely, by opiates, diluents, and diaphoretics, in the beginning; and, these prescriptions failing, the obstructions must be resolved by the antiphlogistic method described above. The milk-fever alone, *when the uterus is not concerned*, is not so dangerous, and is much more easily relieved. Women of a healthy constitution, who suckle their own children, have good nipples, and whose milk comes freely, are seldom or never subject to this disorder, which is more incident to those who do not give suck, and neglect to prevent the secretion in time; or, when the milk is secreted, take no measures for emptying their breasts. This fever likewise happens to women who try too soon to suckle, and continue their efforts too long at one time; by which means the nipples, and consequently the breasts, are often inflamed, swelled, and obstructed.

In order to prevent a too great turgescence in the vessels of the breasts, and the secretion of milk, in those women who do not choose to suckle, it will be proper to make external application of those things which, by their pressure and restringent force, will hinder the blood from flowing in too great a quantity to this part, which is now more yielding than at any other time. For this purpose, let the breasts be covered with emp. litharg. spread upon soft leather, or cloths dipped in camphorated spirits be frequently applied to these parts and the arm-pits; while the patient's diet and drink is of the lightest kind, and given in small quantities. Notwithstanding these precautions, a fullness commonly begins about the third day; but by rest, moderate sweating, and the use of these applications, the tension and pain will subside about the fifth or sixth day, especially if the milk runs out at the nipples: but if the woman catches cold, or is of a full habit of body, and not very abstemious, the tension and pain increasing, will bring on a cold shivering succeeded by a fever; which may obstruct the other excretions, as well as those of the breast.

In this case, mild diaphoretics and nitre must be prescribed, and if a plentiful sweat ensue, the patient will be relieved; at the same time the milk must be extracted from her breasts, by sucking with the mouth or glasses. Should these methods fail, and the fever increase, she ought to be blooded in the arm; and, instead of the external application hitherto used, emollient liniments and cataplasms must be substituted, in order to soften and relax. If, in spite of these endeavours, the fever proceeds for some days, the patient is frequently relieved by critical sweats, a large discharge from the uterus, miliary eruptions, or loose stools mixed with milk, which is curdled in the intestines; but should none of these evacuations happen, and the inflammation continue with increasing violence, there is danger of an imposthume, which is to be brought to maturity, and managed like other inflammatory tumors; but strong astringents ought not to be applied, lest they produce scirrhous swellings in the glands.

As the crisis of this fever, as well as of that last described, often consists in miliary eruptions over the whole surface of the body, but particularly on the neck and breast, by which the fever is carried off, nothing ought to be given which will either greatly increase or diminish the circulating force, but such only as will keep out the eruptions. But if, notwithstanding these eruptions, the fever, instead of abating, is augmented, it will be necessary to diminish its force, and prevent its increase, by those evacuations we have mentioned above. On the contrary, should the pulse sink, the eruptions begin to retreat inwardly, and the morbific matter be in danger of falling upon the viscera, we must endeavour to keep them out by opiates and sudorific medicines; and here blisters may be applied with success.

MILK-TEETH. See Teeth.

MILK-THISTLE, a plant, the young leaves of which, when boiled, surpass the finest cabbage, and possess some diuretic qualities. See also Carduus mariæ.

MILK-VETCH. See Tragacantha.

MILK-WORT. See Polygala.

MILK-WORT, a name sometimes given to seneka. See Seneka.

MILLET-SEED; the seeds of the *Panicum miliaceum*, Linn. These are esteemed a nutritious article of diet, and are often made into puddings in this country in the same manner as rice.

MILLET-SEED, INDIAN; the produce of the *Panicum Italicum*, Linn. This is much esteemed in Italy, and forms a constant ingredient in their soups; besides which, it is cooked in a variety of forms for the table.

MILLEFO′LIUM, (from *mille*, a thousand, and *folium*, a leaf; from its numerous leaves), also named *Achillea*, *Myriophyllon*, *Chiliophyllon*, *Lumbus Veneris*, *Militaris herba*, *Stratioles*, *Carpentaria*, *Speculum veneris*, &c. common yarrow or milfoil. This is an indigenous plant, *Achillea millefolium; foliis bipinnatis nudis; laciniis linearibus dentatis; caulibus superne sulcatis*, Linn. Class, *Syngenesia*. Order, *Polygamia superflua*. The leaves and flowers have an agreeable, weak, aromatic smell, and a bitterish, rough, and somewhat pungent taste. They were both directed for medicinal use in the late Edinburgh Pharmacopœia; but, in the present practice, they are neglected.

MILLEMO′RBIA, (from *mille*, a thousand, and *morbus*, a disease; so called from its supposed use in many diseases). See Scrophularia vulgaris.

MILLE′PEDÆ. See Millepedes.

MILLE′PEDES, (of the Lat. *Millepes*, from *mille*, a thousand, and *pes*, a foot; named from their numerous feet); wood-lice. The systematic name of this insect is *Oniscus asellus* of Linnæus. These insects are found in cellars, under stones, amongst rotten wood, and in other moist places. Though they obtain a place in the modern pharmacopœias, they are seldom used medicinally in this country. They appear to act as stimulants and slight diuretics, but for this purpose they ought to be administered in a much greater dose than is usually prescribed. The expressed juice of forty or fifty living millepedes, given in a mild drink, have been said to cure very obstinate jaundices, but the truth is, they are little to be depended on in any case.

MILL-MOUNTAIN. See Linum catharticum.

MILT-WASTE. See Ceterach.

MIMO′SA CA′TECHU; the systematic name of the tree which affords the terra japonica. See Catechu.

MIMO′SA NILO′TICA; the systematic name of the tree which affords the gum arabic. See Arabic gum.

MIMO′SA SENEGAL; the systematic name of the tree from which the gum senegal is procured.

MINDERERUS'S SPIRIT. See Ammonia.

MINERALOGY, that science which teaches us the properties of mineral bodies, and by which we learn how to characterise, distinguish, and class them into a proper order.

Mineralogy seems to have been in a manner coëval with the world. Precious stones of various kinds appear to have been well known among the Jews and Egyptians in the time of Moses; and even the most rude and barbarous nations appear to have had some knowledge of the ores of different metals. As the science is nearly allied to chemistry, it is probable that the improvements both in chemistry and mineralogy have nearly kept pace with each other; and indeed it is but of late, since the principles of chemistry were well understood, that mineralogy has been advanced to any degree of perfection. The best way of studying mineralogy, therefore, is by applying chemistry to it; and not contenting ourselves merely with inspecting the outsides of bodies, but decompounding them according to the rules of chemistry. This method has been brought to the greatest perfection by Mr. Pott of Berlin, and after him by Mr. Cronstedt of Sweden. To obtain this end, chemical experiments in the large way are without doubt necessary; but as a great deal of the mineral kingdom has been examined in this manner by different writers, the curious mineralogist need not repeat those experiments in their whole extent. An easy way may be adopted, which even for the most part is sufficient, and the processes of which, though made in miniature, are as scientifical as the common manner of proceeding in the laboratories, since it imitates that, and is also founded upon the same principles. This method consists in making the experiments upon a piece of charcoal with the concentrated flame of a candle directed through a blow-pipe, as is shown under the latter article. The heat occasioned by this is very intense, more especially if a stream of oxygen gas be thrown upon the subject under examination; and the different mineral bodies may thus be burnt, calcined, melted, and scorified, &c. as well as in any great furnace.

When earths or stones are to be tried, it is improper to begin immediately with the blow-pipe: some preliminary experiments ought to be made, by which those in the fire may afterwards be directed. For instance, a stone is not always homogeneous, or of the same kind throughout, although it may appear to the eye to be so. A magnifying glass is therefore necessary to discover the heterogeneous particles, if there be any; and these ought to be separated, and every part tried by itself, that the effects of two different things, examined together, may not be attributed to one alone. This might happen with some of the finer micæ, which are now and then found mixed with small particles of quartz, scarcely to be perceived by the eye. The trapp (in German *schwartzstein*) is also sometimes mixed with very fine particles of feltspar *(spatum scintillans)* or of calcareous spar, &c. After this experiment, the hardness of the stone in question must be tried with steel. The flint and garnets are commonly known to strike fire with steel; but there are also other stones, which, though very seldom, are found so hard as likewise to strike fire. There is a kind of trapp of that hardness, in which no particles of feltspar are to be seen. Coloured glasses resemble true gems; but as they are very soft in proportion to these, they are easily discovered by means of the file. The common quartz-crystals are harder than coloured glasses, but softer than the gems. The loadstone discovers the presence of iron, when it is not mixed in too small a quantity in the stone, and often before the stone is roasted. Some kinds of hæmatites, and particularly the cœrulean, greatly resemble some other iron ores: but this distinguishes itself from them by a red colour when pounded, the others giving a blackish powder, and so forth.

MINERALS, (*Mineralia*, from *mina*, a mine of metal); certain inorganized or inanimate bodies, that are dug out of the bowels of the earth. Minerals increase in volume by the juxtaposition of parts and the force of attraction. The early naturalists divided them into a great number of classes, but by the moderns they are divided only into three sections. Under the first are arranged earths and stones which have no taste, and do not burn when heated with contact of air; under the second, saline matters, having more or less taste, which melt in water, and do not burn; and under the third, combustible substances, not soluble in water, and exhibiting a flame more or less evident when exposed to fire with access of air. Minerals increase in bulk only while they remain undisturbed in their natural situation; but, by exposing them to the air for a sufficient length of time, they are mostly decomposed, or crumble to pieces, without strictly decaying as organized bodies do.

MINERAL SALTS. See Salts.

MINERAL WATERS; waters which hold minerals in solution. All spring water is impregnated, either more or less, with some mineral substances, consequently, the name *mineral waters* should be confined to such waters as are sufficiently impregnated with mineral matters to produce some sensible effects on the animal economy; and either to cure or prevent some of the diseases to which the human body is liable. On this account, they might be, with more propriety, called *medicinal waters*.

Many celebrated chemists have made experiments on mineral waters, and almost every one has made some valuable discovery, respecting the different principles contained in them. Boulduc discovered natron, and determined its properties: Le Roi, physician, of Montpellier, discovered calcareous muriat; Margraaff, the muriat of magnesia; Priestley, carbonic acid; and Monnet and Bergman the sulphurated or *hepatic* hydrogen gas. The two last-mentioned chemists, besides the discoveries with which they have enriched the art of analyzing waters, have published complete treatises on the method of proceeding in this analysis; and have carried this part of chemistry to a degree of perfection and accuracy far exceeding that which it possessed before the time of their labours. We are likewise in possession of particular analyses, made by very good chemists, of a great number of mineral waters, and which serve to throw great light on this inquiry, which, with justice, is esteemed one of the most difficult in the whole art of chemistry. The most recently published is by Dr. Saunders of London; and from this we shall present the reader with some useful information on the subject.

In treating of mineral waters, it is necessary to speak of the *principles contained in them*. The numerous experiments of modern chemists have shown, that some mineral substances are often found in waters, others scarcely ever met with, and lastly, many which are never held in solution by that fluid.

We shall here consider each class of these substances in order. 1. *Siliceous earth* is sometimes suspended in water; and as it is in a state of extreme division, it remains suspended without precipitating; but its quantity is extremely minute. The carbonated alkalis and chalk probably contribute to render siliceous earth soluble. 2. *Alumin* likewise appears to exist in water. The extreme subtlety of this earth, by which it is dispersed through the whole mass of water, causes it to render that fluid turbid. Argillaceous waters are therefore whitish, and have a pearl or opal colour; they are likewise smooth or greasy to the touch, and have been called saponaceous waters. Carbonic acid seems favourable to the suspension and solution of alumin in water. 3. *Lime*, *magnesia*, and *barytes*, are never found pure in waters; they are always combined with acids. 4. *Fixed alkalis* are never met with in a state of purity in waters, but frequently combined with acids, in the form of neutral salts. 5. The same observation applies to *ammonia*, and most acids, except the carbonic acid, which is often free, and in possession of all its properties in waters. It constitutes a peculiar class of mineral waters, known by the name of *gaseous*, *spirituous*, or *acidulous* waters. See Acidulous waters. 6. Of the *neutral salts*, with bases of fixed alkalis, scarcely any are met with but sulphat of soda or *Glauber's salt*, the muriats of soda, and of potash, and carbonat of soda, which are frequently dissolved in mineral waters; nitrat and carbonat of potash are rarely found. 7. Sulphat of lime, calcareous muriat, chalk, sulphat of magnesia, or *Epsom salt*, muriat of magnesia, and carbonat of magnesia, are the earthy salts which are most commonly found in waters. As to the calcareous nitrat, and nitrat of magnesia, which some chemists have asserted they have met with, these salts are scarcely ever found in mineral waters, properly so called, though they exist in salt waters. 8. The *aluminous neutral salts*, and salts with base of barytes, are scarcely ever dissolved in waters. Alum or acid sulphat of alumin, appears to exist in some waters. 9. *Hydrogen gas* has not yet been found dissolved in mineral waters. 10. Pure *sul-*

phur has not yet been found in these fluids, though it exists very rarely in small quantities in the state of sulphure of soda. Sulphureous waters are most commonly mineralized by sulphurated hydrogen gas. 11. Lastly, Of all the metals, iron is the most commonly dissolved in water, and may be found in two states; either combined with carbonic acid, or with the sulphuric acid. Bergman affirms, that iron, as well as manganese, are found in certain waters, combined with the muriatic acid.

Oxid of arsenic, and the sulphats of copper and zinc, which exist in many waters, communicate poisonous properties to them, and show, when discovered by analysis, that the use of such waters must be carefully avoided. Most chemists at present deny the existence of bitumen in waters: in fact, the bitter taste was the cause why waters were formerly supposed to contain this oily substance; but it is now known, that this taste, which does not exist in bitumen, is produced by the calcareous muriat.

There is no difficulty in conceiving how water, which percolates through the interior parts of the globe, and especially through the mountains, may become charged with the different substances we have enumerated. It is likewise clear, that according to the nature and extent of the strata of the earth, through which they pass, mineral waters will be more or less charged with these principles, and that the quantity and nature of these principles must be subject to great variation, especially when we consider the changes, in the direction of their course, to which these fluids are liable from the various alterations which the globe undergoes, particularly on its surface and its more elevated parts.

Mineral waters may be properly arranged in four classes, viz. acidulous, saline, sulphureous, and ferruginous waters.

1. *Acidulous Waters.*—The gaseous waters, which may with more propriety be called acidulous waters, are those in which the carbonic acid predominates; they are known by their sharp taste, and the facility with which they boil, and afford bubbles by simple agitation; they redden the tincture of turnsole, precipitate lime-water and alkaline sulphures. As no waters have yet been discovered which contain this acid pure and alone, we think this class may be divided into several orders, according to the other principles contained in them, or the modifications they exhibit. They all appear to contain more or less alkali and calcareous earth; but their different degrees of heat afford a good criterion for dividing them into two orders; the first might comprehend cold, acidulous, and alkaline waters, such as those of Seltzer, Saint-Myon, Bard, Langeac, Chateldon, Vals, *&c.* in the second might be placed, hot, or thermal, acidulous, and alkaline waters, as those of Mount D'Or, Vichy, Chatelguyon, &c.

2. *Saline or Salt Waters.*—By these names, we understand such waters as contain a sufficient quantity of neutral salt to act strongly on the animal economy, so as most commonly to purge. The theory and nature of these waters are easily discovered; they perfectly resemble the solutions of salt made in our laboratories; but they almost always contain two or three different species of salts. The sulphat of soda is very rare; sulphat of magnesia, or Epsom salt, marine salt, or muriat of soda, calcareous and magnesian muriats, or the saline principles which mineralize them, either together or separate. The waters of Sedlitz, of Seydschutz, and of Egra, abound with Epsom salt, frequently mixed with muriat of magnesia. Those of Balaruc contain muriat of soda, chalk, and the calcareous and magnesian muriats; those of Bourbonne, muriat of soda, sulphat of lime and chalk; and those of la Mothe contain muriat of soda, sulphat of lime, chalk, sulphat of magnesia, muriat of magnesia, and an extractive matter. It must be here observed, that salts, with base of magnesia, are much more common in waters than has hitherto been supposed; and that few analyses have yet been made, in which they have been well distinguished from calcareous muriat.

3. *Sulphureous Waters.*—This name has been given to such mineral waters as appear to possess some of the properties of sulphur; such as the smell, and the property of discolouring silver. Chemists have long been ignorant of the true mineralizer of these waters: most have supposed it to be sulphur, but they never succeeded in exhibiting it, or at least have found it in quantities scarcely perceptible. Those who have made experiments on some of these waters have allowed them to contain either sulphureous spirit, or an alkaline sulphur. Venel and Monnet are the first who opposed this opinion; the latter, in particular, nearly discovered the truth, when he considered sulphureous waters as impregnated merely by the vapour of *liver of sulphur.* Rouelle the younger, likewise affirmed, that these fluids might be imitated by agitating water in contact with *air*, disengaged from an alkaline sulphure by an acid. Bergman carried this doctrine much farther, by examining the properties of sulphurated hydrogen gas: he has proved that this gas mineralizes sulphureous waters, which he therefore calls *hepatic waters*, and has directed methods of ascertaining the presence of sulphur. Notwithstanding these discoveries, Duchanoy, speaking of sulphureous waters, admits of sulphur, sometimes alkaline, sometimes calcareous, or aluminous. He follows the opinion of Le Roy, of Montpellier, who proposed a sulphure with base of magnesia in imitating these waters. It appears in fact to be true, that there are waters which contain a small quantity of sulphur, while there are others which are mineralized only by sulphurated hydrogen gas. In this case it will be necessary to distinguish sulphureous waters into two orders: 1. Those which contain a small quantity of alkaline or calcareous sulphur; and, 2. Those which are only impregnated with sulphuric hydrogen gas. The waters of Bareges and Cauterets, and the Bonnes waters, appear to belong to this first order; and those of St. Amant, Aix la Chapelle, and Montmorency, appear to belong to the second. Most of these waters are thermal, but that of Montmorency is quite cold.

4. *Waters containing iron.*—The ferruginous wa-

ters are the most abundant and most common of all mineral waters. Modern chemistry has thrown great light on this class, which were formerly supposed to be all impregnated with sulphat of iron. Monnet has ascertained that most of them do not contain this salt, and he supposes that the iron is dissolved without the intermedium of an acid. It is at present known, that the iron is not in the state of sulphat, but is dissolved by means of the carbonic acid, and forms the salt which we have called carbonat of iron. Lane, Rouelle, Bergman, and many other chemists, have put this out of doubt. The greater or less quantity of carbonic acid, and the state of the iron in waters of this kind, render it necessary to distinguish the present class into three orders.

The first order comprehends martial acidulous waters, in which the iron is held in solution by the carbonic acid, whose superabundance renders them brisk and subacid. The waters of Bussang, Spa, Pyrmont, Pouhon, and La Dominique de Vals, are of this particular order.

The second contains simple martial waters in which the iron is dissolved by the carbonic acid, without excess of the latter. These waters consequently are not acidulous. The waters of Forges, Aumale, and Tunbridge, as well as the greater number of ferruginous waters, are of this order; this distinction of ferruginous waters was made by Duchanoy.

A third order is added by Monnet, which is that of waters containing sulphat of iron; though, in fact, these are extremely rare. Monnet has placed the waters of Passy in this order. Opoix admits the sulphat of iron, even in a considerable quantity, in the waters of Provins. Fourcroy indeed denies its existence, and considers the iron of these waters as dissolved by carbonic acid. But no decision can be made respecting this, because the results of these chemists entirely disagree, and require new experiments to be made. It must be added, that the iron is not found alone in these waters, but is mixed with chalk, sulphat of lime, various muriatic salts, &c. However, as the metal they contain is the principal basis of their properties, they may justly be called ferruginous.

From these details we find, that all mineral and medicinal waters are divided into nine orders, viz. 1. Cold acidulous waters. 2. Hot or thermal acidulous waters. 3. Sulphuric saline waters. 4. Muriatic saline waters. 5. Simple sulphureous waters. 6. Sulphurated gaseous waters. 7. Simple ferruginous waters. 8. Ferruginous and acidulous waters. 9. Sulphuric ferruginous waters.

The Analysis of Mineral Waters, according to their physical properties, has been justly considered as the most difficult part of chemistry, since it requires a perfect knowledge of all chemical phenomena, joined to the habit of making experiments. To obtain an accurate knowledge of the nature of any water proposed to be examined, 1. The situation of the spring, and the nature of the soil, more especially with respect to mineral strata, must be carefully observed. For this purpose, cavities may be dug to different depths, in order to discover, by inspection, the substances with which the water may be charged. 2. The physical properties of the water itself, such as its taste, smell, colour, transparency, weight, and temperature, must next be examined: for this purpose, two thermometers, which perfectly agree, and a good hydrometer, must be provided. These preliminary experiments require likewise to be made in the different seasons, different times of the day, and especially in different states of the atmosphere; for a continuance of dry weather, or of abundant rain, has a singular influence on waters. These first trials usually show the class to which the water under examination may be referred, and direct the method of analysis. 3. The depositions formed at the bottom of the basons, the substances which float on the water, and the matters which rise by sublimation, form likewise an object of important research, which must not be neglected. After this preliminary examination, the proper analysis may be proceeded on, which is made after three methods, by re-agents, by distillation, and by evaporation.

The examination of mineral waters by re-agents is very commonly practised. These substances are mixed with waters, in order to discover the nature of the bodies held in solution by them. These derive their name from the phenomena they present. The best chemists, however, have always considered the use of re-agents as a very uncertain method of discovering the principles of mineral waters. This opinion is founded on the considerations that their effects do not determine in an accurate manner, the nature of the substances held in solution in waters: that the cause of the changes which happen in fluids, by their addition, is often unknown: and that, in fact, the saline matters usually applied in this analysis are capable of producing a great number of phenomena, respecting which it is often difficult to form any decision. For these reasons, most chemists, who have undertaken this analysis, have placed little dependence on the application of re-agents. They have concluded, that evaporation affords a much surer method of ascertaining the nature and quantity of the principles of mineral waters; and it is taken for granted, in the best works on the analysis of these fluids, that re-agents are only to be used as secondary means, which at most serve to indicate or afford a probable guess of the nature of the principles contained in waters; and, for this reason, modern analysts have admitted no more than a certain number of re-agents, and have greatly diminished the list of those used by the earlier chemists.

But it cannot be doubted, at present, that the heat required to evaporate the water, however gentle it may be, must produce sensible alterations in its principles, and change them in such a manner, as that their residues, examined by the different methods of chemistry, shall afford compounds differing from those which were originally held in solution in the water. The loss of the gaseous substances, which frequently are the principal agents in mineral waters, singularly changes their nature, and besides causing a precipitation of many substances, which owe their solubility to the presence of these volatile matters, likewise produces a re-action among the other fixed matters, whose properties are accordingly changed. The phenomena of double decompositions, which heat is capable of producing between compounds that remain unchanged in cold water, cannot be estimated and allowed for, but in consequence of a long series of experiments not yet made. Without entering, therefore, more fully into these considerations, it will be enough to observe, that this assertion, whose truth is admitted by every chemist, sufficiently shows, that evaporation is not entirely to be depended on. Hence it becomes a question, whether there be any method of ascertaining the peculiar nature of substances dissolved in water without having recourse to heat; and whether the accurate results of the numerous experiments of modern writers afford any process for correcting the error which might arise from evaporation. The following pages, extracted from a memoir communicated by M. Fourcroy to the Royal Society of medicine at Paris, will show, that *very pure re-agents*, *used in a peculiar manner*, may be of considerable use in the analysis of mineral waters.

Among the considerable number of these substances proposed for the analysis of mineral waters, those which promise the most useful results are, tincture of turnsole, syrup of violets, lime-water, pure and caustic potash, caustic ammonia, concentrated sulphuric acid, nitrous acid, prussiat of lime, gallic alkohol, or *spirituous tincture of nut-galls*, the nitric solutions of mercury and of silver, paper coloured by the aqueous tincture of fernambouc, which becomes blue by means of alkalis, the aqueous tincture of *terra merita*, which the same salts convert to a brown red, the oxalic acid to exhibit the smallest quantity of lime, and the muriat of barytes to ascertain the smallest possible quantity of sulphuric acid.

The effects and use of these principal re-agents have been explained by all chemists, but they have not insisted upon the necessity of their state of purity. Before they are employed it is of the utmost importance perfectly to ascertain their nature, in order to avoid fallacious effects. Bergman has treated very amply on the alterations they are capable of producing. This celebrated chemist affirms, that paper coloured with the tincture of turnsole becomes a deeper blue by alkalis; but that it is not altered by the carbonic acid. But as this colouring matter is useful chiefly to ascertain the presence of this acid, he directs its tincture in water to be used, sufficiently diluted, till it has a blue colour. He absolutely rejects syrup of violets, because it is subject to ferment, and because it is subject likewise to adulteration.

Lime-water is one of the most useful re-agents in the analysis of mineral waters, though few chemists have expressly mentioned it in their works. This fluid decomposes metallic salts, especially sulphat of iron, whose metallic oxid it precipitates; it separates alumin and magnesia from the sulphuric and muriatic acids, to which these substances are frequently united in waters. It likewise indicates the presence of carbonic acid, by its precipitation. M. Gioanetti, a physician of Turin, has very ingeniously applied it to ascertain the quantity of carbonic acid contained in the water of St. Vincent. This chemist, after having observed that the volume or bulk of this acid, from which its quantity has always been estimated, must vary, according to the temperature of the atmosphere, mixed nine parts of lime-water with two parts of the water of St. Vincent: he weighed the *calcareous earth* formed by the combination of the carbonic acid of the mineral water with lime, and found, according to the calculation of Jaquin, who proves the existence of thirteen ounces of this acid in thirty-two ounces of chalk, that the water of St. Vincent contained somewhat more than fifteen grains. But as the lime-water may seize the carbonic acid united with fixed alkali, as well as that which is at liberty, M. Gioanetti, to ascertain more exactly the quantity of this last, made the same experiment with water deprived of its disengaged acid by ebullition. This process may therefore be employed to determine, in an easy and accurate manner, the weight of disengaged carbonic acid, contained in a gaseous mineral water.

One of the principal reasons which have induced chemists to consider the action of re-agents in the analysis of mineral waters as very fallacious, is, that they are capable of indicating several different substances held in solution in waters, and that it is then very difficult to know exactly the effects they will produce. This observation relates more especially to potash, considered as a re-agent, because it decomposes all the salts which are formed by the union of acids with alumin, magnesia, lime, and metals. When this alkali precipitates a mineral water, it cannot, therefore, be known by simple inspection of the precipitate, of what nature the earthy salt decomposed in the experiment may be. Its effect is still more uncertain, when the alkali made use of is saturated with carbonic acid, as is most commonly the case, since the acid to which it is united augments the confusion of effects: for this reason, the use of very pure caustic potash is proposed, which likewise possesses an advantage over the effervescent alkali, viz. that of indicating the presence of chalk dissolved in a gaseous water, by virtue of the superabundant carbonic acid: for it seizes this acid, and the chalk falls down of course. This fact is established by pouring soap lees, newly made, into an artificial gaseous water, which holds chalk in solution. The latter substance is precipitated in proportion as the caustic fixed alkali seizes the carbonic acid which held it in solution. By evaporating the filtrated water to dryness, carbonat of soda is obtained, strongly effervescent with acids. The caustic fixed alkali likewise occasions a precipitate in mineral waters, though they do not contain earthy salts; for if they contain an alkaline neutral salt, of a less soluble nature, the additional alkali will precipitate it by uniting with the water, nearly in the same manner as alkohol does. M. Gioanetti has observed this phenomenon in the waters of St. Vincent; and it may easily be seen by pouring caustic alkali into a solution of sulphat of potash, or muriat of soda; these two salts being quickly precipitated.

Caustic ammonia is in general less productive of error when mixed with mineral waters; because it decomposes only salts, with base of alumine or magnesia, and does not precipitate the calcareous salts. It is necessary, however, to make two observations respecting this salt: the first is, that it must be exceedingly caustic, or totally deprived of carbonic acid; without this precaution, it decomposes calcareous salts by double affinity: the second is, that the mixture must not be left exposed to air, when the effect of its action is required to be inspected several hours after it is added; because, as M. Gioanetti has well observed, this salt, in a very short time seizes the carbonic acid of the atmosphere, and becomes capable of decomposing calcareous salts. To ascertain this important fact beyond doubt, Fourcroy made three decisive experiments; some grains of sulphat of lime, formed of transparent calcareous spar, because chalk, or Spanish white, contain magnesia and river water: he divided this solution into two parts; into the first he poured a few drops of very pure sulphuric acid, recently made, and very caustic; this he put into a well closed bottle: at the end of twenty-four and forty-eight hours it was clear and transparent, without any precipitate, and therefore no decomposition had taken place. The second portion was treated in the same manner with ammoniac, but placed in a vessel which communicated with the air by a large aperture: at the end of a few hours a cloud was formed near the upper surface, which continually increased, and was at last precipitated to the bottom. This deposition effervesced strongly with sulphuric acid, and formed sulphat of lime. The carbonic acid contained in this precipitate was therefore afforded by the ammoniac which had attracted it from the atmosphere. This combination of carbonic acid and ammoniac forms ammoniacal carbonat, capable of decomposing calcareous salts by double affinity, as Black, Jacquin, and many other chemists have shown, and as may be easily proved by pouring a solution of ammoniacal carbonat into a solution of sulphat of lime, which is not rendered turbid by caustic ammoniac. Lastly, to render the theory of this second experiment clearer, Fourcroy took the first portion to which the caustic ammoniac had been added, and which, having been kept in a close vessel, had lost no part of its transparency. He reversed the bottle which contained it over the funnel of a very small pneumato-chemical apparatus, and by the assistance of a syphon, introduced carbonic acid gas, disengaged from the effervescent fixed alkali by sulphuric acid. In proportion as the bubbles of this acid passed through the mixture, it became turbid in the same manner as lime-water; by filtration a precipitate was separated, which was found to be chalk, and the water, by evaporation, afforded ammoniacal sulphat: gaseous water, or the liquid carbonic acid, produced the same composition in another mixture of sulphat of lime, and caustic ammoniac. This decisive experiment clearly shows, that ammoniac decomposes sulphat of lime by double affinity, and by means of the carbonic acid. Hence we see, that when it is required to preserve a mixture of the mineral water with ammoniac for several hours (which is sometimes necessary, because it does not decompose certain earthy salts, but very slowly), the experiment must be made in a vessel which can be accurately closed, in order to prevent the contact of air, which would falsify the result. This precaution, which is of great importance in the use of all re-agents, is likewise mentioned by Bergman and Gioanetti. To these may be added another observation concerning the use of ammoniac. As it is a matter of considerable difficulty to preserve ammoniac in the state of perfect causticity, though it is necessary to be had in such a state for the analysis of mineral waters, there is a simple expedient, which may be applied in this case. It is, to pour a small quantity of ammoniac into a retort, whose neck is plunged in the mineral water: when the retort is slightly heated, the ammoniacal gas becomes disengaged, and passes highly caustic into the water. If it occasion a precipitate, it may be concluded that the mineral water contains sulphat of iron, which may be known by the colour of the precipitate, or otherwise, that it contains salts, with base of aluminous or magnesian earth. Generally this precipitate is formed by the chalk which was held in solution in the water, by means of the carbonic acid; ammoniac absorbs this acid, and the chalk is deposited. It is difficult to determine from the physical properties of the earthy precipitate formed in waters by caustic ammoniac, to which of the two last bases it is to be attributed; yet the manner in which it is formed may serve to decide. Six grains of sulphat of magnesia were dissolved in four ounces of distilled water, and six grains of alum in an equal quantity of the same fluid; through each of these solutions a small quantity of ammoniacal gas was passed: the first solution immediately became turbid, while the latter did not begin to exhibit a precipitate till twenty minutes after. These mixtures were carefully included in well closed bottles. The same phenomenon took place with the nitrats and muriats of magnesia and alumine, dissolved in equal quantities of distilled water, and treated in the same manner. The quickness or slowness of the precipitation of a mineral water, by the addition of ammoniacal gas, therefore, affords the means of ascertaining the nature of the earthy salt decomposed by this gas. In general, salts, with base of magnesia, are much more usually met with than those with base of aluminous earth. Bergman has observed, that ammoniac is capable of forming with sulphat of magnesia, a compound, in which a portion of this neutral salt is combined, without decomposition, with a portion of ammoniacal sulphat. This non-decomposed portion of sulphat of magnesia may probably form, with the ammoniacal sulphat, a mixed neutral salt, similar to the ammoniaco-mercurial muriat, or *sal alembroth.* The ammoniac does not, therefore, precipitate the whole of magnesia, and consequently does not accurately exhibit the quantity of *Epsom salt,* of which that earth is the base. For this reason lime-water is preferable for ascertaining the nature and quantity of salts with base of magnesia contained in mineral waters. It has likewise the property of precipitating the salts with aluminous base, much more abundantly than ammoniacal gas.

The *concentrated sulphuric acid* precipitates a white powder from water which contains barytes, according to Bergman; but, as the same chemist observes, that this earth is seldom found in mineral waters, it will not be necessary to enlarge on this re-agent. When it produces an effervescence, or bubbles in water, it indicates the presence of chalk, carbonat of soda, or pure carbonic acid; each of these substances may be distinguished by certain peculiar phenomena. If water containing chalk be heated after the addition of sulphuric acid, a pellicle and deposition of sulphat of lime are soon formed, which does not happen with waters which are simply alkaline. At first consideration it may seem that the sulphat of lime ought to be precipitated as soon as the sulphuric acid is poured into water containing chalk; this, however, very seldom happens without the assistance of heat, because these waters most commonly contain a superabundance of carbonic acid, which favours the solution of the sulphat of lime, and of which it is necessary to deprive them before the salt can be precipitated. This fact may be shown in the clearest manner, by pouring a few drops of concentrated sulphuric acid into a certain quantity of lime-water which has been precipitated, and afterwards rendered clear by the addition of carbonic acid: if the lime-water be highly charged with regenerated calcareous earth, a precipitate of sulphat of lime is thrown down in a few minutes, or more slowly in proportion as the carbonic acid is set at liberty. If no precipitate be afforded by standing, as will be the case when the quantity of sulphat of lime is very small, and the superabundant carbonic acid considerable, the application of a slight degree of heat will cause a pellicle of calcareous sulphat, and a precipitate of the same nature to be formed.

The *nitrous acid* is recommended by Bergman to precipitate sulphur from *hepatized* waters. The experiment may be made by pouring a few drops of the brown and fuming acid on distilled water, in which the gas, disengaged from caustic alkaline sulphure, heated in a retort, has been received. This artificial *hepatic* water, which does not considerably differ from natural sulphureous waters, except in the circumstance of its being more difficult to filter, and its always appearing somewhat turbid, affords a precipitate in a few seconds, by the addition of nitrous acid; the precipitate is of a yellowish white; when collected on a filter and dried, it burns with the flame and smell of sulphur, and, in other respects, has every character of that inflammable body. Nitrous acid seems to alter sulphurated hydrogen gas, in the same manner as it does all other inflammable substances, by virtue of the great quantity of oxygen it contains. Scheele has recommended the oxygenated muriatic acid to precipitate the sulphur from waters of this nature: only a very small quantity of it must be used, otherwise the sulphur will be burned and reduced to the state of sulphuric acid. Sulphureous acid precipitates the sulphur very readily from waters which contain it.

There are few re-agents whose mode of action is less known than that of the *alkaline lixivium of blood.* It has been long ascertained, that this liquor contains prussiat of iron, ready formed; it has been thought that this blue might be separated by the addition of an acid; and in this state it has been proposed as a substance capable of exhibiting iron existing in mineral waters. Nothing can be more uncertain than the complete separation of prussiat of iron from this prussiat of potash made with blood. This lixivium ought, therefore, to be no longer used as a re-agent. Macqner, having discovered that Prussian blue is decomposed by alkalies, proposed potash, saturated with the colouring matter of this blue, as a test to ascertain the presence of iron in mineral waters. But as the liquor itself likewise contains a small quantity of Prussian blue, which may be separated by means of an acid, as Macquer has shown, Baumé advises that two or three ounces of distilled vinegar be added to each pound of this Prussian alkali, and digested in a gentle heat, till the whole of the Prussian blue is precipitated; after which pure fixed alkali is to be added to saturate the acid of vinegar. Notwithstanding this ingenious process, Fourcroy has observed, that the Prussian alkali, purified by vinegar, deposits Prussian blue in process of time, more especially by evaporation. M. Gioanetti made the same observation by evaporating the Prussian alkali, purified, by the method of Baumé, to dryness: he has proposed two processes for obtaining this liquor in a state of purity, and totally exempt from iron; the one consists in supersaturating the Prussian alkali with distilled vinegar, evaporating it to dryness by a gentle heat, dissolving the remaining mass in distilled water, and filtrating the solution; all the Prussian blue remains on the filter, and the liquor which passes through contains none at all. Tbe other process consists in neutralizing the alkali with a solution of alum, from which, after filtrating, the sulphat of potash is separated by evaporation. These two liquors do not afford a particle of Prussian blue with the pure acids, nor by evaporation to dryness. The lime-water, saturated with the colouring matter of Prussian blue, mentioned above in treating on iron, does not require these preliminary operations: when poured on a solution of sulphat of iron, it immediately forms pure Prussian blue, without any mixture of green. Acids only precipitate a few particles of Prussian blue from this re-agent; it therefore does not contain iron, and consequently is preferable to the Prussian alkalies, in the trial of mineral waters. This phenomenon doubtless depends upon the action of the lime, which, when dissolved in water, is far from having the same efficacy on iron as alkalies have. This prussiat of lime seems to be exceedingly well adapted to distinguish ferruginous waters, whether they be gaseous or sulphuric. In fact, the carbonic gas, which holds iron in solution in waters, being of an acid nature, decomposes Prussian lixivia by the way of double affinity, as well as sulphat of iron. Fourcroy tried prussiat of lime on Spa waters, and those of Passy, and he immediately discovered a very perceptible blue in the former, and very abundant in the latter. This, therefore, is a liquor very easily prepared, which does not contain the smallest portion of Prussian blue, and is exceedingly well calculated to exhibit the presence of small quantities of iron in waters. It is a kind of neutral salt, formed by the prussic acid, or the colouring part of the blue, and lime.

Nut-galls, and other astringent vegetable substances, such as oak bark, the fruit of the cypress tree, the husks of nuts, &c. have the property of precipitating iron, and exhibiting that metal of different colours, according to its quantity, its state, and that of the water in which it is dissolved. This colour, in general, is of all shades, from a pale rose to the deepest black. It is well known that the purple colour assumed by waters, with the tincture of nut-galls, is not a proof that they contain iron in its metallic state, since the sulphat and carbonat of iron likewise assume a purple colour by the infusion of nut-galls. The differences of colour observed in these precipitations, depend rather on the quantity of iron, its greater or less degree of adhesion to the water, and the more or less advanced state of decomposition of the solution, relatively to the quantity of oxygen contained in the iron. The astringent principle is known to be a peculiar acid, since it unites with alkalies, converts blue vegetable colours to a red, decomposes alkaline sulphures, and combines with metallic oxids. Nut-galls in powder, the infusion of this substance in water, made without heat, and the tincture by alkohol, are used to ascertain the presence of iron in mineral waters. The tincture is preferred, because it is not subject to become mouldy as the aqueous solution is. The distilled products of nut-galls likewise colour ferruginous solutions. The infusion, in acids, alkalies, oils, and ether exhibit the same phenomenon. The iron precipitated by this matter from acids is in the state of gallat of iron, and forms a kind of neutral salt, which, though very black, is not attracted by the magnet. It dissolves slowly, and without sensible effervescence in acids, but loses these properties by the action of fire, and is then attracted by the magnet. The nut-gall is so efficacious a re-agent, that a single drop of its tincture colours, in the space of five minutes, with a purple tinge, three pints of water, which contains only the twenty-fifth part of a grain of sulphat of iron. All these phenomena proceed from the great facility with which the matter of nut-galls burns, and from its readily absorbingfrom the iron, a portion of the oxygen it contains, passing by this means to the state of a black oxid or Ethiops, the smallest quantity of which is very perceptible in transparent liquors.

The two last re-agents used in the examination of mineral waters, are the *solutions of silver*, and of *mercury, in the nitric acid.* These have usually been employed to exhibit the presence of the sulphuric or muriatic acids in mineral waters; but many other substances, which do not contain the smallest portion of those, are likewise precipitated by these solutions. The white and heavy striæ which the nitrat of silver exhibits in water, that contains no more than half a grain of muriat of soda in the pint, ascertains the presence of the muriatic acid with great certainty and facility; but they do not in the same manner indicate the presence of the sulphuric acid, since, according to Bergman's estimate, at least thirty grains of sulphat of soda must exist in the pint of water, in order to produce an immediate sensible effect. To this we may add, that fixed alkali, chalk, and magnesia, precipitate the nitric solution of silver in a much more evident manner, and, consequently, that the precipitatiou formed by a mineral water in this solution is insufficient to determine, with precision, the saline or earthy substances from which it arose.

The solution of mercury by the nitric acid, is still more productive of error: it not only indicates the presence of the sulphuric and muriatic acids in waters, but it is likewise precipitated by the earthy and alkaline carbonats, in a yellowish powder, which might be mistaken for an effect of the sulphuric acid. It has been commonly supposed, that the very abundant white precipitate which it forms in water, is owing to the presence of a muriatic salt; yet mucilaginous and extractive substances exhibit the same phenomenon, as is now well known to all chemists. Besides these sources of error and uncertainty, dependent on the property which several substances have, of producing similar precipitates with the nitric solution of mercury, there are likewise others, which depend on the state of this solution itself, and which it is of the utmost consequence to know, in order to avoid very considerable errors in the analysis of waters. Bergman has mentioned some of the remarkable differences observed in this solution, according to the manner in which it is made, either with or without heat, more particularly with respect to the colour of the precipitates it affords, by different intermediums; but he does not say a word concerning the property this solution possesses, of being precipitated by distilled water, when it is highly charged with the oxid of mercury; though Monnet mentions this fact in his treatise on the dissolution of metals. As this subject is of great importance in the analysis of waters, Fourcroy endeavoured, by a very minute investigation, to arrive at some degree of certainty concerning it, and has, at last, succeeded by very simple means. He made a great number of solutions of mercury, in very pure nitric acid, with different doses of these two substances, with heat and in the cold, and with acids of very different strengths. These experiments were found to afford the following results.

1. Solutions made in the cold, became charged more or less readily, with different quantities of mercury, according to the degree of concentration of the nitric acid; but whatever the quantity of mercury dissolved in the cold, by the concentrated acid, may be, no part of it will be precipitated by mere water. He dissolved in the cold two drachms and a half of mercury, in two drachms of nitrous acid, red and fuming, weighing one ounce, four drachms, and five grains, in a bottle which contained an ounce of distilled water: the combination took place with the utmost rapidity; very dense nitrous gas escaped, together with aqueous vapours, dissipated by the heat of the mixture, amounting to more than one fourth of the acid. This solution was of a deep green, and very transparent; he poured a few drops into half an ounce of distilled water: some white striæ were formed, which were dissolved by agitation, and afforded no precipitate, though it was the most saturated solution he could make in the cold, and presented the greatest degree of commotion, effervescence, and red vapours, during the combination of the mercury and acids. As it had deposited crystals, he added two drachms of distilled water,

which dissolved the whole without any appearance of precipitation. With much greater safety, therefore, may such solutions as have been made in the cold with common nitric acid, and half their weight of mercury, be used in the analysis of mineral waters; for they will never afford a precipitate by the farther addition of water.

2. The weakest nitric acid, strongly heated on mercury, will dissolve a larger quantity than the strongest acid when cold. The solution, which is of a light yellow colour, will appear thick and oily, and will afford, by standing, an irregular yellowish mass, which may be changed into a beautiful *turbith* by the addition of boiling water: this solution, poured into distilled water, forms a very abundant precipitate of a yellow colour, similar to *turbith*. A solution made in the cold exhibits the same result, if it be strongly heated, so as to disengage a large quantity of nitrous gas. These solutions made with heat, ought, therefore, to be excluded from the analysis of mineral waters, because they are decomposable by distilled water.

3. The two solutions appear to differ from each other in the quantity of oxid of mercury, which is much greater in that which is precipitated by the water, than in that which is not decomposable by that fluid. M. Fourcroy has proved this, by evaporating equal quantities of both these solutions in an apothecary's phial, to reduce them into red precipitate, and he obtained one fourth more of this precipitate from the solution, which is decomposed by water, than from that which is not rendered turbid. The specific gravity likewise appeared to me to be a good method of ascertaining the relative quantities of oxid of mercury, contained in these different fluids. He compared weights of equal masses of three mercurial nitrous solutions: the one, which was not at all precipitated, by distilled water, and was the result of the first mentioned experiment, weighed one ounce, one drachm, and sixty-seven grains, in a bottle which contained exactly an ounce of distilled water. The second solution was made by a very gentle heat, and produced a slight opal colour, with distilled water, and scarcely any sensible quantity of precipitate. The same bottle contained one ounce, six drachms, twenty-four grains. Lastly, a third mercurial solution, considerably heated, and which precipitated a true *turbith mineral*, of a dirty yellow, by distilled water, weighed, in the same bottle, one ounce, seven drachms, twenty-five grains. A decisive experiment remained to be made, to confirm this opinion still more perfectly. If the solution precipitated by water, owed this property to a quantity of mercurial oxid, too large with respect to the acid, it would of course lose that property by the addition of acid; this accordingly happened. Nitrous acid was poured on a solution which was decomposed by water, and it soon acquired the property of no longer being precipitated, and was absolutely in the same state as that which had been made slowly at first, by the mere heat of the atmosphere. Monnet has mentioned this process, as a means of preventing crystals of mercurial nitrat from becoming converted into oxid by the contact of the air. It is by a contrary process, and by evaporating a portion of the acid of a good solution, which is not precipitated by water, that it is converted into a solution, much more strongly charged with mercurial oxid, and consequently capable of being decomposed by water: its original property may be restored by the addition of a quantity of acid, equal to that which it lost by evaporation.

These are the different considerations which M. Fourcroy has thought necessary to exhibit, in order that the effects of re-agents on waters may be better ascertained; but whatever may be the degree of precision to which researches of this nature may be carried; however extensive the knowledge we may have acquired concerning the degrees of purity, and the different states of such substances as are combined with mineral waters, for the purpose of discovering their principles, if it still remains a fact, that each of these re-agents is capable of indicating two or three different substances dissolved in these waters, the result of their action will always be subject to uncertainty. Lime, for example, seizes the carbonic acid, and precipitates salts with the base of alumine, and of magnesia, as well as the metallic salts. Ammoniac produces the same effect. Fixed alkalies, besides the above mentioned salts, precipitate those with base of lime. The calcareous prussiat, the prussiat of potash, and gallic alkohol, precipitate the sulphat and carbonat of iron. The nitric solutions of silver and of mercury, decompose all the sulphuric and muriatic salts, which may be various both in quantity and in kind, in the same water, and are themselves decomposable by alkalies, chalk, and magnesia. Among this great number of complicated effects, how shall we distinguish that which takes place in the water under examination, or by what means shall we ascertain whether it is simple or compounded?

These questions, though very difficult for the time when the expedients of chemistry were little known, are, nevertheless, capable of being discussed in the present state of our knowledge. It must first be observed, that the nature of re-agents being much better known at present than it was some years ago, and their re-action on the principles of water better ascertained, it may, therefore, be strongly presumed, that their application may be much more advantageously made than has hitherto been supposed: nevertheless, among the great number of excellent chemists who have attended to the analysis of waters, Messrs. Baumé, Bergman, and Gioanetti, are almost the only persons who have been aware of this great advantage. We have been long in the habit of examining mineral waters by re-agents, in very small doses, and often in glasses; the phenomena of the precipitations observed have been noted down, and the experiment carried no further. Baumé advises, in his chemistry, that a considerable quantity of the mineral water under examination, should be saturated with fixed alkalies and with acids, that the precipitates be collected, and their nature examined. Bergman apprehended that the quantity of the principles contained in waters, might be judged of from the weight of the precipitates obtained in these mixtures. Several other chemists have likewise employed this method, but always with a view to ascertain particular circumstances; and no one has hitherto proposed to make a connected analysis of mineral waters by this means. To succeed in this analysis, it would be proper to mix several pints of the mineral water with each re-agent, till the latter ceases to produce any precipitate: the precipitate should then be suffered to subside during the time of twenty-four hours, in a vessel accurately closed; after which, the mixture being filtered, and the precipitate dried and weighed, the operator may proceed to examine it by the known methods. In this manner the nature of the substance will be clearly ascertained, on which the re-agent has acted, and the cause of the decomposition may consequently be inferred. A certain order may be followed in these operations, by mixing the waters first with such substances as stand least capable of altering them, and afterwards passing to other substances capable of producing changes more varied and difficult to explain. The following method is that which Fourcroy commonly uses in this kind of analysis. After having examined the taste, the colour, the weight, and all the other physical properties of a mineral water, he pours four pounds of lime-water on an equal quantity of the fluid; if no precipitate is made in twenty-four hours, he is sure that the water contains neither disengaged carbonic acid, nor alkaline carbonat, nor earthy salts with the base of aluminous earth or magnesia, nor metallic salts. But if a precipitate be formed, he filters the mixture, and examines the chemical properties of the deposited substance; if it has no taste, if it be insoluble in water, or effervesces with acids, or forms an insipid, and almost insoluble salt, by the addition of sulphuric acid, he concludes that it is chalk, and that the lime-water has acted only on the carbonic acid dissolved in the water. If, on the contrary, it is small in quantity, and subsides very slowly; if it do not effervesce, and affords with the sulphuric acid a styptic salt, or a bitter and very soluble salt, it is formed by magnesia or aluminous earth, and often by both.

After the examination by lime-water, Fourcroy pours on four other pounds of the same mineral water, a drachm or two of ammoniac perfectly caustic, or causes ammoniacal gas, disengaged by heat from the alkali, to pass into the water. When the water is saturated, it is left at rest in a close vessel for twenty-four hours; if a precipitate be afforded, it can only consist of ferruginous or magnesian, or aluminous salts, whose natnre is examined by the different methods mentioned in the foregoing observations. But the action of ammoniacal gas, being more fallacious than that of lime-water, which produces the same decompositions, it must be observed, that this last should only be used as an assistant means, which does not afford results equally accurate with those produced by the former re-agent.

When salts, with base of aluminous earth, or magnesia, have been discovered by lime-water, or by ammoniacal gas, the caustic fixed alkalies may be used, to distinguish those with base of lime, such as sulphat, and muriat of lime. For this purpose, Fourcroy precipitates some pounds of the water, which is examined by either of these liquid alkalies, till it no longer produces any turbidness. As this alkali decomposes salts with base of aluminous earth, as well as those composed of lime; if the precipitate resembles in its form, colour, and quantity, that which lime-water has afforded, it may be presumed that the water does not contain calcareous salt, and the chemical examinations of the precipitate usually confirms this suspicion: but if the mixture is much more turbid than that made with lime-water; if the deposition be much heavier, more abundant, and more readily afforded, the lime is mixed with magnesia or alumine. This is ascertained, by treating the precipitate after the different methods before explained. It may easily be concluded, that iron, precipitated by re-agents, at the same time as the salino-terrestrial substances, is easily known by its colour and its taste; and that the small quantity of this metal separated in these processes, is not sufficient to affect the results.

It were useless to explain at large the effects of sulphuric acid, nitrous acid, gall-nuts, or of the calcareous and alkaline prussiats, employed as re-agents on mineral waters. The general account of these effects, which has already been given, may suffice; it need, therefore, only be noticed, that when they are mixed in large doses with these waters, and the precipitates collected, the nature and quantity of their principles may be more accurately ascertained, as has been done by Messrs. Bergman and Gioanetti. The products which the nitric solutions of silver or mercury afford, when mixed with mineral waters, deserve particular attention. It is more particularly necessary to operate with large quantities of water, when these re-agents are used, in order to determine the nature of the acids contained in the waters. The analysis of these fluids will be complete, when their acids are known, because these are often combined with the bases exhibited by the re-agents before mentioned. The colour, the form, and the abundance of the precipitates afforded by the nitric solutions of mercury and silver, have hitherto exhibited to chemists the nature of the acids which caused them. A thick and ponderous deposition immediately formed by these solutions, denotes the muriatic acid: if it is small in quantity, white, and crystallized with the nitrat of silver, or yellowish, and yellow and irregular, when formed with that of mercury, and if it subside but slowly, it is attributed to the sulphuric acid. But as these two acids are often met with in the same water, and as alkali and chalk likewise decompose the solutions, the results or deductions made from the physical properties of the precipitates must be uncertain. It is, therefore, necessary to examine them more effectually: for this purpose, solutions of silver or mercury may be mixed with five or six pounds of the water intended to be analyzed. The mixtures being filtered, twenty-four hours after the precipitates must be dried, and treated according to the methods of chemistry. If the precipitate, afforded by the nitric solution of mercury, be heated in a retort, the portion of metal, united with the muriatic acid of the waters, will be volatilized into pure *calomel;* and that which is combined with the sulphuric acid will remain at the bottom of the vessel, and exhibit a reddish colour. These two salts may likewise be distinguished by putting them on a hot coal; the sulphat of mercury, if present, emits a sulphureous acid, and assumes a red colour; the mercurial muriat remains white, and is volatilized without exhibiting any smell of sulphur. These phenomena likewise serve to distinguish the precipitates which may be formed by the alkaline substances contained in water, since the latter do not emit the sulphureous smell, and are not volatile without decomposition.

The precipitates produced by the combination of mineral waters with the nitric solution of silver, may be as easily examined as the foregoing. Sulphat of silver being more soluble than the muriat of the same metal, distilled water may be successfully used to separate these salts. Muriat of silver is known by its fixity, its fusibility, and especially in its being less easily decomposed than sulphat of silver. This last, placed on hot coals, emits a sulphureous smell, and leaves an oxid of silver, which may be fused without any farther addition.

Distillation is used in the analysis of waters, with a view to ascertain the gaseous substances they may be united to. These substances are either air, more or less pure, or carbonic acid, or sulphurated hydrogen gas. To ascertain their nature and quantity, some pounds of the mineral water must be poured into a retort, sufficiently large to contain it, without being filled more than half or two-thirds of its capacity; to this vessel a recurved tube is to be adapted, which passes beneath an inverted vessel filled with mercury. In this disposition of the apparatus, the retort must be heated till the water perfectly boils, or till no more elastic fluid passes over. When the operation is finished, the quantity of air contained in the empty space of the retort must be subtracted from the bulk of the gas obtained; the rest consists of aëriform fluid, which was contained in the mineral water, whose properties may quickly be known by the proofs of a lighted taper, tincture of turnsole, and lime-water; if it catches fire, and has a fœtid smell, it is sulphurated hydrogen gas; if it extinguishes the taper, reddens turnsole, and precipitates lime water, it is the carbonic acid; lastly, if it maintains combustion without taking fire, is without smell, and alters neither turnsole nor lime water, it is atmospheric air. It may happen, that this fluid may be purer than the air of the atmosphere: in this case, its degrees of purity may be judged by the manner in which it maintains combustion, or by mixing it with nitrous or hydrogen gas, in the eudiometers of Fontana and Volta. The process used in obtaining gaseous matters contained in waters, is entirely modern. A moistened bladder was formerly used, which was adapted to the neck of a bottle filled with mineral water: the fluid was agitated, and by the swelling of the bladder an estimate was made of the quantity of gas contained in the water. This method is now known to be fallacious, because water cannot give out all its gas but by ebullition, and because the sides of the moistened bladder alter and decompose the elastic fluid obtained. It is scarcely necessary to remark, that the phenomena exhibited by the water, during the escape of the gas, must be carefully examined, and that a less quantity of water may be exposed to distillation, in proportion as its taste and sparkling indicate that it contains a larger quantity of gas.

Such is the method recommended by modern chemists, to obtain the elastic fluids combined with waters. It must be observed, 1. That this process cannot be depended on, with regard to acidulous waters, unless the pressure of the atmosphere, and the state of compression of the elastic fluid, under the glass vessels, be more accurately accounted for: and as this is not easily done, the absorption of carbonic acid by lime-water, proposed by Gioanetti, appears to be preferable. 2. Though it has been recommended by Bergman to obtain sulphurated hydrogen gas from sulphureous waters, it does not answer, because the heat of ebullition decomposes the gas, and it is likewise decomposed by the mercury, which is converted into ethiops, as soon as it comes in contact with this elastic fluid: for this reason, litharge should be used to absorb this gas in the cold, and to deprive sulphureous waters of their sulphur.

Evaporation is generally considered as the most certain method of obtaining all the principles of mineral waters. We have before observed, and here repeat, that the experiments of Veuel and Cornette show, that long continued ebullition may decompose saline matters dissolved in water, and for that reason we have advised the examination of them by re-agents, employed in greater proportions; yet evaporation may afford much information, when used together with the analysis by re-agents, which ought always to be considered as one of the principal methods of examining mineral waters.

The intention of evaporation being to collect the fixed principles contained in a mineral water, it is obvious, that in order to know the nature and proportion of these principles, a considerable quantity of the water must be evaporated, and so much the more, in proportion as the principles appear to exist in smaller quantities. When the water is thought to contain a large quantity of saline matter, about twenty pounds must be evaporated: if, on the contrary, it appears to hold but a very small quantity in solution, it will be necessary to evaporate a much larger quantity. It is sometimes requisite to perform this operation with several hundred pounds. The nature and form of the vessels in which waters are exposed for evaporation, is not a matter of indifference: those of metal, excepting silver, are altered by water; vessels of glass, of a certain magnitude, are very subject to be broken; but those of glazed smooth pottery are the most convenient, though the cracks in the glaze sometimes cause an absorption of saline matter; vessels of unglazed porcelain, called biscuit, would doubtless be the most convenient, but their price is a considerable obstacle. Chemists have proposed different methods of evaporating mineral waters; some have directed distillation to dryness, in close vessels, in order to prevent foreign substances, which float in the atmosphere, from mixing with the residue; but this method is excessively tedious: others have advised evaporation by a gentle heat, never carried to ebullition, because they suppose that this last heat alters the fixed principles, and carries up a portion of them. This was the opinion of Venel and Bergman. Monnet, on the contrary, directs the water to be boiled, because this motion prevents the reception of foreign matters contained in the atmosphere. Bergman avoids this inconvenience, by directing the vessel to be covered, and a hole left in the middle of the cover for the vapours to pass out: this last method greatly retards the evaporation, because it diminishes the surface of the fluid. At the commencement, the heat used must be sufficient to repel the dust, but the greatest difference in the manipulation of this experiment consists in some writers directing that the substances deposited should be separated, as the evaporation proceeds, in order to obtain each pure and by itself; others, on the contrary, direct the operation to be carried on to dryness. The opinion of Bergman prevails most, that this last method is the most expeditious and certain; because notwithstanding the care which may be taken, in the first method, to separate the different substances which are deposited or chrystallized, they are never obtained pure, and must always be examined by a subsequent analysis; and the method is besides inaccurate, on account of the frequent filtrations, and the loss it occasions. Lastly, it is very embarrassing, and renders the evaporation much longer. Mineral waters may, therefore, be evaporated to dryness, in open glass vessels, on the water-bath, or still more advantageously in glass retorts, on a common sand-bath.

Various phenomena are observed during this operation: if the water be acidulous, it emits bubbles, as soon as the heat first begins to act; in proportion as the carbonic acid is disengaged, a pellicle is formed, with a deposition of calcareous earth, and carbonat of iron. These first pellicles are succeeded by the crystallization of sulphat of lime; and lastly, the muriats of potash and soda chrystallize in tubes at the surface, but the deliquescent salts are not obtained but by evaporation to dryness.

The residue must then be weighed, and put into a small phial, with three or four times its weight of alkohol: the whole being agitated, and suffered to subside for some hours, must be filtrated, and the alkohol preserved separate. The residue, on which the spirit has not acted, must be dried in a gentle heat, or in the open air; when perfectly dry it must be weighed, and the loss of weight will show what quantity of calcareous or magnesian muriat was contained, because these salts are very soluble in alkohol. We shall presently speak of the method of ascertaining the presence of these two salts in the spirituous fluid.

The residue, after treatment with alkohol, and drying, must be agitated with eight times its weight of cold distilled water, and filtered. After some hours standing, the residue is to be dried a second time, and boiled half an hour in four or five hundred times its weight of distilled water; this last residue, after filtration, consists of that which cold or boiling water is insufficient to dissolve. The first water contains neutral salts, such as sulphat of soda, or of magnesia; the muriat of soda, or potash and the fixed alkalis, especially soda united with carbonic acid: the large quantity of boiling water scarcely contains any substance but sulphat of lime. There are, therefore, four substances to be examined, after these different operations on the matter obtained by evaporation. 1. The residue insoluble in alkohol, and in water of different temperatures. 2. The salts dissolved in alkohol. 3. The salts dissolved in cold water. 4. and lastly, Those dissolved in boiling water. We shall now proceed to the experiments necessary to ascertain the nature of these different substances.

1. The residue which has resisted the action of the alkohol and water, may be composed of calcareous earth, of carbonat of magnesia and iron, of alumine, and of quartz. These two last substances are seldom found in waters, but the three first are very common; the brown, or more or less deep yellow colour, indicates the presence of iron. If the residue be of a white grey, it does not contain this metal. When iron is present, Bergman directs it to be moistened, and exposed to the air till it rusts; in which state vinegar does not act on it. In order to explain the methods of separating these different substances, we will suppose an insoluble residue to consist of the five substances here mentioned: it must first be moistened, and exposed to the rays of the sun; and when the iron is perfectly rusted, the residue must be digested in distilled vinegar. This acid dissolves the lime and magnesia, and by evaporation affords the calcareous acetite, distinguishable from the acetite of magnesia, by its not attracting the humidity of the air. They may consequently be separated by deliquescence, or by pouring sulphuric acid into their solution. The latter forms sulphat of lime, which precipitates; but if the magnesian acetite be present, the sulphat of magnesia, composed of magnesia united with the sulphuric acid, will remain in solution, and may be contained by a well conducted evaporation. To ascertain the quantity of magnesia and calcareous earth contained in this residue, sulphat of lime is first to be precipitated: and the sulphat of magnesia, formed by the sulphuric acid poured into the acetous solution, must then be precipitated by carbonat of potash. The quantities of these precipitates are known by weighing. When the chalk and magnesia of the residue are thus separated, the iron, the alumine, and the quartz remain. The iron and the alumine are dissolved by pure muriatic acid, from which the former is precipitated from prussiat of lime, and the latter by carbonat of potash. These precipitates must likewise be weighed. The matter which remains after the separation of the alumine and iron is usually quartzose; its quantity may be known by weighing, and its habitudes by fusion of the blow-pipe with carbonat of soda. Such are the most accurate processes, recommended by Bergman, for examining the insoluble residue of mineral waters.

2. The alkohol used in washing the solid residue of mineral waters, must be evaporated to dryness. Bergman advises treating it with sulphuric acid, diluted with water, in the same manner as the acetous solution before spoken of; but it must be observed, that this process serves only to exhibit the bases of these salts. To determine the acid, which is ordinarily united with magnesia or lime, and sometimes with both, a few drops of concentrated sulphuric acid must be poured on, which excites an effervescence, and disengages the muriatic gas, known by its smell and white vapour, when the salt under examination contains that acid. This may likewise be known by dissolving the whole residue in water, and adding a few drops of the nitric solution of silver. The nature of the base, which, as we have observed, is either lime, magnesia, or both together, is known by the name of the sulphuric acid, by a similar process with that already explained respecting the acetous solution.

3. The water used in washing the first residue of the mineral water, performed, as before directed, with eight times its weight of cold distilled water, contains neutral alkaline salts, such as sulphat of soda, muriats, or marine salts, carbonat of potash, and of soda, and sulphat of magnesia: a small quantity of sulphat of iron is sometimes found. These salts never exist altogether in waters: the sulphat of soda, and the carbonat of potash, are very seldom found; but marine salt is frequently met with, together with carbonat of soda. The sulphat of magnesia is likewise frequently met with, and some waters even contain it in considerable quantities. When the first washing of the residue of a mineral water contains only one kind of neutral salt, it may easily be obtained by crystallization, and its nature ascertained from its form, taste, and the action of fire, as well as that of the re-agents: but this case is very rare, for it is much more usual to find many salts united in this lixivium. They must therefore be separated, if practicable, by slow evaporation; but as this method does not always perfectly succeed, however carefully this evaporation be conducted, it will be necessary to re-examine the salts obtained at the different periods of the evaporation. Carbonat of soda is usually deposited confusedly with the muriatic salts, but they may be separated by a process, pointed out by M. Gioanetti. It consists in washing this mixed salt with distilled vinegar; for this acid dissolves the carbonat of soda. The mixture must then be dried and washed a second time with alkohol, which takes up the acetite of soda, without acting on marine salt. The spirituous solution being evaporated to dryness, and the residue calcined, the vinegar becomes decomposed and burns. Soda alone remains, whose quantity may be then accurately determined.

4. The water used in the quantity of four or five hundred times the weight of the residuum of the mineral water contains only sulphat of lime. This may be ascertained by pure caustic ammoniac, which occasions no change, while caustic potash precipitates it abundantly. By evaporation to dryness, the quantity of earthy salt which the water contains may be accurately ascertained.

A SYNOPTICAL TABLE, *shewing the Composition of Mineral Waters.*

CLASS.	NAME.	Highest temperature. Fahrenheit.	Contained in an English wine pint of 28,875 cubic inches.						
			Azotic gas. cub. inches.	Carbonic acid gas. cub. inches.	Sulphurated hydrogen. cub. inches.	Carbonated soda. grains.	Neutral purging salts. grains	Selenite and earthy carbonates. grains.	Oxid of iron. grains.
Simpler cold	Malvern			uncertain	none	none	uncertain	uncertain	none
	Holywell				none	none	uncertain	uncertain	none
Simpler thermal	Bristol	74°	uncertain	3.75	none	none	2.81	3.16	none
	Matlock	66°		uncertain	none	none	uncertain	uncertain	none
	Buxton	82°	0.740	uncertain	none	none	0.25	1.625	none
Simple saline	Sedlitz			1.	none	none	185.6	8.68	none
	Epsom				none	none	40 ?	8.?	none
	Sea				none	none	237.5	6.	none
Highly carbonated alkaline	Seltzer			17.	none	4.	17.5	8.	none
Simple carbonated chalybeate	Tunbridge		0.675	1.325	none	none	0.344	0.156	0.125
Hot carbonated chalybeate	Bath	116°	1 ?	1.?	none	none	10.?	10.?	uncertain
Highly carbonated chalybeate	Spa			12.79	none	1.47	4 632	1.47	0.56
	Pyrmont			26.	none	none	7.13	23.075	0.56
Saline, carbonated chalybeate	Cheltenham		uncertain	5.687	uncertain	none	62.125	6.85	0.625
	Scarborough			uncertain	none	none	20.	10.	uncertain
Hot, saline, highly carbonated chalybeate	Vichy	120°?		uncertain	none	uncertain		uncertain	uncertain
	Carlsbad	165°		uncertain	none	11.76	47.04	4.15	uncertain
Vitriolated chalybeate	Hartfell				none	none	none	none	4 815*
Cold sulphureous	Harrowgate		0.875	1.	2.375	none	91.25	3.	none
	Moffat		0.5	0.625	1.25	none	4 5	none	none
Hot, alkaline, sulphureous.	Aix	143°		uncertain	uncertain	12.	5.	4.75	none
	Borset	132°		uncertain	uncertain	uncertain	uncertain		none
	Barege	120°			uncertain	2.5	0.5	uncertain	none

Dr. Saunders, with a view to present his readers, at once, with the most conspicuous features in the composition of the mineral waters of this and some other countries, has given the foregoing synoptical table, in which it must, however, be observed, that under the head of *Neutral purging salts*, are included the sulphats of soda and magnesia, and the muriats of lime, soda, and magnesia. The power which the earthy muriats may possess of acting on the intestinal canal, is not quite ascertained, but from their great solubility, and from analogy with salts, with similar component parts, we may conclude that this forms a principal part of their operation. It must likewise be observed, that where the spaces are left blank, it signifies that we are ignorant whether any of the substance at the head of the column is contained in the water; that the word *none* implies a certainty of the absence of that substance; and the term *uncertain*, means that the substance is contained, but that the quantity is not known. The quantity of oxid of iron in the vitriolated chalybeate of Hartfell (marked *), is stated at 4.815; 2.94, being contained in the sulphat of iron, (this salt, when chrystallized, containing 28 per cent. of oxid of iron, according to Kirwan), and 1.875 additional of oxid of iron.

For an account of the several mineral springs, see the articles Bath, Malvern, Spa Water, &c.

MINERAL WATERS, ARTIFICIAL; such waters as, by different chemical processes, are imbued with the principles which the several springs are found naturally to contain. The numerous processes prescribed under the article Mineral Waters, for examining their residues by evapaporation, &c. serve to ascertain, with the greatest precision, all the several matters held in solution in these fluids. Another process might be made to prove the success of the analysis, viz. that of imitating nature in the way of synthesis, by dissolving in pure water the different substances obtained by the analysis of mineral water, by which means artificial mineral waters must be accurately obtained. If such waters have the same taste, the same weight, and exhibit the same phenomena with reagents as the natural mineral water, it is at once the most complete proof of the correctness of the experiments made, and of their sufficiency for medical purposes. This artificial combination has likewise the advantage of being procured in all places at pleasure, and at a trifling expence; and is even in some cases superior to the natural mineral waters, for their whole properties may be changed by carriage, and other circumstances. The most celebrated chemists are of opinion, that it is possible to imitate mineral waters. Macquer has observed, that since the discovery of the carbonic acid, and the property it is found to possess of rendering many substances soluble in water, it is much more easy to prepare artificial mineral waters. Bergman has described the method of composing waters, which perfectly imitate those of Spa, Seltzer, Pyrmont, &c. He likewise informs us, that they are used with great success in Sweden, and that he himself has experienced their good effects. Duchanoy has published a work, in which he has given a number of processes for imitating all the mineral waters usually employed in medicine. We may, therefore, hope that chemistry may render the most essential service to the art of healing, by affording valuable medicines, whose activity may be increased or diminished at pleasure.

MI'NIUM, the red oxid of lead, commonly called red lead. See Lead.

MINT, COMMON. See Mentha sativa.

MINT, WATER. See Mentha aquatica.

MISLAW. See Musa paradisiaca.

MISPICKLE, the name of a white, brilliant, granulated iron ore, composed of iron in combination with arsenic.

MISSLETOE. See Viscum.

MISTU'RA, in the practice of pharmacy, a mixture. In prescription it is mostly contracted thus, *Mist.* e. g.—*fiat Mist.* which means, let it be made into a mixture. These compositions are, of course, very various. In a chemical sense, mixture should be distinguished from a chemical solution; in the former, the aggregate particles can again be separated by mechanical means, and the proportion of the different particles determined; but, in solution, no mechanical power whatsoever can separate them. See Mixture.

MI'SY, a species of the *chalcantha*, a fossil very common in the Turkish dominions, and sometimes found in the mines of Cremnitz, in Hungary. It is a considerably firm substance, of an irregular texture, not compact; much resembling some of our more gaudy marcasites, but wanting their hardness and weight. It is of no determinate shape or size; but is often found in small detached masses, which are usually broad, flat, and very rugged at the edges. As to its medical virtues, they are no other than those of the sulphat of iron.

MI'THRIDATE, an antidote, or composition, in form of an electuary, supposed to serve either as a remedy or a preservative against poisons. It took its name from the inventor, Mithridates king of Pontus; who is said to have so fortified his body against poisons, with antidotes and preservatives, that when he had a mind to dispatch himself, he could not find any poison that would take effect. The receipt of it was found in his cabinet, written with his own hand, and was carried to Rome by Pompey. It was translated into verse by Damocrates, a famous physician; and was afterwards translated by Galen, from whom we have it; though there is room to imagine it has undergone considerable alterations since the time of its royal prescriber. It was retained in some of our modern dispensatories, long after other absurd compositions had been discarded. The modern mithridate consisted of more than fifty ingredients, some of which were not merely superfluous, but of opposite tendency. Generally speaking, it was a composition of various aromatic substances, with opium, and probably derived the high character it so long enjoyed to the latter ingredient.

MI'THRIDATE MUSTARD. See Thalspi campestre.

MI'TRA'LES VA'LVULÆ; mitral valves. The valves of the left ventricle of the heart are so called, from their resemblance to a mitre. See Heart.

MIXT, or *mixt body*, in chemistry, that which is compounded of different elements or principles.

MIXTURE, a compound or assemblage of several different bodies in the same mass. Simple mixture consists only in the simple apposition of parts of different bodies to each other. Thus, when powders of different kinds are rubbed together, the mixture is only simple, and each of the powders retains its particular character. In like manner, when oil and water are mixed together, though the parts of both are confounded, so that the liquor may appear to be homogenous, we cannot say that there is any more than a simple apposition of the parts, as the oil and water may very easily be again separated from each other. But the case is very different when bodies are *chemically* mixed; for then one or both bodies assume new properties, and can by no means be recovered in their proper form without a particular chemical process adapted to this purpose. Hence chemical mixture is attended with many phenomena which are never observed in simple mixtures; such as heat, effervescence, &c. To chemical mixture belong the union of acids and alkalies, the amalgamation of metals, solution of gums, &c. and upon it depend many of the principal operations of chemistry.

MODI'OLUS, (dim. of *modius*, a measure). The nucleus, as it were, of the cochlea of the ear, ascending from the basis of the cochlea to the apex, is so named by some anatomists.

MOEBIUS (Godfrey), professor of physic at Jena, was born at Lauch in Thuringia, in 1611. He became first physician to Frederic William elector of Brandenburg, to Augustus duke of Saxony, and to William duke of Saxe Weimar. He wrote several medical works, which were esteemed; and died at Halle, in Saxony, in 1664.

MOFFAT-WATERS; those sulphureous springs which issue from a rock, in the vicinity of the village of Moffat, North Britain. The smell of this water corresponds with that of Harrogate; its taste is saline and sulphureous, divested of all bitterness. It is chiefly employed in cutaneous and scrophulous cases; but has been found very beneficial, when applied externally, to irritable and ill-conditioned ulcers. Dr. Willich says, the Moffat-waters have been of considerable service to persons afflicted with calculous and biliary complaints; in cases of indigestion; and for invigorating the alimentary canal, where general weakness and inactivity prevail. The dose varies according to the constitution of the patient; but, as this water may be safely drunk at almost every season, it ought to be taken liberally, in such quantities, and at such intervals, as the persons affected can conveniently bear. From one to three quarts should be taken every morning; a quantity which produces scarcely any other sensible effects, excepting an increased flow of urine.

MOISTURE. See Humidity. The moisture of the air has considerable effects on the human body. For the quantity and quality of the food, and the proportion of the meat to the drink, being given, the weight of a human body is less, and consequently its discharges greater, in dry weather than in wet; which some have thus accounted for: the moisture of the air moistens the fibres of the skin, and lessens perspiration, by lessening their vibratory motion. When perspiration is thus lessened by the moisture of the air, urine, indeed, is by degrees increased, but not equally. Hence, according to Dr. Bryan Robinson, we learn, that, to keep a body of the same weight in wet weather as in dry, either the quantity of food must be lessened, or the proportion of the meat to the drink increased; and both these may be done by lessening the drink without making any change in the meat. The instrument used for determining the degree of moisture in the air, is called an *hygrometer*.

MO'LA, a term used by authors to describe very different productions of, or excretions from, the uterus. By some it is made to signify almost every kind of fleshy substance, particularly those which are properly called polypi (see Polypus); by others, those only which are the consequence of imperfect conception, or when the ovum is in a morbid or decayed state; and by many, every coagulum of blood which continues long enough in the uterus to assume its form, and to have only what is called the fibrous part remaining, is denominated a mole.

There is much impropriety, as Dr. Denman observes, in including under one general name, appearances so contrary, and substances so different in their nature.

That kind, which has been defined an *ovum deforme*, as being the consequence of conception, might more justly be arranged under the class of monsters; for though it has the appearance of a shapeless mass of flesh, if examined carefully by dissection, various parts of a child may be discovered, lying together in apparent confusion, but in actual regularity. The pedicle, also, by which it is connected to the uterus, is not of a fleshy texture, like that of the polypus, but has a regular series of vessels like the umbilical cord, and there is likewise a placenta and membranes containing water. The symptoms attending the formation, growth, and expulsion of this apparently confused mass from the uterus, correspond with those of the birth of a well-formed child.

With respect to the third, and most prevailing opinion of the nature of a mole, an incision into its substance will most effectually discover it; for although the external surface appears at the first view to be organized flesh, the internal part is composed merely of coagulated blood. As substances of this kind, which mostly occur after delivery, would always be expelled by the action of the uterus, there seems to be no reason for a particular inquiry, if popular opinion had not annexed the idea of mischief to them, and attributed their formation, or continuance, in the uterus, to the negligence or misconduct of the practitioner. Hence the persuasion arose of the necessity of extracting all the coagula of blood out of the uterus, immediately after the expulsion of the placenta, or of giving medicines to force them away; but Dr. Denman says, abundant experience has proved, that the retention of such coagula is not, under any circumstances, productive of danger, and that they are spontaneously expelled by the action of the uterus, though at very different periods after their formation.

MOLA'RES GLA'NDULÆ, molar glands. These are two salival glands situated on each side of the mouth, between the masseter and buccinator muscles, and whose excretory ducts open near the last dens molaris.

MOLA'RIS (from *molaris*, a grindstone, because they grind the food); a grinder or double tooth. See Teeth.

MOLDA'VICA, or *Melissa Turcica;* Turkey balsam, Canary balsam, or balsam of Gilead; *Dracocephalum moldavica; floribus verticillatis, bracteis lanceolatis, serraturis capillareis*, Linn. This plant affords a fragrant essential oil by distillation, known in Germany by the name of *oleum Syriæ*. The whole herb abounds with an aromatic smell, and an agreeable taste joined with an aromatic flavour. Its essential oil is recommended to give tone to the stomach and nervous system, but it is little used at present.

MOLLI'TIES O'SSIUM, or *Malacosteon;* softness of bone; a disease wherein the bones can be bent without fracturing them. The bones are liable to two opposite diseases; the one termed *friabilitas*, the other *mollities:* the former is peculiar to adults, the latter more frequent in infants, though sometimes seen in adults, from a cause not known. The bones, when deprived of their cementing liquor, by passing them through fire, become friable. From repeated salivations, and in old people, they have been rendered extremely brittle; insomuch, that in many subjects they have been fractured merely from their weight, and the action of the muscles; but in such cases, this is not owing to the friability of the bones, but to the loss of substance, from the *erosion of the bone* by something acrimonious thrown on it; to which cause, perhaps, may be attributed the disease called *rickets* in children. See Rachitis. The effects of the scurvy, in rendering the bones soft in many instances, has been remarked under the article Scorbutus.

By proper diet, gentle friction with coarse cloths, exercise, and cold bathing, ricketty children's constitutions may be so much changed, as that, by the time they arrive at the age of puberty, there shall not remain the least vestige of their former disease. The epiphyses are generally most affected in this species of the disorder. For want of early attention to invalids of this sort, we find that their bones not only become soft, and yield to the powers of the muscles, but remain distorted the rest of their lives, though they have acquired a perfect degree of solidity. In such cases, correcting the vitiated juices only will not restore the bones to their natural state; therefore the assistance of a skilful mechanic is necessary, both to support the parts improperly acted on, and to alter the line of direction of the distorted osseous fibres. See Spine; and Feet, distorted.

Though the *curvature of the extremities*, or thickness of the ends of the bones near their articulations, may give the first alarm to those who are constantly with children, yet there are other symptoms that give earlier notice than these; and had they been timely discovered by proper judges, it is highly probable that the curvature of the limbs in many children might not have happened. The belly generally becomes larger in this disease, from the increased size of the contained bowels. Nor is it unlikely but that the mesenteric glands are the first parts obstructed; obstructions of the liver, spleen, and pancreas, soon follow; the head then becomes enlarged; then a difficulty of breathing, which is generally supposed to be the effect of taking cold, succeeds; the sternum is elevated and sharp, and the thorax becomes contracted; the spine is protruded in several parts; the pelvis altered, according to the pressure of the parts within, and habitual inclination of the patient, at times, to obtain that line of direction in which the perpendicular from the centre of gravity, may fall within the common base of the body. The extremities of the cylindrical bones, and the ends of the ribs next the sternum, become enlarged; soon after this, the bones in general become soft and flexible, yielding in such directions as the strongest muscles determine by their actions.

The bones of children who die of this disorder, we observe, are not only rendered soft, but the vessels within their substance are replete with blood, of a texture totally broken, and having more the appearance of thin chocolate than blood: the periosteum in many places is separated, and the intermediate space between it and the bone filled with extravasated fluid; and caries is almost as frequent as the separation of the periosteum. The muscles in such bodies generally appear pale and flabby.

Where the affection of the mesenteric glands is evident, Mr. Bromfield asserts, that after a dose or two of calomel, &c. to empty the intestines thoroughly, crude quicksilver is by much the most efficacious medicine to remove obstructions in those glands. When the belly begins to soften and subside, the chyle passes without interruption, and the child begins to get flesh; then the cold bath becomes truly serviceable, and the decoction, or cold infusion, of the Peruvian bark, is a proper restorative; but the cold bath used too early, or the bark given before there is a free circulation of chyle through the lacteals, would be very injurious.

The *mollities ossium*, in some cases, is supposed to be produced from a redundancy of the oleaginous parts of the blood, or from a laxity of the solids, by which the fluids are not sufficiently attenuated, nor properly blended and mixed; the consequence of which will be, obstructed perspiration, the habit in general loaded with gross, phlegmatic, and serous humours, and the ossific matter not united or condensed, as in a healthy state. The method of cure, indeed, seems to confirm us in the cause of these symptoms; for, by strengthening the fibrous system, by using gentle exercise, a meat diet, good air, aromatics, and cold bathing, this kind of invalids are generally restored to health.

Among the diseases of the bones, we may likewise rank that *palsy of the lower extremities* which takes place, as is generally supposed, in consequence of a curvature in some part of the spine; but this subject falls, more properly, under the article SPINE, already referred to.

MOLLI'TIES U'NGUIUM, the preternatural softness of the nails, that often accompanies chlorosis in females.

MOLUCCE'NSE LIGNUM. See LIGNUM PAVANÆ.

MOLYBDATS, in chemistry, salts formed by the union of the molybdic acid with different bases: thus, we have the *molybdat of alumine*, *molybdat of antimony*, &c. These salts are not better known to chemists than the molybdic acid. A few with which we are acquainted, have the property of giving a green colour to phosphat of soda and ammonia, when melted with it; and occasion a blue precipitate with muriate of tin. The super-molybdat of potash, is the only salt that has been examined with tolerable accuracy. It may be produced by detonating one part of sulphuret of molybdena, with three of nitrate of potash, dissolving the mass in water, filtering the solution, and evaporating it. Sulphat of potash first crystallizes, but if sulphuric acid be dropt into the remaining solution, super-molybdat of potash is precipitated.

MOLYBDE'NA, (*μολυϐδαινα*; from *μολυϐδός*, *lead)*; a substance which exists, mineralized by sulphur, in the ore called *sulphuret of Molybdena*. This ore, which is likewise scarce, is so similar in several of its properties to plumbago, that they were long considered as varieties of the same substance. It is of a light lead-grey colour, its surface is smooth, and feels unctuous; its texture is lamellated, it soils the fingers, and marks paper bluish-black, or silver-grey. It may be cut with a knife. It is generally found in compact masses; seldom in particles, or crystallized. It is met with in Sweden, Spain, Saxony, Siberia, and Iceland. Scheele showed, that a peculiar metallic acid might be obtained from it; and later chemists have succeeded in reducing this acid to the metallic state. Mr. Hatchett has given a full and accurate analysis of this ore, in his valuable paper on the analysis of the Corinthian Molybdat of Lead. See the Phil. Trans. 1796. The *native sulphuret of Molybdena*, is the only one hitherto known which contains this metal.

The *properties* of Molybdena are thus described by Mr. Accum. Molybdena is either in an agglutinated blackish friable mass, having little metallic brilliancy, or in a black powder. The mass, slightly united, shows, by a magnifying glass, small round brilliant grains. Its weight is from 6.600 to 7.500. It is one of the most infusible of the metals. It is capable of combining with a number of metals by fusion. It forms, with sulphur, an artificial sulphuret of molybdena, analogous to its ore. It unites also to phosphorus. The affinity of molybdena for oxygen is very feeble, according to Mr. Hatchett. The alkalies have no action on molybdena in the moist way, but it enters readily into fusion with potash and soda. It is oxidable by boiling sulphuric acid, and acidifiable by the nitric acid. Muriatic acid does not act upon it. It is capable of existing in not less than four different degrees of oxygenation.

To *obtain* molybdena, is a task of the utmost difficulty. Few chemists have succeeded in producing this metal, on account of its great infusibility. The method recommended in general is the following:—Molybdic acid is to be formed into a paste with oil, dried at the fire, and then exposed to a violent heat in a crucible lined with charcoal. By this means the oxid becomes decomposed; a black agglutinated substance is obtained, very brittle under the finger, and having a metallic brilliancy. This is the metal called molybdena.

The *analysis of ores* of molybdena is to be undertaken in the following:—Take one part of the ore reduced to powder, put it into a tubulated retort, containing three parts of nitric acid; adapt a receiver, and distil till no more drops fall from the neck of the retort. Having done this, pour again two ounces of nitric acid upon the ore in the retort; stir it well together with a glass rod, and repeat the distillation as before. This treatment must be repeated until the whole of the ore is converted into a white powder.

This powder, after being well washed in distilled water, is *molybdic acid.* The water used for the ablution of this acid, must then be mingled gradually with small quantities of a solution of potash; by this means, an additional portion of white precipitate will be obtained, which, after being washed, may be added to the first. This being separated, muriate of barytes is to be added to the fluid, as long as any precipitate ensues: 100 parts of this precipitate indicate 14.5 of sulphur. The quantity of sulphur, as well as that of molybdena, may thus be ascertained.

The *sulphuret of molybdena* may likewise be analyzed, by mixing one part of the ore with four of nitrate of potash, and detonating the mixture, by transferring it, in small quantities, into a crucible kept red-hot in a fire. The product must then be dissolved in water, and saturated with nitric acid. The precipitate which is obtained, after being washed, is molybdic acid. The first process, however, is to be preferred.

MOLY'BDIA, a genius of crystals, of a cubic form, or composed of six sides, at right angles, like a die.

MOLYBDIC ACID, a peculiar acid procured from Molybdena. See MOLYBDENA. It is yellowish white, pulverulent, and has an acid but metallic taste. It remains fixed during an intense heat, as long as the crucible is covered, but the moment it is uncovered the acid rises unaltered, in a white smoke. It is soluble in about 570 parts of water, at a mean temperature. The solution reddens tincture of cabbage. Paper dipped in this acid becomes of a blue colour, in the sun. Nitric acid has no action upon it. Muriatic acid, and sulphuric acid, dissolve it by the assistance of heat. The attraction of the molybdena for oxygen, in these acids, is very feeble; for mere exposure to light, passing through it a current of hydrogen gas, or digesting it with any of the metals, changes its colour to a blue, by partially de-oxidating it.

Scheele's method of obtaining molybdic acid, consists in distilling about twenty-five or thirty ounces of diluted nitric acid from one ounce of native molybdena, at five or more successive operations, that is to say, four or six ounces of the acid at a time. A great quantity of nitrous gas is obtained, and a white powder remains in the retort, which must be washed in distilled water to free it from the adhering foreign acid. Mr. Accum says, it may also be obtained by detonating molybdena in a red-heat, with nitrat of potash. The residue left after detonation, when four parts of the salt to one of the metal have been employed, yields a colourless solution that contains the molybdat of potash, and which, upon a proper addition of water, lets fall the molybdic acid in the form of a white powder.

The union of molybdic acid with alkalies, earths, &c. forms salts termed molybdats. See Molybdats.

MOME'NTUM, in physics, signifies the same with impetus, or the quantity of motion in a moving body; which is always equal to the quantity of matter multiplied into the velocity: or, which is the same thing, it may be considered as a rectangle under the quantity of matter and velocity.

MOMO'RDICA ELATE'RIUM (*momordica*, from *mordeo*, to bite, from its sharp taste); the systematic name of the squirting-cucumber. See Elaterium, and Cucumis agrestis.

MONADE'LPHIA, (from *μονος*, *one only*, and *ἀδελφος*, *a brother)*, in the Linnæan system of botany, a class of plants, the sixteenth in order. This relation is employed to express the union of the filaments of the stamina, which, in this class, do not stand separate, but join at the base, and form one substance; and the title of the class expresses a single brotherhood, meaning that there is but one set of stamina so united, which distinguishes the class from the seventeenth and eighteenth classes.

MONA'NDRIA, (from *μονος*, *one only*, and *ανηρ*, *a husband)*, in botany, a class of plants, the first in order in Linnæus's system; having only one stamen or male part in each flower.

MONA'RDA FISTULO'SA; the systematic name of the purple *monarda*. The leaves of this plant have a fragrant smell, and an aromatic and somewhat bitter taste, possessing stomachic and deobstruent virtues. An infusion is recommended, by ancient writers, in the cure of intermittent fevers.

MONARDES (Nicholas), a Spanish physician of Seville, who lived in the sixteenth century, and acquired great reputation by his practical skill, and the books which he wrote. His works have been translated into Latin by Clusius, into Italian by Annibal Brigantus, and those upon American drugs have appeared in English. He died about the year 1578.

MONEY-WORT. See Nummularia.

MONK'S-RHUBARB. See Rhabarbarum monachorum.

MONK'S-HOOD. See Anthora.

MONO'CULUS, (from *μονος*, *one*, and *oculus*, an eye*)*, or *Monopia;* a very uncommon species of monstrosity, in which there is but one eye, and that mostly above the root of the nose. See Monster.

MONOE'CIA, (*οικος*, a *house*, or *habitation*, compounded with the numerical term), in botany, a class of plants the twenty-first in order. The term alludes to the circumstance that, in this class, the male and female flowers are found on the same plant.

MONOGY'NIA, (from *μονος*, *solus*, and *γυνη*, *mulier*, a woman), in botany, the name of the first order in each of the thirteen classes in the Linnæan system, comprehending such plants as have one pistil in a flower, which is considered as the female organ of generation. Where the style is wanting, it regards the stigma.

MONOPE'TALUS, (from *μονος*, *solus*, and *ϖεταλον*, *folium*, a leaf), in botany, a term applied to such flowers as are formed of a single petal or flower-leaf, howsoever this may seem to be cut into many smaller ones, which fall off together. See Petala.

MONO'PIA, (*μονωπια*, from *μονος*, *single*, and *ωψ*, *the eye)*. See Monoculus.

MONO'RCHIS, (*μονορχις*, from *μονος*, *one*, and *ορχις*, *a testicle)*, an epithet applicable to a person that has but one testicle.

MONSTER, (*monstrum;* of *monstrando*, showing); a birth or production of a living being, degenerating from the proper and usual disposition of parts in the species to which it belongs: as, when there are too many members, or too few; or some of them are extravagantly out of proportion, either on the side of defect or excess.

The monsters of brute animals do not propagate their kind; for which reason some rank *mules* among the number of monsters, as also *hermaphrodites.* Females which bring forth twins are found most liable to produce monsters. The reason, probably, is owing to this: that though the twins are covered with one common chorion, yet they have each their separate amnios, which by their contiguity may chance to grow together, and so occasion a confusion or blending of the parts. Hence so many double creatures are to be seen in the cabinets of the curious.

Various other theories have been formed by different philosophers and physiologists. But, after all, it must be confessed, that we seem as yet to be very little acquainted with Nature in her sports and errors. For each organized being there appears to exist a primitive germ or model of the different species drawn by the Creator, determined by forms and sexes, and realised in the individuals of both sexes, which must unite in order to their reproduction. From this model nature never departs, unless when compelled by circumstances which derange the primitive organization common to the species, and produce what we call *monsters*.

With respect to structure, we have already remarked, that monsters are of various kinds. Some have an excess or defect in certain parts; as in those which are called *acephalous*, or who want the head; those which have two heads, two arms, two legs, and one body, or which have two bodies and one head, or which have three legs; and those which want the arm or the legs. Others err through an extraordinary and deformed conformation, through an unnatural union of certain parts or viscera, through a great derangement in one or more of their members, and through the extraordinary place which these often occupy in consequence of this derangement or transposition. The monster described by Dr. Eller of the academy of Berlin was of this kind. It was a fœtus of nine months, twenty-eight inches long, with an enormous head and frightful countenance; and in the middle of a broad and vast forehead it had a reddish eye, without either eyebrows or eyelids, and sunk deep into a square hole. Immediately below this eye was an excrescence which strongly resembled a penis, with a glans, a prepuce, and an urethra: the part covered with hair was likewise below the nape of the neck. In other monsters we meet with the unnatural union of some parts, which, from their destination and functions, ought always to be separate; and the separation of other parts, which, for the same reasons, ought constantly to be united. The reader may see the different ways in which the formation of monsters takes place, in four memoirs by M. Lemery, inserted in *L'Histoire de l'Academie des Sciences* 1738 and 1739. M. du Verney has likewise published a memoir on the same subject.

In the volume published by the Academy of Sciences in 1724, mention is made by M. Geoffroy of a monster born in Barrois in 1722. This monstrous production consisted of two children without the inferior extremities, joined together by a common navel: each of them had a nurse, sucked, and ate pap; and the one sucked while the other slept. The reader may likewise consult the second part of Winslow's Memoirs on Monsters, inserted in the volume published by the Academy of Sciences in 1734, where he will find the history of two very extraordinary twin monsters, who evidenced, during their life, a great difference in their moral and physical qualities. We are obliged simply to refer to those Memoirs, as they are too long for abridgement.

It is observed by Haller, that in some monsters the natural structure is changed by some shock or passion; in others the structure, independent of any accident, is originally monstrous; such as when all the members are reversed from left to right, when the person has six fingers, and in many other instances. M. de Maupertuis mentions a family at Berlin who have had six fingers on each hand for several generations. M. de Riville saw an instance of this at Malta, of which he has given a description. M. Renou, surgeon at Pommeraye in Anjou, has published an account of some families with six fingers, which are to be found in several parishes of the Lower Anjou, and which have existed there from time immemorial. This deformity is perpetuated in these families even when they intermarry with persons who are free from it. Whether the propagation of these supernumerary organs, which are not only useless but inconvenient and even disagreeable, be owing to the father or mother, their children of both sexes are subject to it indiscriminately. A father or mother with six fingers frequently have a part, and sometimes the whole, of their children, free from this deformity; but it again makes its appearance, and in a very great degree, in the third generation. From this it appears, that this fault in the conformation is hereditary. M. Reaumur has likewise published the history of a family in the island of Malta, the children of which are born with six fingers and six toes. But it deserves to be inquired, Whether these supernumerary fingers are real fingers? The reader may here consult the *Journal de Physique* for November 1774, p. 372. This variety of *sexdigitary* hands and feet is not comprehended in the *Recherches sur quelques conformations monstreuses des doigts dans l'homme*, which is inserted in the memoirs of the Academy of Sciences for 1771. In the *Journal de Physique* for August 1776, we find a description of a double uterus and vagina observed in a woman who died in childbed, by Dr. Purcell of Dublin: and in that for June 1788, we have an account of a man with seven fingers on each hand, by baron Dietrich.

Mr. Everard Home, of London, presented to the late Mr. John Hunter, the *double skull* of a child, born at Calcutta in May 1783 of poor parents aged 30 and 35, and which lived to be nearly two years old. The body of this child was naturally formed: but the head had the phenomenon of appearing double; another head of the same size, and almost equally perfect, being attached to its upper part. In this extraneous and preternatural head no pulsation could be felt in the arteries of the temples, but the superficial veins were very evident; one of the eyes had been hurt by the fire, upon which the midwife, in her first alarm, threw the child; the other moved readily; but the iris was not affected by the approach of any thing to it. The external ears of this head were very imperfect; the tongue adhered to the lower jaw, except for about half an inch at the lip, which was loose; the jaw was capable of motion, but there were no teeth. The child was shown about the streets of Calcutta for a curiosity; but was rendered unhealthy by confinement, and died at last of a bite of the *cobra de capello*. It was dug up by the East India Company's agent for salt, at Tumlock, and the skull is now in the museum of Mr. Hunter.

Among the monstrous productions of the animal kingdom, we may rank those individuals which ought only to possess one sex, but in which we observe the union or the appearance of two. See the articles ANDROGYNES and HERMAPHRODITE.

It would be of little use to describe, more minutely than we already have, the various cases of human monstrosity which the records of our art would furnish; we shall therefore content ourselves with the representation (in pl. xix.*) of a few of those that are at once the most singular and occur most frequently.

Fig. 1. Is a monstrous fœtus, described by Mr. Pole, in the Lond. Med. Journal. Besides the deficiency of brain, which is a common circumstance in this kind of monster, there are external peculiarities easily to be understood from the delineation.

But the most singular circumstance in this case, is the attachment of the placenta to the upper part of the child's head, which was not by mere membranous union, but of its more solid and compact parts. The largest portion of the placenta lay over the occiput and scapulæ, and extended considerably to the right and left side of the head; so that in viewing the child, as it is represented in the drawing, its internal surface only is seen, with the upper edge bent backward: this attachment of the placenta was principally toward the right side of the head. The umbilical chord came from the placenta on the left side, and appeared to take its course down the same side of the body to the umbilicus, from which it had been accidentally separated.

Fig. 2. Is a case of preternatural union, taken from a drawing in the possession of the late Mr. Justamond, and of which the history is not known.

Fig. 3. Represents the exterior figure, in a case given by Dr. Bland in the Philosophical Transactions, where a particular description may be found if desired.

Fig. 4, Exhibits a monstrous union of the viscera, displayed by dissection. *a*, Shews the heart of the left side, with *b*, The aorta. *c*, The heart of the right side, not more than one third of the size of its companion. *d*, The pericardium common to both. *e*, *e*, Portions of the diaphragm. *f*, The Vena cava. *g*, *g*, *g*, *g*, The inferior portions of each pair of lungs, with their several and distinct pulmonary vessels. These are drawn aside for the purpose of showing the course of the principal vessels of the hearts on both sides. *h*, *h*, The kidneys, with their blood-vessels and ureters.

Monsters being, as we have seen, of various sizes and forms, unless they prove of small size, the posture favourable, and the woman well made, they will prove the cause of a difficult and troublesome delivery. Happily, however, these cases very seldom occur in practice. When they do, the delivery must be regulated entirely according to the circumstances of the case. A large head, thorax, or belly, must be opened. If two bodies united together are too bulky to pass entire, they must be separated. The same is to be observed of supernumerary limbs. If the posture be unfavourable, it must be reduced when practicable; otherwise the extraction must be made with the crotchet, in the best manner the circumstances of the case will admit of; always, in cases of danger or difficulty, giving the preference to the safety of the mother, without regarding that of the child. A collection of cases of this kind may be consulted in the last volume of the Edin. Pract. of Medicine, &c.

MONSTERS, VEGETABLE. Monsters are more common, and more extraordinary, in the vegetable than in the animal kingdom. Leaves are often seen, from the internal part of which other leaves spring forth; and it is not uncommon to see flowers of the ranunculus, from the middle of which issues a stalk bearing another flower. M. Bonnet informs us, that in certain warm and rainy years he has frequently met with monsters of this kind in rose-trees. This philosopher saw a rose, from the centre of which issued a square stalk of a whitish colour, tender, and without prickles, which at its top bore two flower-buds opposite to each other, and totally destitute of a calyx; a little above the buds issued a petal of a very irregular shape. Upon the prickly stalk which supported the rose, a leaf was observed which had the shape of trefoil, together with a broad flat pedicle. In the Memoirs of the Academy of Sciences for 1707, p. 448, mention is made of a rose, from the centre of the leaves of which issued a rose-branch two or three inches long, and furnished with leaves. See the same Memoirs for 1749, p. 44, and for 1724, p. 20. In the Memoirs for 1773, a very singular instance is mentioned of a monstrosity observed by M. Duhamel, in an apple-tree ingrafted with clay. At the place of the insertion there appeared a bud which produced a stalk and some leaves; the stalk and the pedicle of the leaves were of a pulpy substance, and had the most perfect resemblance both in taste and smell to the pulp of a green apple. An extraordinary *chamæmelum* is mentioned in the *Acta Helvetica*. M. Bonnet, in his *Recherches sur l' usage des feuilles*, mentions likewise some monstrous productions which have been found in fruits with kernels, analogous in their nature to those which occur in the flowers of the ranunculus and of the rose-tree. He has seen a pear, from the eye of which issued a tuft of thirteen or fourteen leaves, very well shaped, and many of them of the natural size. He has seen another pear which gave rise to a ligneous and knotty stalk, on which grew another pear somewhat larger than the first. The stalk had probably flourished, and the fruit had formed. The *lilium album polyanthos*, observed some years ago at Breslaw, which bore on its top a bundle of flowers, consisting of one hundred and two lilies, all of the common shape, is well known. M. Reynier has mentioned some individuals, monstrous with respect to the flower, in the *Journal de Physique et d' Histoire Naturelle*, for November 1785. He has likewise mentioned a monstrous tulip which is seen in the gardens of some amateurs; juniper berries with horns; a balsamine with three spurs, &c.

These vegetable productions, which are so extraordinary, and so contrary to the common course of things, do nevertheless present deviations subject to particular laws, and reducible to certain principles, by distinguishing such as are perpetuated either by seed or by transplanting, from those which are only accidental and passing. Monstrosities which are perpetuated exist in the original organization of the seed of the plant, such as marked or curled leaves, &c. The word *monster* is more properly applied to those irregularities in plants which arise from frequent transplantation, and from a particular culture, such as double flowers, &c. but those montrosities which are not perpetuated, and which arise from accidental and transient causes deranging the primitive organization of the plant, when it comes to be unfolded, as is the effect of diseases, of heat or cold, of a superfluity or scarcity of juices, of a depravation of the vessels contributing to nutrition, of the sting of insects, of contusions and natural grafts, retain also the name of *monsters*. Of this kind are knobs or swellings, stunting, gall-nuts, certain streaks, and other similar defects. All the parts of plants are subject to some of these monstrosities, which vary with respect to their situation, figure, proportion, and number. Some trees are naturally of so great a size, that they may be considered as a kind of whale species in the vegetable kingdom; of this kind are the *Baobab* and the *Ceiba*. Others, as the oak, the yew, the willow, the lime, and many others, sometimes, though rarely, attain so extraordinary a bulk that they are likewise monsters among the vegetables. It is conjectured, in short, that monsters are more common in the vegetable than in the animal kingdom, because in the latter the methods of propagation are not so numerous. Plants are seldom monstrous in all their parts: some are monstrous only through excess in the calyx and corolla; others are so through defect only in the leaves, stamina, and fruit. "Now, a monstrosity, says M. Adanson, has never changed the name or affected the immutability of a species." Every skilful succeeding botanist has arranged these monstrosities in plants among accidental circumstances, which, in whatever manner they are propagated, have always a tendency to revert to the order and regularity of their original species when they are multiplied by means of seed; which method of production is the most natural and the most certain for determining the species. One species may be compared with another: but a monster can only be put in comparison with an individual of the species from which it comes. The reader may consult the *Observations Botaniques* of M. Schlotterbec, of the Society of Basil, concerning monsters in plants, wherein he pretends to demonstrate, that in their production, nature follows the same course in the vegetable as in the animal kingdom.

MO′NS VE′NERIS, the mountain of Venus; a fanciful name for the triangular eminence, immediately over the os pubis of women, that is covered with hair.

MORBID, (from *morbus*, a disease), a term signifying diseased, or in a state contrary to that of health. It is applied either to the whole constitution or to a particular part, when supposed to labour under any unnatural change.

MORBI′LLI, (dim. of *morbus*, a disease). See RUBEOLA.

MOREAU (James), an eminent French physician, born at Chalons-sur-Saone, was the disciple and friend of the famous Guy Patin. He drew upon himself the jealousy and hatred of the old physicians by the public theses he maintained, and afterwards vindicated in his writings. He died in a very advanced age in 1729. He wrote in French, 1. *Consultations on the Rheumatism.* 2. *A chemical treatise on Fevers.* 3. *A physical dissertation on the Dropsy;* and other works which were esteemed in his day.

MOREL, the *Phallus esculentus* of Linnæus; a plant that grows on moist banks and wet pastures, and springs up in May. It is used in the same manner as the truffle, for gravies and stewed dishes, but is reckoned to give an inferior flavour.

MORGAGNI (John Baptist), an eminent physician, first professor of anatomy in the university of Padua, and member of many societies of learned men in Europe, was born in the year 1682, at Forli, a town in the district of *La Romagna*, in Italy. His parents, who were in easy circumstances, allowed him to follow that course in life his genius dictated. He began his studies at the place of his nativity; but soon after removed to Bologna, where he obtained the degree of Doctor of Medicine, when he had but just reached the sixteenth year of his age. Here his peculiar taste for anatomy found an able preceptor in Valsalva, who bestowed on him the utmost attention; and such was the progress he made under this excellent master, that, at the age of twenty, he himself taught anatomy with high reputation. Soon, however, the fame of his prelections, and the number of his pupils, excited the jealousy of the public professors, and gave rise to invidious persecutions. But his abilities and prudence gained him a complete triumph over his enemies; and all opposition to him was finally terminated from his being appointed, by the senate of Bologna, to fill a medical chair, which soon became vacant. But the duties of his office, although important, neither occupied the whole of his time, nor satisfied his anxious desire to afford instruction. He still continued to labour in secret on his favourite subject, and soon after communicated the fruits of these labours to the public in his *Adversaria Anatomica*, the first of which was published in the year 1706, the second and third in 1717, and the three others in 1719. The publication of this excellent work spread the fame of Morgagni far beyond the limits of the state of Bologna. Such was his reputation, that the wise republic of Venice had no hesitation in making him an offer of the second chair of the theory of medicine in the university of Padua, then vacant by the death of M. Molinetti; and, to ensure his acceptance, they doubled the emoluments of that appointment. While he was in this department, he published his treatise, entitled *Nova institutionum medicarum idea*, which first appeared at Padua in 1712. From this work his former reputation suffered no diminution. And soon after he rose, by different steps, to be first professor of anatomy in that celebrated university. Although Morgagni was thus finally settled at Padua, yet he gave evident proofs of his gratitude and attachment to Bologna, which he considered as his native country with respect to the sciences. He exerted his utmost efforts in establishing the academy of Bologna, of which he was one of the first associates; and he enriched their publications with several valuable and curious papers. Soon after this, the Royal Societies of London and Paris received him among their number. Not long after the publication of his *Adversaria Anatomica*, he began, much upon the same plan, his *Epistolæ Anatomicæ*, the first of which is dated at Padua in the beginning of April, 1726. The works of Morgagni, which have already been mentioned, are to be considered, in a great measure, as strictly anatomical: but he was not more eminent as an anatomist, than as a learned and successful physician. In the year 1760, when he was not far distant from the 80th year of his age, he published his large and valuable work *De causis et sedibus morborum per anatomen indagatis.* This last and most important of all his productions will afford convincing evidence of his industry and abilities to latest posterity. Besides these works, he published, at different periods of his life, several miscellaneous pieces, which were afterwards collected into one volume, and printed under his own eye at Padua, in the year 1765. It does not appear that he had in view any future publications; but he intended to have favoured the world with a complete edition of all his works, which would probably have been augmented with many new observations. In this he was engaged when, on the 5th of December, 1771, after he had nearly arrived at the 90th year of his age, death put a period to his long and glorious career in the learned world.

MORIN (John Baptist), physician and regius professor of mathematics at Paris, was born at Villefranche in Beausolois, in 1583. After commencing doctor at Avignon, he went to Paris, and lived with Claude Dormi, bishop of Boulogne, who sent him to examine the mines of Hungary; and thereby gave occasion to his *Mundus sublunaris anatomia*, which was his first production, published in 1619. He afterwards contracted an attachment to judicial astrology, which rendered him contemptible in the eyes of philosophers. He died in 1656, before he had finished the favourite labour of his life, his *Astrologia Gallica.*

MORIN (Lewis), was born at Mans, in 1635. He went on foot to Paris, to study philosophy, and collected herbs during the whole journey. He afterwards studied physic, and lived in the manner of an anchorite. He received the degree of doctor of medicine in 1662: and, after several years practice, he was expectant at the Hotel-Dieu. His reputation made Mademoiselle de Guise choose him for her first physician, and the Academy of Sciences for one of its members. He died A. D. 1715, aged 80. He left a library, valued at 20,000 crowns, and a herbal, together with a cabinet of medals. An index to Hippocrates, in Greek and Latin, much more copious and better finished than that of Pinus, was found among his papers.

MORO'CHTHUS, an indurated and soapy kind of clay, called by us *French chalk;* serving taylors and others to mark with, and used also, with the help of a hot iron, to take grease out of silk. The ancients esteemed it as an astringent, prescribing it in the cholic, hæmorrhagies, and other fluxes.

MORO'SIS, (*μωρωσις*, from *μορος*, *folly*). See Amentia.

MOROSITA'TES, (from *morosus*, peevish), are diseases wherein the desires and aversions are unnatural and depraved, and in which it is difficult to please, gratify, or satisfy. A morose man, speaking of him in a state of disease, constantly is requiring what is not really good for him, or is averse to that which only appears bad, though in reality it would certainly be useful and beneficial to him. Dr. Cullen makes them synonymous with *dysorexiæ*, appetites erroneous and defective. To which he adds, that to the class of Vesania he had joined the *morositates* of Sauvages, but now he had brought it under the class Locales, and he thinks properly, because almost all the species of *dysorexy* are affections of a particular part rather than of the whole body. The nostalgia alone, if it can be called a disease, cannot be esteemed a local disease, but he could not well separate an uncertain disease from the rest of the dysorexies.

MORPHE'A ALBA, (*μορφαια*, from *μορφη*, *form*); a species of cutaneous leprosy. See Alphus.

MO'RSUS DIA'BOLI; a ridiculous name for the fimbriæ of the Fallopian tubes. See Tuba Fallopiana.

MORTALITY, bills of; certain accounts or registers, specifying the numbers born, married, and buried in any parish, town, or district. In general they contain only these numbers; and, even when thus limited, are of great use, by showing the degrees of healthiness and prolificness, and the progress of population, in the places where they are kept. It is therefore much to be wished, that such accounts had been always correctly kept in every kingdom, and regularly published at the end of every year. We should then have had under our inspection the comparative strength of every kingdom, as far as it depends on the number of inhabitants, and its increase or decrease at different periods. But such accounts are rendered more useful, when they include the ages of the dead, and the diseases of which they have died. In this case they convey some of the most important instructions, by furnishing us with the means of ascertaining the law which governs the waste of human life, the values of annuities dependent on the continuance of any lives, or any survivorships between them, and the favourableness or unfavourableness of different situations to the duration of human life. There are but few registers of this kind; nor has this subject, though so interesting to mankind, ever engaged much attention till lately. The first bills containing the ages of the dead were those for the town of Breslaw in Silesia. It is well known what use has been made of these by Dr. Halley, and, after him, by De Moivre. A table of the probabilities of the duration of human life at every age, deduced from them by Dr. Halley, has been published in the Philosophical Transactions, (see the Abridgement, vol. iii. p. 669.) and is the first table of this sort that has been ever published. Since the publication of this table, similar bills have been established in some towns of this kingdom; and particularly in London, in the year 1728, and at Northampton, in 1735.

Two improvements of these registers have been proposed: the first is, that the sexes of all that die, in every period of life, should be specified in them, under the denomination of *boys*, *married men*, *widowers*, and *bachelors;* and of *girls*, *married women*, *widows*, and *virgins*. The second is, that they should specify the numbers of both sexes dying of every disease in every month, and at every age. See the end of the 4th essay in Dr. Price's Treatise on Reversionary Payments. Registers of mortality, thus improved, when compared with records of the seasons, and with the circumstances that discriminate different situations, might contribute greatly to the increase of medical knowledge; and they would afford the necessary data for determining the difference between the duration of human life among males and females; for such a difference there certainly is, and that much in favour of females.

MORTAR, a chemical utensil, very useful for the division of bodies, partly by percussion and partly by grinding. Mortars have the form of an inverted bell. See Pl. XI. fig. 1. The matter intended to be pounded is to be put into them, and there it is to be struck and bruised by a long instrument called a *pestle*. The motion given to the pestle ought to vary according to the nature of the substances to be pounded. Those which the whole of this time, I continued the use of opium, varying its quantity as circumstances required, but never gave less than three or four grains in twenty-four hours. When the sloughs were all cast off, the bones separated, and having then only a clean sore to dress and heal, I gradually left off the medicine."

Mr. Pott afterwards succeeded in the same happy manner, though under the very disagreeable circumstances of seventy years of age, a broken, distempered constitution, and the disease making a hasty progress; and in many other cases, opium, under proper management did more than any, or than all other medicines: for by means of it, he is certain that some lives have been saved, which, without it, must have been lost.

Some cases of mortification require to be amputated. When this disease happens in the extremities, and penetrates to the bones, destroying the whole surrounding soft parts, amputation is often necessary. Yet amputation should not take place until a separation of the mortified part from the sound is perceptible. But as soon as this separation has occurred, no time should be unnecessarily lost in having recourse to the operation; for so long as any of the corrupted parts remain in contact with the sound, the system, notwithstanding the application of antiseptic and fermenting cataplasms, must still be in danger from the constant absorption of putrescent particles. Instances of deviation from this general rule, however, occur in mortification arising in fractures, hernia, *&c.* In the mortification of the feet of old persons, the arteries ossify, in which cases we see why amputation, during their progress, is of so little service, unless performed above the ossification. Yet we have no way to judge where the ossification ends, except by the inference we draw from the gangrene stopping at a particular point.

MO'RUM, the mulberry. The tree that affords this fruit is a native of Italy; the *Morus nigra; foliis cordatis scabris*, Linn. Class, *Monoecia*. Order, *Tetrandria*. Mulberries abound with a deep violet-coloured juice, which, in its general qualities, agrees with that of the fruits called *acido-dulces*. Dr. Cullen says, it allays thirst, partly by refrigerating, and partly by exciting an excretion of mucus from the mouth and fauces: a similar effect is also produced in the stomach, where, by correcting putrescency, a powerful cause of thirst is removed. The London College directs a *syrupus mori*, which is an agreeable vehicle for various medicines. The bark of the root of this tree is said, by Mr. André, to be of use in cases of tænia. It is an acrid bitter, and possesses a cathartic power. The dose, is half a drachm of the powder, or a drachm in infusion.

MO'RUS; the mulberry tree. See Morum.

MO'RUS NI'GRA; the systematic name of the mulberry tree. See Morum.

MOSCHA'TA NUX. See Nux moschata.

MO'SCHUS, (μοςχος, of *mosch*, Arab.), musk; an unctuous substance, contained in excretory follicles about the navel of the *Moschus moschiferus* of Linnæus, whose strong and permanent smell is peculiar to it. The musk animal is an inhabitant of the most elevated region of Asia, particularly of the Altayan Alps, and the mountains which divide Thibet from China. It is gentle and timid, and its chace is difficult and dangerous. Its general form resembles the deer tribe, and it is about three feet in length. In the male, behind the navel and before the prepuce, there is situated an oval bag, flat on one side and convex on the other, about three inches long and two broad, projecting about an inch, and having a small open orifice, beset with short hairs, which is empty in the young animal, but in the adult is filled with a secreted matter, known by the name of musk. When the bag becomes too full, the animal expresses part of its contents by rubbing itself against stones or trees. The musk expressed in this manner is said to be the purest, but none of it probably reaches this country. The best musk is imported from Tonquin, but there is an inferior sort brought from Agria and Bengal, and a still worse from Russia.

The best musk comes to us in round thin bladders; which are generally about the size of a pigeon's egg, covered with short brown hairs, lined with a thin brown membrane, well filled, and without any appearance of having been opened. The musk itself is dry, with a kind of unctuosity, of a dark reddish brown, or rusty blackish colour, in small round grains, with very few hard black clots, and perfectly free from sandy or other visible foreign matter. If chewed, and rubbed with a knife on paper, it looks smooth, bright, yellowish, and is free from grittiness. Laid on a red-hot iron, it catches flame, and burns almost entirely away, leaving only an exceeding small quantity of light-greyish ashes. The largest and fullest bag scarcely contains more than two drachms of musk.

The taste of musk is somewhat bitterish, and its smell extremely powerful and peculiar. Neumann got from thirty grains of musk twelve of watery and four of alcoholic extract; and inversely, ten of alcoholic and six of watery. Its smell and taste were elevated in distillation with water, but not with alcohol. Neither the fixed nor volatile oils will dissolve it.

Musk, on account of its high price, is exposed to many modes of adulteration. To increase its weight, sand, and even particles of lead, are introduced, through very small openings, into the bags. The real musk is frequently abstracted from the bag, and its place supplied with dry and coarsely powdered blood, or some mixture with asphaltum. These adulterations are to be detected, by discovering that the bag has been opened. The presence of blood is also known, by the fetid smell it emits when heated sufficiently, and by the formation of ammonia when rubbed with potash. Asphaltum is known by its shining fracture, and melting on hot iron, while musk is converted into charcoal. But there are even artificial bags, filled with a composition containing some real musk. These are in general thicker, and covered with longer hair, and want the internal brown membrane which lines the real musk-bag.

Dr. Cullen considers *genuine* musk to be a medicine of very great efficacy, and one for which, in some cases, there is hardly any substitute. With proper precaution in the choice of it, he maintains, that musk is one of the most powerful antispasmodics that we are acquainted with. See ANTISPASMODICS. It relieved a gentleman affected with a spasm of the pharynx, which prevented deglutition, and almost respiration, and this when many other remedies had failed. The disease, which continued to recur at times for some years after, could only be obviated or relieved by the use of this remedy.

Some time ago the musk had the reputation of curing the bite of a mad dog. Dr. Johnston has given us two facts, that are very much in favour of its power: and Dr. Cullen was informed of an instance, in Scotland, of some large doses of musk having proved a cure, after symptoms of hydrophobia had come on. No more instances of the same kind, however, have occurred.

Dr. Cullen also vouches for the superior powers of musk, in several circumstances of the gout. The case given by Sir John Pringle, in the Physical and Literary Essays, Vol. II. are very much in favour of its virtues; and, in several instances of the gout attacking the stomach, Dr. Cullen found it effectual when given in large doses. He mentions a case of headach and delirium, arising from the gout, being cured by it; and that, in the same person, he had repeated instances of its power in this way. The patient being frequently affected with the gout, was liable to have it retrocedent, and affecting the stomach, the lungs, and particularly the head, in the manner above mentioned; and in many of these instances it was very suddenly relieved by large doses of musk, or by these, at least, repeated after short intervals; though, at length, the great irregularities of this patient brought the disease into a state that resisted all remedies.

Musk raises the pulse, without heating much; it allays spasms, and operates remarkably on the brain, increasing the power of thought, sensation, and voluntary motion. It may be employed in every instance of typhous fever, especially when attended with delirium, or spasmodic affection of any particular organ, or of the whole system, or subsultus tendinum, &c. It is also used with the greatest benefit in exanthematous and phlegmonic diseases, accompanied with typhoid fever; and in many spasmodic affections, as chincough, epilepsy, trismus, &c. It is most conveniently given in substance, in powder, in doses of three grains or upwards, repeated every one or two hours. Its best preparation is the tincture. The officinal preparations of musk are :—*Tinct. mosch.* Dubl. *Mist. mosch.* Lond.

MO'SCHUS MOSCHI'FERUS; the systematic name of the musk animal. See MOSCHUS.

MO'SCHUS ARTIFICIA'LIS, artificial musk, a substance but lately introduced into practice. By treating one part of oil of amber with four of nitrous acid, added in small portions at a time, and stirring them together with a glass rod, the oil is at last converted into a yellow resin, having the smell of musk, and known in Germany by the name of artificial musk, where it is often used as a substitute for that expensive drug.

MOTHER OF THYME. See SERPYLLUM.

MOTHER-WORT. See CARDIACA.

MOTION, MUSCULAR. See MUSCULAR MOTION.

MOTION, PERISTALTIC. See PERISTALTIC MOTION.

MOTO'RII OCULO'RUM, i. e. *nervi motori*, so called from their office; the third pair of nerves of the brain. They arise from the crura cerebri, and are distributed on the muscles of the eye-ball.

MOUFET (Thomas), a celebrated English physician, was born at London, and practised medicine with great reputation. Towards the latter end of his life the retired to the country, and died about the year 1600. This physician is known by a work which was begun by Edward Wotton, and printed at London in 1634, folio, with the title of *Theatrum Insectorum.* A translation of it into English was published at London in 1658, folio. Martin Lister gives a very unfavourable opinion of this book; but Ray thinks otherwise.

MOULD. See FONTANELLA.

MOUNTAIN-PARSLEY, BLACK. See PETROSELINUM.

MOUSE-EAR. See PILOSELLA.

MOUTH, (*Os*, Lat.), the cavity into which the food is received for mastication. The parts which constitute it are the common integuments, the lips, the muscles of the upper and under jaw, the palate, two alveolar arches, the gums, the tongue, the cheeks, and salival glands. The bones of the mouth are the two superior maxillary, two palatine, the lower jaw, and thirty-two teeth. The arteries of the external parts of the mouth are branches of the infraorbital, inferior alveolar, and facial arteries. The veins empty themselves into the external jugulars. The nerves are branches from the fifth and seventh pair. The use of the mouth is not only for mastication, but also for speech, respiration, deglutition, suction, and taste.

MO'XA, (*moxa*, Japonese), a soft lanuginous substance, prepared in Japan, from the young leaves of a species of mugwort, by beating them, when thoroughly dried, and rubbing them betwixt the hands, till only the fine fibres are left. Moxa is celebrated in the eastern countries, for preventing and curing many disorders, by being burnt on the skin; a little cone of it is laid upon the part, previously moistened, and set on fire on the top, burns down with a temperate and glowing heat, and produces a dark-coloured spot, the ulceration of which is promoted by applying a little garlic, and the ulcer either healed up, when the eschar separates, or kept running for a length of time, as different circumstances may require.

MUCILA'GO, also called *Mucago*, mucilage; a name given to any viscid or glutinous liquor, made by dissolving gummy substances in water; as are the mucilages of gum Arabic, or of quince-seeds, which are made by dissolving the gum, or the soluble part on the husk of the seed, in water. The name of *Mucilage* is also given to that humour which is separated from glands about the joints, in order to afford easy motion. See SYNOVIA. Dr. Fordyce, in his Treatise on Digestion, says, " *mucilage,* taken as the name of a class, includes animal and vegetable substances, solid, brittle, inflammable, decomposable by heat, capable of being combined with water in their natural state; capable of being combined with water by decoction, or Papin's digestion, so as to form a fluid." Various mucilages are directed in the pharmacopœias.

MUCILAGINOUS EXTRACTS; such extracts as readily dissolve in water, scarcely at all in spirits of wine, and undergo spirituous fermentation.

MU'COR, mould, or mouldiness; a term applied to bodies which undergo a particular kind of putrefaction which shews itself by the vegetation of a certain white down or lanugo, on their surface. This, viewed through a microscope, appears like a kind of meadow, out of which arise herbs and flowers, some only in the bud, others full-blown, and others decayed; each having its root, stalk, and other parts.

MUCO'SÆ GLANDULÆ, mucous or muciparous glands; those glands that secrete mucus. Such are the glands of the Schneiderian membrane of the nose, the glands of the fauces, œsophagus, stomach, intestines, bladder, urethra, &c.

MU'CUS, a mucilaginous liquor secreted by certain glands, and serving to lubricate many of the internal cavities of the body. In its natural state it is generally limpid and colourless; but from certain causes, will often assume a thick consistence and whitish colour like pus. As it is sometimes of very great importance in medicine to distinguish these two fluids from each other, this was proposed, some years ago, as the subject of a prize disputation by the Æsculapian Society of Edinburgh, and the prize was gained by Mr. Charles Darwin, then a student of medicine from Litchfield, but since deceased.

The conclusons drawn from his experiments were, 1. Pus and mucus are both soluble in the vitriolic acid, though in very different proportions, pus being by far least soluble. 2. The addition of water to either of these compounds decomposes it. The mucus thus separated either swims in the mixture or forms large flocculi in it; whereas the pus falls to the bottom, and forms, on agitation, an uniform tubid mixture. 3. Pus is diffusible through a diluted vitriolic acid, though mucus is not. The same also occurs with water, or with a solution of sea-salt. 4. Nitrous acid dissolves both pus and mucus. Water added to the solution of pus produces a precipitate, and the fluid above becomes clear and green, while water and the solution of mucus form a tubid dirty-coloured fluid. 5. Alkaline lixivium dissolves, though sometimes with difficulty, mucus, and generally pus. 6. Water precipitates pus from such a mixture, but does not mucus. 7. Where alkaline lixivium does not dissolve pus, it still distinguishes it from mucus, as it then prevents its diffusion through water. 8. Coagulable lymph is neither soluble in concentrated nor diluted vitriolic acid. 9. Water produces no change on a solution of serum in alkaline lixivium, until after long standing, and then only a very slight sediment appears. 10. Muriated mercury coagulates mucus, but does not pus.

From the above experiments it appears, that strong vitriolic acid and water, diluted vitriolic acid, and caustic alkaline lixivium and water, will serve to distinguish pus from mucus; that the vitriolic acid can separate it from coagulable lymph, and alkaline lixivium from serum. Hence, when a person has any expectorated matter, the decomposition of which he wishes to ascertain, let him dissolve it in vitriolic acid, and in caustic alkaline lixivium; and let him add pure water to both solutions. If there be a fair precipitation in each, he may be assured that some pus is present. But if there be a precipitation in neither, it is a certain test that the mixture is entirely mucus. If the matter cannot be to dissolve in alkaline lixivium by time and trituration, we have also reason to believe that it is pus.

MUCUS, VEGETABLE. See GUM and MUCILAGO.

MUFFLE, in chemistry, a vessel much used in some metallurgic operations. In figure it represents an oblong arch or vault, the hinder part of which is closed by a semicircular plane, and the lower part or floor of which is a rectangular plane. It is a little oven that is placed horizontally in assay and enamelling furnaces, so that its open side corresponds with the door of the fire-place of the furnace. Under this arched oven small cupels or crucibles are placed; and the substances contained are thus exposed to heat without cantract of fuel, smoke, or ashes.

MUG-WORT. See ARTEMISIA VULGARIS.

MULBERRY. See MORUM.

MULE, a mongrel kind of quadruped, usually generated between an ass and a mare, and sometimes between a horse and a she-ass; but the signification of the word is commonly extended to every kind of animal produced by a mixture of two different species.

MULE, in botany, a sort of vegetable monster, produced by putting the farina fœcundans of one species of plant into the pistil or utricle of another. Thus the carnation and sweet-william, being somewhat alike in their parts, particularly their flowers, the farina of the one will impregnate the other, and the seed so enlivened will produce a plant differing from either.

MULLEIN. See VERBASCUM.

MULLER, or *Mullar;* a stone, flat and even at bottom, but round at top; used for grinding substances on a marble slab. Apothecaries use mullers to prepare some of their testaceous powders. See Pl. XI. fig. 4.

MULTI'FIDUS SPINÆ, (*multifidas;* from *multus*, many, and *findo*, to divide), the *Transverso-spinalis lumborum*, *veterib. Sacer; Semi-spinalis internus, sive transverso-spinalis dorsi; Semi spinalis, sive transverso-spinalis colli, pars interna*, of Winslow. *Transversalis lumborum, vulgo Sacer; Transversalis dorsi*, and *Tranversalis colli*, of Douglas. Anatomical writers seem to have unnecessarily multiplied the muscles of the spine, and hence their descriptions are confused, and difficult to be understood. Under the name of *multifidus spinæ*, Albinus has therefore very properly included those portions of muscular flesh, intermixed with tendinous fibres, which lie close to the posterior part of the spine, and which Douglas and Winslow have described as three distinct muscles, under the names of *transversales*, or *transverso-spinales*, of the loins, back, and neck. The *multifidus spinæ* arises tendinous and fleshy from the upper convex surface of the os sacrum, from the posterior adjoining part of the ilium, from the oblique and transverse processes of all the lumbar vertebræ, from the transverse processes of all the dorsal vetebræ, and from those of the cervical vetebræ, excepting the three first. From all these origins the fibres of the muscle run in an oblique direction, and are inserted, by distinct tendons, into the spinous processes of all the vetebræ of the loins and back, and likewise into those of the six inferior vertebræ of the neck. When this muscle acts singly, it extends the back obliquely, or moves it to one side. When the different portions act, they extend the vertebræ backwards.

MULTISI'LIQUÆ, (from *multus*, many, and *siliqua*, a pod), in botany, such plants as have, after each flower, many distinct, long, slender, and many times crooked cases, or siliquæ, in which their seed is contained; and which, when they ripen, open of themselves, and let the seeds drop. Of this kind are columbine, house-leek, &c. It is the name of the 23rd Order in the Fragments of a Natural Method in the *Philosophia Botanica;* and of the 26th in the *Ordines Naturales*, at the end of Linnæus's *Genera Plantarum.*

MUM, a kind of malt-liquor much drank in Germany, and chiefly brought from Brunswick, which is the place of most note for making it. The process of brewing mum, as recorded in the town-house of that city, is as follows. Take sixty-three gallons of water that has been boiled till one-third part is consumed, and brew it with seven bushels of wheaten malt, one bushel of oatmeal, and one bushel of ground beans. When it is tunned, the hogshead must not be filled too full at first: as soon as it begins to work, put into it three pounds of the inner rind of fir, one pound of the tops of fir and beech, three handfuls of carduus benedictus, a handful or two of the flowers of rosa solis; add burnet, betony, marjoram, avens, pennyroyal, and wild thyme, of each a handful and a half; of elder flowers, two handfuls or more: seeds of cardamom bruised, thirty ounces; barberries bruised, one ounce; when the liquor has worked awhile, put the herbs and seeds into the vessel; and, after they are added, let it work over as little as possible; then fill it up: lastly, when it is stopped, put into the hogshead ten new-laid eggs unbroken; stop it up close, and use it at two years end. The English brewers, instead of the inner rind of fir, use cardamom, ginger, and sassafras; and also add elicampane, madder, and red saunders.

MU'MIA, mummy; a body embalmed or dried, in the manner used by the ancient Egyptians. The same name was also given to the composition with which the body was embalmed. To the disgrace of medicine, *mummy* was once an article of the materia medica. For this purpose, there were two different substances kept under the name of mummy, though both, in some degree, of the same origin. The one was the dried and preserved flesh of human bodies, embalmed with myrrh and spices; the other the liquor running from such mummies, when newly prepared, or when affected by great heat or damps. The latter was sometimes in a liquid, sometimes of a solid form, either preserved in vials, or suffered to dry and harden in the air. The first kind of mummy was brought in large pieces, of a lax and friable texture, light and spungy, of a blackish brown colour, and often damp and clammy on the surface. It had, as might be expected, a strong disagreeable smell. The second kind of mummy, or that in its liquid state, was a thick, opaque, and viscous fluid, of a blackish colour, but not so disagreeable in smell. In its indurated state, it is a dry solid substance, of a fine shining black colour, and close texture, easily broken, and of a good smell; very inflammable, and yielding a scent of myrrh and aromatic ingredients while burning. This was very scarce and dear, while the other was cheap, and, for that reason, most in use.

MUMPS; an inflammatory affection of the parotid gland. See CYNANCHE.

MU'NGOS RADIX, or *Radix serpentum*, a bitter root, the produce of the plant *Ophiorrhiza mungos*, Linn. This root is much esteemed in Java, Sumatra, &c. as preventing the effects which usually follow the bite of the *naja*, a venomous serpent, with which view it is eaten by them. It is also sometimes exhibited medicinally in the cure of intestinal worms.

MU'RIAS; a muriate, or salt formed by the union of the muriatic acid with a certain base, as *muriate of ammonia*, &c See MURIATES.

MU'RIAS AMMO'NIÆ. See AMMONIA MURIATA and SAL AMMONIAC.

MU'RIAS BARY'TÆ, or *Terra ponderosa salita;* the muriate of barytes, or heavy-earth, a very acrid and poisonous preparation. In small doses it proves sudorific, diuretic, deobstruent, and alterative; in an over-dose, emetic, and violently purgative. The late Dr. Crawford thought it very serviceable in all diseases connected with scrophula; and he also made trial of it in cancer. See CANCER. The Germans have employed it with great success in some diseases of the skin and obstinate ulcers. The dose of the saturated solution in distilled water, is from five to fifteen drops for children, and from fifteen to twenty for adults.

MU'RIAS CALCIS, muriate of lime; called also *Calx salita*, and *Sal ammoniacus fixus.* This preparation is exhibited with the same views as the muriate of barytes. It possesses deobstruent, diuretic, and cathartic virtues, and was much used by Fourcroy in the scrophula, and scrophulous diseases. Six, twelve, and twenty grains are given to children three times a day, and a drachm to adults.

MU'RIAS FERRI, *Ferrum salitum* or *Oleum martis per deliquium*, muriate of iron; a preparation in which that metal is dissolved in the muriatic acid.

Tinctura muriatis ferri. Edin.

Take of the black oxid of iron in powder, three ounces;
Muriatic acid about ten ounces, or as much as may be sufficient to dissolve the powder.

Digest by gentle heat, and after the powder is dissolved, add as much alcohol as will make the whole quantity of liquor amount to two pounds and a half.

Tinctura ferri muriati. Lond. Dubl.

Take of the rust of iron, (iron-wire, *Dubl.*) half a pound;
Muriatic acid, three pounds;
Rectified spirit of wine, three pints.

Pour the acid on the rust of iron in a glass vessel; and shake the mixture now and then for three days. Set it by, that the feces may subside; then pour off the liquor; evaporate this to one pint, and, when cold, add to it the spirit of wine.

In making this preparation, each of the colleges uses iron in a different state. There is no difference, however, between the solutions of iron and of its black oxid; because the iron is converted into the state of black oxid, by the decomposition of the water, before it is dissolved; and accordingly, when iron is dissolved in muriatic acid, there is a disengagement of hydrogen gas; whereas the black oxid is dissolved without any effervescence. But muriatic acid is capable of combining either with the black or red oxids of iron, and forms with each, salts, that have distinctive properties.

Dr. A. Duncan says, the red muriate of iron is not crystallizable; has a dark orange colour; is deliquescent; forms a brown red solution, having a very astringent taste; and is soluble in alcohol. The green muriate is crystallizable; has little colour; is very soluble in water, forming a pale green solution; and is insoluble in alcohol. But the aqueous solution of green muriate attracts oxygen so rapidly from the atmosphere, that unless the access of the air be totally excluded, it is always partially converted into red muriate. The solutions of iron and of its black oxid, are accordingly found always to contain a greater or less proportion of red muriate, and are therefore not uniform or constant in their properties. Besides, as it is only the red muriate which is soluble in alcohol, it seems better, with the London college, to use the red carbonate of iron, by which means we obtain an unmixed and permanent solution of the red muriate. Muriate of iron is also formed, when we dissolve the sulphuret of iron in muriatic acid for the purpose of procuring sulphuretted hydrogen gas. It is also the residuum which remains in the retort after the sublimation of muriate of ammonia and iron.

This preparation of iron is styptic and tonic, and may be given in chlorosis, intermittents, rachitis, &c. in the quantity of ten to twenty drops twice or thrice a day.

MU'RIAS FERRI AMMONIACA'LIS. See Ferrum ammoniacale.

MU'RIAS HYDRARGYRI, muriate of quicksilver. There are two simple muriates of mercury, namely, *Calomel*, and the *Hydrargyrus muriatus mitis.* See those articles.

MU'RIAS HYDRARGYRI AMMONIACALIS. See Calx hydrargyri alba.

MU'RIAS HYDRARGYRI OXYGENA'TUS. See Hydrargyrus muriatus.

MU'RIAS HYPEROXYGENA'TUS POTASSÆ; the oxygenated muriate of potash; a remedy which has lately been extolled in the cure of the venereal disease, and with some appearance of reason. It is exhibited in doses of from fifteen to forty grains in the course of a day. It encreases the action of the heart and arteries, oxygenates the blood, and proves of great service in scorbutus, asthenia, cachexia, &c. See Murias potassæ.

MU'RIAS POTASSÆ, called by the different names of *Alkali vegetabile salitum*, *Sal digestivus*, and *Sal febrifugus Sylvii;* muriate of potash. This salt is exhibited with the same intention as the muriate of soda, and was formerly in high estimation in the cure of intermittents, &c. Mr. Accum gives the following directions for the *preparation of oxigenated muriate of potash.*—"To prepare this salt, the usual materials for preparing oxigenated muriatic acid gas, are put into a retort connected with Pepy's or Burkitt's apparatus. A solution of potash is put into the receivers, leaving the first empty, and thus saturating the potash by passing a current of oxigenated muriatic acid gas through it. When the saturation is nearly complete the oxigenated muriate of potash separates in crystals.

"When three parts of oxigenated muriate of potash and one of sulphur are triturated in a mortar, the mixture detonates violently, the same effect is produced when the mixture is struck with a hammer on an anvil. Phosphorus detonates with oxigenated muriate of potash with a prodigious force. Similar effects are produced with other inflammable substances, or with metallic bodies. Some of them may be inflamed by the affusion of sulphuric or nitric acid.

"It is singular that the oxigenated muriatic acid gas does not combine directly with the alkali, but suffers a partial decomposition: one part of it becomes actually converted into muriatic acid, and consequently forms muriate of potash; the other part receives the oxigen with which the former parted, and combines with another portion of potash, forming a salt in which the acid exists, with a larger proportion of oxigen than in its usual state of oxigenated acid. This salt, therefore, is, properly speaking, not an oxigenated muriate, but a *hyper-oxigenated muriate of potash.* These singular combinations seem to be owing, to the stronger attraction of the alkali to muriatic, than to oxigenated muriatic acid, assisted by the attraction which the latter has for a still larger portion of oxigen.

MU'RIAS SODÆ, called also *Alkali minerale salitum*, *Sal commune*, *Sal culinaris*, *Sal gemmæ*, *Sal marinus*, *Natron muriatum*, *Soda muriata*, &c. muriate of soda, or common sea-salt. This is extracted from the waters of the ocean, and is used in great quantities for preserving provisions, &c. It is a perfect neutral salt, composed of muriatic acid, saturated with mineral alkali, and hence, its new chemical name of *Muriate of soda.* See Muriates and Soda. It has a saline but agreeable flavour. It requires about four times its weight of cold water to be dissolved, and nearly the same quantity of boiling water, according to Macquer. But according to Kirwan, it only requires 2.5 its weight of water to be dissolved in the temperature of sixty degrees of Fahrenheit. This salt always contains some part formed with a calcareous base; and, in order to have it pure, it must be dissolved in distilled water:

then a solution of mineral alkali is to be poured in till no white precipitation appears; then, by filtrating and evaporating the solution, a pure common salt is produced. Its figure is perfectly cubic, and those hollow pyramids, or *tremies* as the French call them, as well as the parallelopipeds formed sometimes in its crystallization, consist all of a quantity of small cubes disposed in those forms. Its decrepitation on the fire, which has been reckoned by some a characteristic of this salt, although the vitriolated tartar, nitrous lead, and other salts, have the same property, is owing chiefly to the water, and perhaps also to the air of its crystallization.

Its specific gravity is 2.120 according to Kirwan. The acid of tartar precipitates nothing from it. One hundred parts of common salt contain thirty-three of real acid, fifty of mineral alkali, and seventeen of water. It is commonly found in salt water and salt springs, in the proportion of even thirty-six *per cent.* It is found also in coals, and in beds of gypsum. This salt is unalterable by fire, though it fuses, and becomes more opake: nevertheless a violent fire, with the free access of air, causes it to evaporate in white flowers, which stick to the neighbouring bodies. It is only decomposed, as Macquer affirms, by the vitriolic and nitrous acids; and also by the boracic or sedative salt. But although nitre is decomposed very easily by arsenic, this neutral marine salt is nowise decomposed by the same. According to Mongez, the fixed vegetable alkali, when caustic, decomposes also this marine salt.

Sea-salt preserves almost all sorts of animal food much better for use than any other salt, as it keeps them without destroying their taste and qualities; but when applied in too small a quantity, it then forwards their corruption. As a medicine common salt possesses antiseptic, diuretic, and resolvent qualities, and is frequently employed in form of clyster, fomentation, lotion, pediluvium, and bath, in obstipation, against worms, scrophulous tumors, herpetic eruptions, and many other affections.

MU'RIAS STI'BII HYPEROXYGENA'TUS. See ANTIMONIUM MURIATUM.

MURIATES; salts formed by the union of the muriatic acid with different bases. Thus we have the *muriate of ammonia*, *muriate of copper*, &c. These salts yield white vapours (muriatic acid gas) by the affusion of sulphuric acid, and yellowish-green vapours (oxygenated muriatic acid gas), by nitric acid; both attended with considerable effervescence. They are decomposed by solution of silver, and are volatile at high temperatures without decomposition. Mr. Accum has described the following methods of obtaining muriates.

Muriate of potash, soda, ammonia, barytes, strontia, lime, magnesia, &c. may be obtained by dissolving the carbonates of these substances in muriatic acid, to perfect saturation, evaporating the solution, and suffering it to crystallize. Muriate of iron may be produced by dissolving iron filings in muriatic acid to saturation, evaporating the solution, and crystallizing it. Muriate of tin, zinc, arsenic, and nickel, may be obtained in a similar manner. Muriate of lead is best prepared by pouring muriatic acid into a solution of nitrate of lead; the muriate of lead precipitating instantly. Muriate of gold is obtained by dissolving gold in nitro-muriatic acid. Muriate of silver is formed by pouring muriatic acid into a solution of nitrate of silver. Muriate of copper is produced, according to Chenevix, by mixing 54.5 parts of black oxid of copper, and 50 parts of copper obtained by precipitating that metal, from its solution, by a plate of iron, and putting this mixture with muriatic acid into a well stopped phial; the solution will then contain muriate of copper. Muriate of mercury has been noticed already. Muriate of bismuth is obtained by dissolving this metal in nitro-muriatic acid. Muriate of antimony is formed in a similar manner.

MURIATIC ACID. See ACIDUM MURIATICUM. This acid exists in the gaseous state, and forms muriatic acid gas. The basis of this acid is unknown, though some attempts to decompose it have recently been supposed successful.

Liquid muriatic acid, i. e. water impregnated with muriatic acid gas, is a colourless, very odorous, and pungent fluid. It emits copious white fumes in contact with moist atmospheric air: these fumes are muriatic acid gas that escapes from it, and condenses again by combining with the humidity of the air. If a wide-mouthed bottle, containing strong muriatic acid, be opened, and the hand brought near to its orifice, a sensible warmth is perceived, which arises from the combination of the acid gas with the water of the atmosphere. Muriatic acid is unalterable by any known combustible body. It disengages the carbonic, phosphoric, and sulphureous acids from all their combinations, but it is constantly expelled by the action of the sulphuric acid.

The muriatic acid is best obtained by decomposing muriate of soda or common salt, by means of sulphuric acid, in the following manner:

"Put into a tubulated retort, lodged in a sand-heat, or supported over a lamp, and connected with Pepys's distillatory vessel, or Woulf's bottles, every one containing a small quantity of distilled water, three parts of muriate of soda. Pour on it one of sulphuric acid very gradually, or rather let it be suffered to drop into the retort, by means of a funnel fastened to its tubulure, and whose inner opening may at pleasure be closed, wholly, or in part, by means of a ground-glass rod. Muriatic acid gas will be plentifully disengaged, which passes through the neck of the retort, and becomes absorbed by the water. When the water in the first bottle is fully saturated, it absorbs no more and becomes cold, but the gas continues to pass into the next bottles, and heats the water they contain. The water, thus impregnated with muriatic acid gas, is called *muriatic acid.*"

Mr. Accum says, if sulphuric acid, diluted with an equal weight of water, be made use of in this process, the apparatus of Pepys or Woulf may be dispensed with, and a common receiver may be used with safety. The salts formed by the combination of muriatic acid, with different bases, are called MURIATES. See that article.

MURIATIC ACID, OXYGENATED. See OXYGENATED MURIATIC ACID.

MU'SA SAPIE'NTUM; the systematic name of the banana-tree. See BANANA.

MU'SA PARADISI'ACA, the plantain; a tree that grows spontaneously in many parts of India, and has been immemorially cultivated in every part of the continent of South America It is an herbaceous tree, growing to the height of fifteen or twenty feet. The fruit is nearly of the size and shape of an ordinary cucumber, and when ripe, of a pale yellow colour, of a mealy substance, a little clammy, sweetish to the taste, and dissolving in the mouth. The whole spike of fruit often weighs forty or fifty pounds. When the plantains are brought to table by way of dessert, they are either raw, fried, or roasted; but if intended for bread, they are cut before they are ripe, and are then either roasted or boiled. The trees being tall and slender, the Indians cut them down to get at the fruit; and in doing this they suffer no loss, for the stems are only one year's growth, and would die if not cut; but the roots continue, and new stems soon spring up, which, in a year, produce ripe fruit also. From the ripe plaintains they make a liquor called *mislaw*. When they make this, they roast the fruit in their husks, and after totally beating them to a mash, they pour water upon them, and as the liquor is wanted it is drawn off. But the nature of this fruit is such, that they will not keep long without running into a state of putrefaction; and therefore, in order to reap the advantage of them at all times, they make cakes of the pulp, and dry them over a slow fire, and as they stand in need of mislaw, they mash the cakes in water, and these answer all the purposes of fresh fruit. These cakes are exceedingly convenient for making this liquor in their journies, and they never fail to carry them for that purpose. The leaves of the tree being large and spacious, serve the Indians for table-cloths, napkins, and other similar purposes.

MU'SCI, mosses; one of the seven families or classes into which all vegetables are divided by Linnæus in the *Philosophia Botanica.* The ancients took the moss of trees to be the effect of a disorder or discomposure of the texture of the bark; or at most a kind of little filaments arising from the bark: but the moderns find, by several observations, that mosses are all real distinct plants, whose seed, being extremely small, is inclosed in little capsulæ, which, bursting of themselves, the seed is carried off by the winds; till, falling into the inequalities of the bark of trees, it is there stopped, takes root, and feeds at the expence of the tree, as mouldiness does on bread, &c.

MUSCLES, (*Musculi*, Lat.). The parts that anatomists usually include under this name, consist of distinct portions of flesh, susceptible of contraction and relaxation; the contractions of which, in a natural and healthy state, are subject to the will, and for this reason they are called *voluntary* muscles. Besides these, there are other parts of the body that owe their power of contraction to their muscular fibres: thus the heart is a muscular body, forming what is called a hollow muscle; and the urinary bladder, stomach, intestines, &c. are enabled to act upon their contents, merely because they are provided with muscular fibres. These are called *involuntary* muscles, because their motions are not dependent on the will. The muscles of respiration, being in some measure influenced by the will, are said to have a *mixed* motion. The names by which the voluntary muscles are distinguished, are founded on their size, figure, situation, use, or the arrangement of their fibres, or their origin and insertion: but besides these particular distinctions, there are certain general ones that require to be noticed. Thus, if the fibres of a muscle are placed parallel to each other, in a straight direction, they form what anatomists term a *rectilinear* muscle; if the fibres cross and intersect each other, they constitute a *compound* muscle; when the fibres are disposed in the manner of rays, a *radiated* muscle; and when they are placed obliquely with respect to the tendon, like the plume of a pen, a *penniform* muscle. Muscles that act in opposition to each other are called *antagonists;* thus every extensor has a flexor for its antagonist, and *vice versa.* Muscles that concur in the same action are termed *congeneres.* The muscles being attached to the bones, the latter may be considered as levers, that are moved in different directions by the contraction of those organs. That end of the muscle which adheres to the most fixed part is usually called the *origin;* and that which adheres to the more moveable part the *insertion* of the muscle. In almost every muscle two kinds of fibres are distinguished; the one soft, of a red colour, sensible, and irritable, called *fleshy* fibres (see MUSCULAR FIBRES); the other of a firmer texture, of a white glistening colour, insensible, without irritability or the power of contracting, and named *tendinous* fibres. They are occasionally intermixed, but the fleshy fibres generally prevail in the belly, or middle part, of the muscle, and the tendinous ones in the extremities. If these tendinous fibres are formed into a round slender cord, they form what is called the *tendon* of the muscle; on the other hand, if they are spread into a broad flat surface, it is termed an *aponeurosis.*

Each muscle is surrounded by a very thin and delicate covering of cellular membrane, which incloses it as it were like a sheath, and dipping down into its substance, surrounds the most minute fibres we are able to trace, connecting them to each other, lubricating them by means of the fat which its cells contain in more or less quantity in different subjects, and serving as a support to the blood-vessels, lymphatics, and nerves, which are so plentifully distributed through the muscles. This cellular membrane, which in no respect differs from that found investing and connecting the other parts of the body, has been sometimes mistaken for a membrane peculiar to the muscles; and hence we often find writers giving it the name of *membrana propria musculosa.* The muscles owe the red colour which so particularly distinguishes their belly part, to an infinite number of arteries, which are every where dispersed through the whole of their reticular substance; for their fibres, after having been macerated in water, are (like all other parts of the body divested of their blood), found to be of a white colour. These arteries usually enter the muscles by several considerable branches, and ramify so minutely through their substance, that we are unable, even with the best microscopes, to trace their ultimate branches. Ruysch fancied that the muscular fibre was hollow, and a production of a capillary artery; but this was merely conjectural. The veins, for the most part, accompany the arteries, but are found to be larger and more numerous. The lymphatics, likewise, are numerous, as might be expected from the great proportion of reticular substance, which is every where found investigating the muscular fibres. The nerves are distributed in such abundance to every muscle, that the muscles of the thumb alone, are supplied with a greater proportion of nervous influence than the largest viscera, as the liver for instance. They enter the generality of muscles by several trunks, the branches of which, like those of the blood-vessels, are so minutely dispersed through the cellular substance, that their number and minuteness soon elude the eye and the knife of the anatomist. This has given rise to a conjecture, as groundless as all the other conjectures on this subject, that the muscular fibre is ultimately nervous.

An enumeration and concise description of the muscles of the human body is of too apparent utility to be omitted in this place. We have therefore thrown this part of the subject into the form of a table; in which the name, origin, insertion, and principal use of each, will be found described in a few words. It is however to be understood, that this does not include *all* the muscles of the body; since those belonging to the eyes, internal ear, intestinum rectum, &c. are too peculiarly circumstanced for such an arrangement, and will of necessity be mentioned in other parts of this work. We must also remark, that though almost all the muscles are in *pairs*, mention is here made only of the muscles of one side, and farther, that those marked with an asterisk have certain peculiarities which are explained under their proper heads.

A TABLE OF THE MUSCLES.

MUSCLES *situated under the Integuments of the Cranium.*

NAME.	*Origin.*	*Insertion.*	*Use.*
1. *Occipito frontalis.*	From the transverse ridge of the os occipitis.	Into the skin of the eye-brows.	To pull the skin of the head backwards, and to raise the eye-brows and skin of the forehead.
2. *Corrugator supercilii.*	From above the joining of the os frontis, os nasi, and os maxillare.	Into the inner part of the occipito-frontalis.	To draw the eye-brows towards each other, and to wrinkle the forehead.
MUSCLES *of the Eye-lids.*			
1. *Orbicularis palpebrarum.*	From around the edge of the orbit.	Into the nasal process of the os maxillare.	To shut the eye.
2. *Levator palpebræ superioris.*	From the bottom of the orbit, near the optic foramen.	Into the cartilage of the upper eye-lid.	To open the eye.
MUSCLES *of the external Ear.*			
1. *Attolens auriculam.*	From the tendon of the occipito frontalis near the os temporis.	Into the upper part of the ear.	To raise the ear.
2. *Anterior auriculæ.*	From near the back part of the zygoma.	Into an eminence behind the helix.	To raise this eminence, and to pull it forwards.
3. *Retrahentes auriculæ.**	From the outer and back part of the root of the mastoid process.	Into the convex part of the concha.	To stretch the concha, and pull the ear backwards.
MUSCLES *of the Cartilages of the Ear.*			
1. *Tragicus.*	From the outer and middle part of the concha, near the tragus.	Into the upper part of the tragus.	To depress the concha, and pull the point of the tragus a little outwards.
2. *Anti-tragicus.*	From the root of the inner part of the helix.	Into the upper part of the anti-tragus.	To dilate the mouth of the concha.
3. *Transversus auriculæ.*	From the upper part of the concha.	Into the inner part of the helix.	To stretch the concha and scapha, and likewise to pull the parts it is connected with towards each other.

Name.	*Origin.*	*Insertion.*	*Use.*
4. *Helicis major.*	From the upper, anterior, and acute part of the helix.	Into the cartilage of the helix, a little above the tragus.	To depress the upper part of the helix.
5. *Helicis minor.*	From the lower and fore part of the helix.	Into the helix, near the fissure in its cartilage.	To contract the fissure.

Muscles *of the Nose.*

1. *Compressor naris.**	From the outer part of the root of the ala nasi.	Into the nasal process of the os maxillare, and anterior extremity of the os nasi.	To straighten the nostrils, and likewise to corrugate the skin of the nose.

Muscles *of the Mouth and Lips.*

1. *Levator labii superioris, alæque nasi.*	From the outer part of the orbitar process of the os maxillare, and from the nasal process of that bone, where it joins the os frontis.	Into the upper lip and ala of the nose.	To draw the upper lip and skin of the nose upwards and outwards.
2. *Levator anguli oris.*	From the os maxillare superius, between the orbitar foramen and the first dens molaris.	Into the orbicularis oris at the angle of the mouth.	To raise the corner of the mouth.
3. *Zygomaticus major.*	From the os malæ, near the zygomatic suture.	Into the angle of the mouth.	To raise the angle of the mouth, and make the cheek prominent, as in laughing.
4. *Zygomaticus minor.*	Immediately above the origin of the zygomaticus major.	Into the angle of the mouth.	To raise the angle of the mouth obliquely outwards.
5. *Buccinator.*	From the alveoli of the dentes molares in the upper and lower jaws.	Into the angle of the mouth.	To contract the mouth, and draw the angle of it outwards and backwards.
6. *Depressor labii superioris, alæque nasi.*	From the os maxill. super. immediately above the gums of the dentes incisores.	Into the root of the ala nasi and upper lip.	To draw the ala nasi and upper lip downwards.
7. *Depressor anguli oris.*	At the side of the chin from the lower edge of the maxilla inferior.	Into the angle of the mouth.	To draw the corner of the mouth downwards.
8. *Depressor labii inferioris.*	From the lower and anterior part of the maxilla inferior.	Into the under lip.	To draw the under lip downwards, and somewhat outwards.
9. *Levator labii inferioris.*	From near the gums of the incisores and caninus of the maxilla inferior.	Into the under lip and skin of the chin.	To raise the under lip and skin of the chin.
10. *Orbicularis oris.**			To shut the mouth by constringing the lips.

Muscles *of the Lower Jaw.*

1. *Temporalis.*	From part of the os bregmatis and os frontis, squamous part of the os temporis, back part of the os malæ, and the temporal process of the os sphenoides.*	Into the coronoid process of the lower jaw.	To move the lower jaw upwards.
2. *Masseter.**	From the malar process of the os maxillare, and the lower edges of the os malæ, and of the zygomatic process of the os temporis.	Into the basis of the coronoid process, and that part of the jaw which supports that and the condyloid process.	To raise, and likewise to move, the jaw, a little forwards and backwards.

NAME.	*Origin.*	*Insertion.*	*Use.*
3. *Pterygoideus internus.*	From the inner surface of the outer wing of the pterygoid process of the os sphenoides, and from the process of the os palati that helps to form the pterygoid fossa.	Into the lower jaw on its inner side and near its angle.	To raise he lower jaw, and draw it a little to one side.
4. *Pterygoideus externus.*	From the external ala of the pterygoid process, a small part of the adjacent os maxillare, and a ridge in the temporal process of the os sphenoides.	Into the fore part of the condyloid process of the lower jaw, and likewise of the capsular ligament.	To move the jaw forwards, and to the opposite side;* and at the same time to prevent the ligament of the joint from being pinched.

MUSCLES *situated at the Fore Part of the Neck.*

1. *Latissimus colli.**	From the cellular membrane covering the pectoral, deltoid, and trapezius muscles.	Into the side of the chin and integuments of the cheek.	To draw the cheeks and skin of the face downwards; and when the mouth is shut, to draw all that part of the skin to which it is connected below the lower jaw upwards.
2. *Mastoideus.**	From the upper part of the sternum, and from the upper and fore part of the clavicle.	Into the mastoid process, and as far back as the lambdoidal suture.	To move the head to one side, or when both muscles act, to bend it forwards.

MUSCLES *situated between the Trunk and the Os Hyoides.*

1. *Omo-hyoideus.**	From the upper costa of the scapula near its niche; from part of a ligament that extends across this niche, and sometimes by a few fibres, from the coracoid process.	Into the basis of the os hyoides.	To draw the os hyoides in an oblique direction downwards.
2. *Sterno-hyoideus.*	From the cartilage of the first rib, the inner and upper part of the sternum, and a small part of the clavicle.	Into the basis of the os hyoides.	To draw the os hyoides downwards.
3. *Hyo-thyroideus.*	From part of the basis and horn of the os hyoides.	Into a rough oblique line at the side of the thyroid cartilage.	To raise the thyroid cartilage, or depress the os hyoides.
4. *Sterno-thyroideus.*	From between the cartilages of the first and second ribs, at the upper and inner part of the sternum.	Immediately under the hyo-thyroideus.	To pull the thyroid cartilage downwards.
5. *Crico-thyroideus.*	From the anterior part and side of the cricoid cartilage.	Into the lower part and inferior horn of the thyroid cartilage.	To pull the cricoid cartilage upwards and backwards, or the thyroid forwards and downwards.

MUSCLES *situated between the Os Hyoides and the Lower Jaw.*

1. *Digastricus.**	From a fossa at the root of the mastoid process, and likewise from the os hyoides.	Into the lower and anterior part of the chin.	To draw the lower jaw downwards.
2. *Stylo-hyoideus.**	From the basis of the styloid process.	Into the side and fore part of the os hyoides near its base.	To draw the os hyoides obliquely upwards.
3. *Mylo-hyoideus.**	From the inside of the lower jaw, between the last dens molaris and the chin.	Into the basis of the os hyoides.	To move the os hyoides to either side, forwards or upwards.

Name.	*Origin.*	*Insertion.*	*Use.*
4. *Genio-hyoideus.**	From the inside of the chin.	Into the base of the os hyoides.	To move the os hyoides forwards or upwards.
5. *Genio-glossus.*	From the inside of the chin.	Into the tongue and basis of the os hyoides.	To move the tongue in various directions.
6. *Hyo-glossus.**	From the horn, basis, and appendix of the os hyoides,	Into the tongue laterally.	Draws the tongue downwards and inwards.
7. *Lingualis.*	Laterally from the root of the tongue.	Into the extremity of the tongue.	To shorten the tongue and draw it backwards.
8. *Stylo-glossus.*	From the styloid process, and sometimes also from a ligament that extends from thence to the angle of the lower jaw.	Into the side of the tongue from the root to near its tip.	To move the tongue backwards and to one side.
9. *Stylo-pharyngæus.*	From the basis of the styloid process.	Into the side of the pharynx and posterior part of the thyroid cartilage.	To raise the thyroid cartilage and pharynx, and likewise to dilate the latter.
10. *Circumflexus-palati.*	From near the bony part of the Eustachian tube, and from the spinous process of the os sphenoides.	Into the semilunar edge of the os palati and the velum pendulum palati.*	To dilate and draw the velum obliquely downwards.
11. *Levator. palati.*	From the membranous part of the Eustachian tube, and the extremity of the os petrosum.	Into the velum pendulum palati.	To pull the velum backwards.
Muscles *situated about the Fauces.*			
1. *Palato-pharyngæus.*	From the lower and anterior part of the cartilaginous extremity of the Eustachian tube;* the tendinous expansion of the circumflexus palati; and the velum pendulum palati, near the basis and back part of the uvula.	Into the upper and posterior part of the thyroid cartilage.	To raise the pharynx and thyroid cartilage, or to pull the velum and uvula backwards and downwards.
2. *Constrictor isthmi faucium.*	From near the basis of the tongue laterally.	Into the velum pendulum palati, near the basis and fore part of the uvula.	To raise the tongue and draw the velum towards it.*
3. *Azygos uvulæ.*	From the end of the suture that unites the ossa palati.	Into the extremity of the uvula.	To shorten the uvula, and bring it forwards and upwards.
Muscles *at the Back Part of the Pharynx.*			
1. *Constrictor pharyngis superior.*	From the cuneiform process of the occipital bone; the pterygoid process of the os sphenoides, and from each jaw near the last dens molaris.*	Into the middle of the pharynx.	To move the pharynx upwards and forwards, and to compress its upper part.
2. *Constrictor pharyngis medius.*	From the horn and appendix of the os hyoides, and from the ligament that unites it with the thyroid cartilage.	Into the middle of the processus cuneiformis of the occipital bone, about its middle, and before the great foramen.	To draw the os hyoides and pharynx upwards, and to compress the latter.
3. *Constrictor pharyngis inferior.**	From the cricoid and thyroid cartilage.	Into the middle of the pharynx.	To compress part of the pharynx.
Muscles *about the Glottis.*			
1. *Crico-arytænoideus lateralis.*	From the side of the cricoid cartilage.	Into the basis of the arytænoid cartilage laterally.	To open the glottis.

Name.	*Origin.*	*Insertion.*	*Use.*
2. *Crico-arytænoideus posticus.*	From the cricoid cartilage posteriorly.	Into the basis of the arytænoid cartilage posteriorly.	To open the glottis.
3. *Arytænoideus obliquus.*	From the basis of one of the arytænoid cartilages.	Near the extremity of the other arytænoid cartilage.	To draw the parts it is connected with towards each other.
4. *Arytænoideus transversus.*	From one of the arytænoid cartilages laterally.	Into the other arytænoid cartilage laterally.	To shut the glottis.
5. *Thyreo-arytænoideus.*	From the posterior and under part of the thyroid cartilage.	Into the arytænoid cartilage.	To draw the arytænoid cartilage forwards.
6. *Arytæno-epiglottideus.*	From the upper part of the arytænoid cartilage laterally.	Into the side of the epiglottis.	To move the epiglottis outwards.
7. *Thyreo-epiglottideus.*	From the thyroid cartilage.	Into the side of the epiglottis.	To pull the epiglottis obliquely downwards.*

Muscles *at the Fore Part of the Neck, close to the Vertebræ.*

1. ***Rectus capitis internus major.***	From the anterior extremities of the transverse processes of the five lowermost cervical vertebræ.	Into the fore part of the cuneiform process of the os occipitis.	To bend the head forwards.
2. ***Rectus capitis internus minor.***	From the anterior and upper part of the first cervical vertebra.	Near the basis of the condyloid process of the os occipitis.	To assist the last described muscle.
3. ***Rectus capitis lateralis.***	From the anterior and upper part of the transverse process of the first cervical vertebra.	Into the os occipitis, opposite to the stylo-mastoid foramen.	To move the head to one side.
4. ***Longus colli.***	Within the thorax, laterally from the bodies of the three uppermost dorsal vertebræ; from the basis and fore part of the transverse processes of the first and second dorsal vertebræ, and of the last cervical vertebra; and lastly, from the anterior extremities of the transverse processes of the sixth, fifth, fourth, and third cervical vertebræ.	Into the second cervical vertebra anteriorly.	To pull the neck to one side.

Muscles *at the Fore Part of the Abdomen.*

1. ***Obliquus externus.***	From the lower edges of the eight inferior ribs, near their cartilages.	Into the linea alba,* ossa pubis,* and spine of the ilium.*	To compress and support the viscera, assist in evacuating the fæces and urine, draw down the ribs, and bend the trunk forwards, or obliquely to one side.
2. ***Obliquus internus.***	From the spinous process of the three lower-most lumbar vertebræ, the back part of the os sacrum, the spine of the ilium, and back part of Fallopius's ligament.*	Into the cartilages of all the false ribs, linea alba,* and fore part of the pubis.	To assist the obliquus externus.
3. ***Transversalis.***	From the cartilages of the seven inferior ribs; the transverse processes of the last dorsal, and four upper lumbar vertebræ; the inner part of Fallopius's ligament, and the spine of the ilium.	Into the linea alba and cartilago ensiformis.	To compress the abdominal viscera.

Name.	*Origin.*	*Insertion.*	*Use.*
4. *Rectus abdominis.*	From the upper edge of the pubis, and the symphisis pubis.	Into the cartilages of the fifth, sixth, and seventh ribs, and the edge of the cartilago ensiformis.*	To compress the fore part of the abdomen, and to bend the trunk forwards.
5. *Pyramidalis.**	From the anterior and upper part of the pubis.	Into the linea alba and inner edge of the rectus, commonly about two inches above the pubis.	To assist the lower portion of the rectus.

Muscles *at the Fore Part of the Thorax.*

1. *Pectoralis major.*	From the cartilaginous ends of the fifth and sixth ribs; the sternum, and anterior part of the clavicle.	Into the upper and inner part of the os humeri.*	To draw the arm forwards, or obliquely forwards.
2. *Subclavius.*	From the cartilage of the first rib.	Into the under surface of the clavicle.	To move the clavicle forwards and downwards, and to assist in raising the first rib.
3. *Pectoralis minor.**	From the upper edges of the third, fourth, and fifth ribs.	Into the coracoid process of the scapula.	To move the scapula forwards and downwards, or to elevate the ribs.
4. *Serratus magnus.*	From the eight superior ribs.	Into the basis of the scapula.	To bring the scapula forwards.

Muscles *that concur in forming the Thorax.*

1. *Diaphragma.**			
2. *Levatores costarum.*	From the transverse processes of the last cervical, and the eleven upper dorsal vertebræ.	Into the upper side of each rib, near its tuberosity.	To move the ribs upwards and outwards.
3. *Intercostales externi.*	From the lower edge of each upper rib.	Into the superior edge of each lower rib.	To elevate the ribs.
4. *Intercostales interni.**			
5. *Sterno costales.**	From the cartilago ensiformis and lower and middle part of the sternum.	Into the cartilages of the second, third, fourth, fifth, and sixth ribs.	To depress the cartilages of the ribs.

Muscles *at the Back Part of the Neck and Trunk.*

1. *Trapezius,* or cucullaris.*	From the middle of the os occipitis, and the spinous processes of the two inferior cervical, and of all the dorsal vertebræ.*	Into the posterior half of the clavicle, part of the acromion, and the spine of the scapula.	To move the scapula.
2. *Rhomboideus.**	From the spinous processes of the three lowermost cervical, and of all the dorsal vertebræ.	Into the basis of the scapula.	To move the scapula upwards and backwards.
3. *Latissimus dorsi.*	From part of the spine of the os ilium, the spinous processes of the os sacrum and lumbar vertebræ, and of six or eight of the dorsal vertebræ; also, from the four inferior false ribs near their cartilages.	Into the os humeri, at the inner edge of the groove for lodging the long head of the biceps muscle.	To draw the os humeri downwards and backwards, and to roll it upon its axis.
4. *Serratus inferior posticus.*	From the spinous processes of the two lower most dorsal, and of three of the lumbar vertebræ.	Into the lower edges of the three or four lowermost ribs, near their cartilages.	To draw the ribs outwards, downwards, and backwards.
5. *Levator scapulæ.*	From the transverse processes of the four uppermost vertebræ colli.	Into the upper angle of the scapula.	To move the scapula forwards and upwards.

NAME.	*Origin.*	*Insertion.*	*Use.*
6. *Serratus superior posticus.*	From the lower part of the ligamentum colli, the spinous process of the lowermost cervical vertebra, and of the two superior dorsal vertebræ.	Into the second, third, and fourth ribs.	To expand the thorax.
7. *Splenius.**	From the spinous processes of the four or five uppermost vertebræ of the back, and of the lowermost cervical vertebra.	Into the transverse processes of the two first cervical vertebræ, the upper and back part of the mastoid process, and a ridge on the os occipitis.	To move the head backwards.
8. *Complexus.**	From the transverse processes of the four or five uppermost dorsal, and of the six lowermost cervical vertebræ.	Into the os occipitis.	To draw the head backwards.
9. *Trachelo-mastoideus.**	From the transverse processes of the first dorsal vertebra, and four or five of the lowermost cervical vertebræ.	Into the mastoid process.	To draw the head backwards.
10. *Rectus capitis posticus major.*	From the spinous process of the second cervical vertebra.	Into the os occipitis.	To extend the head, and draw it backwards.
11. *Rectus capitis posticus minor.*	From the first vertebra of the neck.	Into the os occipitis.	To assist the rectus major.
12. *Obliquus superior capitis.*	From the transverse process of the first cervical vertebra.	Into the os occipitis.	To draw the head backwards.
13. *Obliquus inferior capitis.*	From the spinous process of the second cervical vertebra.	Into the transverse process of the first cervical vertebra.	To draw the face towards the shoulder, and to move the first vertebra upon the second.
14. *Sacro-lumbalis.**	From the back part of the os sacrum, spine of the ilium, spinous processes, and roots of the transverse processes of the vertebræ of the loins.	Into the lower edge of each rib.	To draw the ribs downwards, move the body upon its axis, assist in erecting the trunk, and turn the neck backwards, or to one side.
15. *Longissimus dorsi.**	The same as that of the sacrolumbalis.	Into the transverse processes of the dorsal vertebræ.	To stretch the vertebræ of the back, and keep the trunk erect.
16. *Spinalis dorsi.*	From the spinous processes of the uppermost lumbar, and lowermost dorsal vertebræ.	Into the spinous processes of the nine superior dorsal vertebræ.	To extend the vertebræ.
17. *Semi-spinalis dorsi.*	From the transverse processes of the seventh, eighth, ninth, and tenth vertebræ of the back.	Into the spinous processes of the four uppermost dorsal, and lowermost of the cervical vertebræ.	To extend the spine obliquely backwards.
18. *Multifidus spinæ.**	From the os sacrum, ilium, oblique and transverse processes of the lumbar vertebræ, transverse processes of the dorsal, and four of the cervical vertebræ.	Into the spinous processes of the lumbar, dorsal, and six of the cervical vertebræ.	To extend the back, and draw it backwards, or to one side.
19. *Semi-spinalis colli.*	From the transverse processes of the five or six uppermost dorsal vertebræ.	Into the spinous processes of the second, third, fourth, fifth, and sixth, cervical vertebræ.	To stretch the neck obliquely backwards.
20. *Scalenus.**	From the transverse processes of the five inferior cervical vertebræ.	Into the upper and outer part of the first and second ribs.	To move the neck forwards, or to one side.

Name.	*Origin.*	*Insertion.*	*Use.*
21. *Inter-spinales.**	From the upper part of each of the spinous processes of the six inferior cervical vertebræ.	Into the under part of each of the spinous processes of the vertebræ above.	To draw the spinous processes towards each other.
22. *Inter-transversales.**	From the upper part of each of the transverse processes of the vertebræ.	Into the under part of each of the transverse processes of the vertebræ above.	To draw the transverse processes towards each other.

Muscles *within the Cavity of the Abdomen, on the Anterior and Lateral Parts of the Spine.*

1. *Psoas parvus.**	From the sides and transverse processes of the uppermost lumbar vertebra, and sometimes of the lowermost dorsal vertebra.	Into the brim of the pelvis, at the junction of the os pubis with the ilium.	To bend the loins forwards.
2. *Psoas magnus.*	From the bodies and transverse processes of the last dorsal, and all the lumbar vertebræ.	Into the os femoris, a little below the trochanter minor.	To bend the thigh forwards.
3. *Iliacus internus.*	From the inner lip, hollow part, and edge, of the os ilium.	In common with the psoas magnus.	To assist the psoas magnus.
4. *Quadratus lumborum.**	From the posterior part of the spine of the ilium.	Into the transverse processes of the four uppermost lumbar vertebræ, the inferior edge of the last rib, and the side of the lowermost dorsal vertebra.	To support the spine, or to draw it to one side.
5. *Coccygæus.*	From the posterior and inner edge of the spine of the ischium.	Into the lower part of the os sacrum, and almost the whole length of the os coccygis laterally.	To draw the os coccygis forwards and inwards.*

Muscles *on the Scapula and Upper Part of the Os Humeri.*

1. *Deltoides.**	From the clavicle, processus acromion, and spine of the scapula.	Into the anterior and middle part of the os humeri.	To raise the arm.
2. *Supra-spinatus.*	From the basis, spine, and upper costa of the scapula.	Into a large tuberosity at the head of the os humeri.	To raise the arm.
3. *Infra-spinatus.*	From the basis and spine of the scapula.	Into the upper and middle part of the tuberosity.	To roll the os humeri outwards.
4. *Teres minor.**	From the inferior costa of the scapula.	Into the lower part of the tuberosity.	To assist the infra-spinatus.
5. *Teres major.*	From the inferior angle, and inferior costa of the scapula.	Into the ridge at the inner side of the groove, formed for the long head of the biceps.	To assist in the rotatory motion of the arm.
6. *Subscapularis.*	From the basis, superior and inferior costæ of the scapula.	Into the upper part of a small tuberosity at the head of the os humeri.	To roll the arm inwards.
7. *Coraco-brachialis.**	From the coracoid process of the scapula.	Into the middle and inner side of the os humeri.	To roll the arm forwards and upwards.

Muscles *on the Os Humeri.*

1. *Biceps flexor cubiti.*	By two heads, one from the coracoid process, and the other, or long head, from the upper and outer edge of the glenoid cavity of the scapula.	Into the tuberosity at the upper end of the radius.	To bend the fore-arm.

Name.	*Origin.*	*Insertion.*	*Use.*
2. *Brachialis internus.*	From the os humeri, below, and at each side of the tendon of the deltoids.	Into a small tuberosity at the fore part of the coronoid process of the ulna.	To assist in bending the fore-arm.
3. *Triceps extensor cubiti.*	By three heads: the first, from the inferior costa of the scapula; the second, from the upper and outer part of the os humeri; and the third, from the back part of that bone.	Into the upper and outer part of the olecranon.	To extend the fore-arm.
Muscles *on the Fore-arm.*			
1. *Supinator longus.*	From the outer ridge and anterior surface of the os humeri, a little above its outer condyle.	Into the radius, near its styloid process.	To assist in turning the palm of the hand upwards.
2. *Extensor carpi radialis longus.*	Immediately below the origin of the supinator longus.	Into the upper part of the metacarpal bone of the middle finger.	To extend the wrist.
3. *Extensor carpi radialis brevis.*	From the outer and lower part of the outer condyle of the os humeri, and the upper part of the radius.	Into the upper part of the metacarpal bone of the middle finger.	To assist the extensor longus.
4. *Extensor digitorum communis.*	From the outer condyle of the os humeri.	Into the back part of all the bones of the four fingers.	To extend the fingers.
5. *Extensor minimi digiti.*	From the outer condyle of the os humeri.	Into the bones of the little finger.	To extend the little finger.
6. *Extensor carpi ulnaris.*	From the outer condyle of the os humeri.	Into the metacarpal bone of the little finger.	To assist in extending the wrist.
7. *Anconæus.**	From the outer condyle of the os humeri.	Into the outer edge of the ulna.	To extend the fore-arm.
8. *Flexor carpi ulnaris.*	From the inner condyle of the os humeri, and anterior edge of the olecranon.*	Into the os pisiforme.	To assist in bending the hand.
9. *Palmaris longus.*	From the inner condyle of the os humeri.	Into the internal annular ligament, and aponeurosis palmaris.*	To bend the hand.
10. *Flexor carpi radialis.*	From the inner condyle of the os humeri.	Into the metacarpal bone of the fore-finger.	To bend the hand.
11. *Pronator radii teres.*	From the outer condyle of the os humeri, and coronoid process of the ulna.	Into the anterior and convex edge of the radius, near its middle.	To roll the hand inwards.
12. *Flexor sublimis perforatus.**	From the inner condyle of the os humeri, inner edge of the coronoid process of the ulna, and upper and anterior part of the radius.	Into the second bone of each finger.	To bend the second joint of the fingers.
13. *Supinator radii brevis.*	From the outer condyle of the os humeri, and posterior surface and outer edge of the ulna.	Into the anterior, inner, and upper part of the radius.	To roll the radius outwards.
14. *Abductor pollicis longus.*	From the middle and back part of the ulna, interosseous ligament, and radius.	By two tendons into the os trapezium, and first bone of the thumb.	To stretch the first bone of the thumb outwards.
15. *Extensor minor pollicis.*	From the back part of the ulna, and interosseous ligament and radius.	Into the convex part of the second bone of the thumb.	To extend the second bone of the thumb obliquely outwards.
16. *Extensor major pollicis.*	From the back of the ulna, and interosseous ligament.	Into the third and last bone of the thumb.	To stretch the thumb obliquely backwards.
17. *Indicator.*	From the middle of the ulna.	Into the metacarpal bone of the fore-finger.	To extend the fore-finger.

NAME.	*Origin.*	*Insertion.*	*Use.*
18. *Flexor profundus perforans.*	From the upper and fore part of the ulna, and interosseous ligament.	Into the fore part of the last bone of each of the fingers.	To bend the last joint of the fingers.
19. *Flexor longus pollicis.*	From the upper and fore part of the radius.	Into the last joint of the thumb.	To bend the last joint of the thumb.
20. *Pronatar radii quadratus.*	From the inner and lower part of the ulna.	Into the radius, opposite to its origin.	To roll the radius inwards, and, of course, to assist in the pronation of the hand.

MUSCLES *on the Hand.*

1. *Lumbricales.**	From the tendons of the perforans.	Into the tendons of the extensor digitorum communis.	To bend the first, and to extend the two last joints of the fingers.*
2. *Abductor brevis pollicis.*	From the fore part of the internal annular ligament, os scaphoides, and one of the tendons of the abductor longus pollicis.	Into the outer side of the second bone of the thumb, near its root.	To move the thumb from the fingers.
3. *Opponens pollicis.*	From the inner and anterior part of the internal annular ligament, and from the os scaphoides.	Into the first bone of the thumb.	To move the thumb inwards, and to turn it upon its axis.
4. *Flexor brevis pollicis.*	From the os trapezoides, internal annular ligament, os magnum, and os unciforme.	Into the ossa sesamoidea and second bone of the thumb.	To bend the second joint of the thumb.
5. *Abductor indicis.*	From the metacarpal bone of the middle finger.	Into the basis of the second bone of the thumb.	To move the thumb towards the fingers.
6. *Abductor pollicis.*	From the inner side of the first bone of the thumb, and from the os trapezium.	Into the first bone of the fore-finger posteriorly.	To move the fore-finger towards the thumb.
7. *Palmaris brevis.*	From the internal annular ligament, and aponeurosis palmaris.	Into the os pisiforme, and the skin covering the abductor minimi digiti.	To contract the palm of the hand.
8. *Abductor minimi digiti.*	From the internal annular ligament, and os pisiforme.	Into the side of the first bone of the little finger.	To draw the little finger from the rest.
9. *Flexor parvus minimi digiti.*	From the os unciforme, and internal annular ligament.	Into the first bone of the little finger.	To bend the little finger.
10. *Abductor metacarpi minimi digiti.*	From the os unciforme, and internal annular ligament.	Into the metacarpal bone of the little finger.	To move that bone towards the rest.
11. *Interossei interni.*	Situated between the metacarpal bones.	Into the roots of the fingers.	To extend the fingers, and move them towards the thumb.
12. *Interossei externi.*	Situated between the metacarpal bones on the back of the hand.	Into the roots of the fingers.	To extend the fingers; but the first draws the middle finger inwards, the second draws it outwards, and the third draws the ring finger inwards.

MUSCLES *at the Back Part of the Pelvis, and Upper Part of the Thigh.*

1. *Glutæus* maximus.*	From the spine of the ilium, posterior sacro-ischiatic ligaments, os sacrum, and os coccygis.	Into the upper part of the *linea aspera* of the os femoris.	To extend the thigh, and draw it outwards.
2. *Glutæus medius.*	From the spine, and superior surface of the ilium.	Into the outer and back part of the great trochanter of the os femoris.	To draw the thigh outwards, and a little backwards, and when it is bended, to roll it.

Name.	*Origin.*	*Insertion.*	*Use.*
3. *Glutœus minimus.*	From the outer surface of the ilium, and the border of its great niche.	Into the upper and anterior part of the great trochanter.	To assist the former.
4. *Pyriformis.*	From the anterior part of the os sacrum.	Into a cavity at the root of the trochanter major.	To roll the thigh outwards.
5. *Gemini.**	By two portions, one from the outer surface of the spine of the ischium; the other from the tuberosity of the ischium and posterior sacro-ischiatic ligament.	Into the same cavity as the pyriformis.	To roll the thigh outwards, and likewise to confine the tendon of the obturator internus, when the latter is in action.
6. *Obturator internus.*	From the superior half of the inner border of the foramen thyroideum.	Into the same cavity with the former.	To roll the thigh outwards.
7. *Quadratus* femoris.*	From the tuberosity of the ischium.	Into a ridge between the trochanter major and trochanter minor.	To move the thigh outwards.
	Muscles *on the Thigh.*		
1. *Biceps flexor cruris.*	By two heads; one from the tuberosity of the ischium, the other from the linea aspera, near the insertion of the glutæus maximus.	Into the upper and back part of the fibula.*	To bend the leg.
2. *Semi-tendinosus.*	From the tuberosity of the ischium.	Into the upper and inner part of the tibia.	To bend and draw the leg inwards.
3. *Semi-membranosus.**	From the tuberosity of the ischium.	Into the upper and back part of the head of the tibia.	To bend the leg.
4. *Tensor vaginœ femoris.*	From the superior and anterior spinous process of the ilium.	Into the inner side of the fascia lata, which covers the outside of the thigh.	To stretch the fascia.
5. *Sartorius.*	From the superior and anterior spinous process of the ilium.	Into the upper and inner part of the tibia.	To bend the leg inwards.*
6. *Rectus.*	By two tendons; one from the anterior and inferior spinous process of the ilium; the other from the posterior edge of the cotyloid cavity.	Into the upper and fore part of the rotula.	To extend the leg.
7. *Gracilis.*	From the fore part of the ischium and pubis.	Into the upper and inner part of the tibia.	To bend the leg.
8. *Vastus externus.**	From the anterior and lower part of the great trochanter, and the outer edge of the linea aspera.	To the upper and outer part of the rotula.	To extend the leg.
9. *Vastus internus.*	From the inner edge of the linea aspera, beginning between the fore part of the os femoris and the root of the lesser trochanter.	Into the upper and inner part of the rotula.	To extend the leg.
10. *Cruræus.**	From the outer and anterior part of the lesser trochanter.	Into the upper part of the rotula.	To extend the leg.
11. *Pectinalis.*	From the anterior edge of the os pubis, or *pectinis*, as it is sometimes called.	Into the upper and fore part of the linea aspera.	To draw the thigh inwards, upwards, and to roll it a little outwards.

Name.	*Origin.*	*Insertion.*	*Use.*
12. *Adductor longus femoris.**	From the upper and fore part of the os pubis.	Near the middle and back part of the linea aspera.	To draw the thigh inwards, upwards, and to roll it a little outwards.
13. *Adductor brevis femoris.*	From the fore part of the ramus of the os pubis.	Into the inner and upper part of the linea aspera.	
14. *Adductor magnus femoris.*	From the lower and fore part of the ramus of the os pubis.	Into the whole length of the linea aspera.	
15. *Obturator externus.*	From part of the obturator ligament, and the inner half of the circumference of the foramen thyroideum.	Into the os femoris, near the root of the great trochanter.	To move the thigh outwards in an oblique direction, and likewise to bend and draw it inwards.
Muscles *on the Leg.*			
1. *Gastrocnemius* externus.*	By two heads; one from the inner condyle, the other from the outer condyle of the os femoris.	By a great round tendon, common to this and the following muscle.	To extend the foot.
2. *Gastrocnemius* internus.*	By two heads; one from the back part of the head of the fibula, the other from the upper and back part of the tibia.	By a large tendon (the *tendo Achillis*), common to this and the former muscle, into the lower and back part of the os calcis.	To extend the foot.
3. *Plantaris.**	From the upper and posterior part of the outer condyle of the os femoris.	Into the inside of the back part of the os calcis.	To assist in extending the foot.
4. *Popliteus.**	From the outer condyle of the thigh.	Into the upper and inner part of the tibia.	To assist in bending the leg, and rolling it inwards.
5. *Flexor longus digitorum pedis.**	From the upper and inner part of the tibia.	By four tendons, which, after passing through the perforations in those of the flexor digitorum brevis, are inserted into the last bone of all the toes, except the great toe.	To bend the last joint of the toe.
6. *Flexor longus pollicis pedis.*	From the back part, and a little below the head of the fibula.	Into the last bone of the great toe.	To bend the great toe.
7. *Tibialis posticus.*	From the back part and outer edge of the tibia, and likewise from the interosseous ligament and adjacent part of the fibula.	Into the inner and upper part of the os naviculare, and side of the os cuneiforme medium.	To move the foot inwards.
8. *Peroneus longus.*	From the outer side of the head of the tibia, and also from the upper, anterior, and outer part of the *perone* or fibula, to which it adheres for a considerable way down.	Into the metatarsal bone of the great toe.	To move the foot outwards.
9. *Peroneus brevis.*	From the outer and fore part of the fibula.	Into the metatarsal bone of the little toe.	To assist the last described muscle.
10. *Extensor longus digitorum pedis.*	From the upper, outer, and fore part of the tibia, interosseous ligament, and inner edge of the fibula.	By four tendons into the first joint of the smaller toes.	To extend the toes.
11. *Peroneus tertius.*	From the fore part of the lower half of the fibula, and from the interosseous ligament.	Into the metatarsal bone of the little toe.	To bend the foot.

Name.	*Origin.*	*Insertion.*	*Use.*
12. *Tibialis anticus.*	From the upper and fore part of the tibia.	Into the os cuneiforme internum.	To bend the foot.
13. *Extensor proprius pollicis pedis.*	From the upper and fore part of the tibia.	Into the convex surface of the bones of the great toe.	To extend the great toe.
Muscles *on the Foot.*			
1. *Extensor brevis digitorum pedis.*	From the upper and anterior part of the os calcis.	By four tendons; one of which joins the tendon of the externus longus pollicis, and the other three the tendons of the extensor digitorum longus.	To extend the toes.
2. *Flexor brevis digitorum pedis.*	From the lower part of the os calcis.	By four tendons, which, after affording a passage to those of the flexor longus, are inserted into the second phalanx of each of the small toes.	To bend the second joint of the toes.
3. *Abductor pollicis pedis.*	From the inner and lower part of the os calcis.	Into the first joint of the great toe.	To move the great toe from the other toes.
4. *Abductor minimi digiti.*	From the outer tubercle of the os calcis, the root of the metatarsal bone of the little toe, and also from the aponeurosis plantaris.	Into the outer side of the first joint of the little toe.	To draw the little toe outwards.
5. *Lumbricales pedis.*	From the tendons of the flexor longus digitorum pedis.	Into the tendinous expansion at the upper part of the toes.	To draw the toes inwards.
6. *Flexor brevis pollicis pedis.*	From the inferior and anterior part of the os calcis, and also from the inferior part of the os cuneiforme externum.	By two tendons into the first joint of the great toe.	To bend the first joint of the great toe.
6. *Adductor pollicis pedis.*	From near the roots of the metatarsal bones of the second, third, and fourth toes.	Into the outer os sesamoideum, or first joint of the great toe.	To draw the great toe nearer to the rest, and also to bend it.
8. *Transversales pedis.*	From the outer and under part of the anterior end of the metatarsal bone of the little toe.	Into the inner os sesamoideum, and anterior end of the metatarsal bone of the great toe.	To contract the foot.
9. *Flexor brevis minimi digiti pedis.*	From the basis of the metatarsal bone of the little toe.	Into the first joint of the little toe.	To bend the little toe.
10. *Interossei pedis interni.**	Situated between the metatarsal bones.		
*Interossei pedis externi.**			

MUSCULAR FIBRE. See Fibre. The fibres composing the body of a muscle are disposed in fasciculi, or bundles, which are easily distinguishable by the naked eye; but these fasciculi are divisible into still smaller ones; and these again are probably subdivisible *ad infinitum*. The minutest fibre we can trace, seems to be somewhat plaited; and these plaits disappearing when the fibre is put upon the stretch, seem evidently to be the effect of contraction, and have probably induced some writers to assert, that the muscular fibre is twisted or spiral. Various have been the opinions concerning the structure of these fibres; but all of them are founded only on conjecture, so that it would be a waste of time to detail them.

MUSCULAR MOTION. See Muscles. The motion of the muscles of animals has been thought a matter of such curiosity and importance, that an annual lecture upon it was founded by Dr. Croone, one of the original members of the Royal Society at London. In consequence of this, the investigation of the subject has exercised the pens of a great number of very learned and ingenious men: notwithstanding which, it still remains involved in almost as much obscurity as ever. Many curious observations, however, have been made; and, as far as the laws of *dead* mechanism can be applied to a *living* machine, the investigators have been successful: but still there has been a *ne plus ultra*, a certain barrier by which their investigations have been limited, which no person has, hitherto, been able to pass, and which it is very improbable ever will be passed. To give an account of all the different theories which have appeared on this subject, is impossible; but in the year 1788 a lecture on the subject was delivered by Dr. Blane, F.R.S. of which, as it seems to contain the substance of all that can be said upon the subject, we shall here give the following abridgement:

The doctor considers as muscles not only those large masses of flesh which compose so great a part of the bulk of the body, but likewise all the minuter organs subservient to circulation, nutrition, and secretion; since not only the heart itself, but the whole vascular system, and the intestines, owe their action to certain powers of irritability and contractility peculiar to muscular fibres.

The first and most obvious considerations, with respect to the muscles, is the regular organization of their fibres in a parallel direction. In this they are distinguished from every other matter of a fibrous structure, whether vegetable or mineral, by a certain degree of moisture, tenacity, and elasticity, entirely peculiar to themselves.

The fibres of the muscles, visible to the naked eye, are composed of others discoverable by glasses, and these others of fibres still smaller; neither has any person been able to discover the ultimately fine fibres of a muscle, which are not composed of others. Some have, indeed, imagined that they have been able to do this; but their observations have been found fallacious; and it is now universally allowed that the fibres are divisible beyond what the best assisted sight can trace, and that they are, to all appearance, uniform. In this regular and fibrous organization, they resemble the crystals of salts, many of which are found composed of fibres more and more fine, and which, like those of the muscles, can never be ultimately traced.

The doctor next touches a little upon the *vis inertiæ* of matter; and, contrary to the generally received opinion of modern philosophers, considers matter as an active substance. What is called the *vis inertiæ*, he thinks, "is not a resistance of change from rest to motion, or from motion to rest, but a resistance to acceleration or retardation, or to change of direction." The activity of matter is further proved, by the attractions and repulsions which take place universally among its parts: and every instance of motion within the cognizance of our senses, may be referred, either in itself or its cause, to some mode of attraction or repulsion. These may both be considered as one principle, being both expressive of that state of activity originally inherent in matter; and because any two particles, having affinity with each other, must either attract or repel, according to their distance, their common temperature, and other circumstances: and it is so universal an agent in nature, that some modern philosophers have made it absorb, as it were, every other power and property in matter. It is evident, however, whether this hypothesis be just or not, that the cause of muscular motion cannot be referred to mechanism, which is itself only a secondary principle. Some have had recourse to a fluid conveyed into the fibres of muscles, by which they were swelled, and thereby shortened. One of the most plausible of these hypotheses, supposes this fluid to be the blood: but this is plainly a *petitio principii;* for in order to set the blood in motion, muscular motion is necessary. Other fluids have been supposed to have this effect; but even the existence of these has not been proved, and indeed the most solid objections might be brought against all the theories that have hitherto been invented.

Our author having now established it as a maxim, that the primary properties of matter are attraction and repulsion, and that mechanism is only a secondary property, he next considers muscular motion as referable to an original law of animated matter, whereby its particles are endowed with an attractive power, for which no cause can be assigned, any more than for gravitation, cohesion, or chemical affinity. If the shortening of a muscular fibre depends on this increased power of attraction between its particles, the effect will be to add to the power of cohesion in the fibre: and to determine this, the doctor made the following experiment:—Having taken the flexor muscle of the thumb of a man newly dead, while yet warm and flexible, he appended a weight to it, continually augmenting it until the muscle broke; and this he found was done when twenty-six pounds had been added: yet a living man, of the same apparent strength and age, could, with ease, lift a weight of thirty-eight pounds by the exertions of the same muscle. "It is farther in proof of this fact," adds he, "that in the case of a violent strain from muscular contraction in the living body, it is the tendon that gives way; whereas we have seen, that in the dead body, the muscle is the weaker of the two. It is also well known, that in cases of our exertion, the muscular fibres themselves do not give way, though the strongest tendons, such as the tendo Achillis, and even bones, such as the knee-pan, are broke by their living force, which, in such instances, must be many times greater than the strength of the dead fibres. There is a case related in the Philosophical Transactions, by Mr. Amyand, wherein the os humeri was broken by an exertion of the muscles. Every one has heard of fractures happening from very slight accidents. These occur, most probably, from a jerk of the muscles concurring with the external violence. The sensible increase of hardness in a muscle, when in a state of contraction, may also be considered as a proof of an increased attraction of its particles to each other at that time."

The doctor next considers whether or not a muscle, when in a state of contraction, undergoes any change of density. "Every homogeneous body," says he, "possesses a certain degree of density, determined by the distance of its integrant particles. The most common means in nature by which the density of such bodies is altered, are heat and cold; the one universally producing expansion, the other condensation. Whether mechanical force has the same effects, is a point in natural philosophy not so well ascertained; for though tension and collision produce in solid elastic bodies a change of figure, which they immediately resume when the force is withdrawn, it has not been inquired whether, in such cases, a change of density takes place while the body is in a state of elongation or compression. Two elastic balls in the act of collision undergo a momentary change of figure, so that there must be an approximation of particles in the direction in which they are flattened; and in the elongation of an elastic cord by tension, there must be an increased distance of the particles in one direction: but while these changes take place in one dimension of the respective bodies, they may be compensated by contrary changes in the other dimensions, so that the several bodies may preserve, upon the whole, the same solid contents. In order to ascertain this in the case of tension, which is the only case bearing analogy to muscular motion, I made the following experiment: I took a piece of the elastic gum, or *caoutchouk*, three inches square, and about the eighth of an inch in thickness; I procured a piece of sheet tin, three inches broad, and about six long, cut into sharp teeth at each end. The gum was first weighed in air, and found to be 380.25 grains. It was then weighed in water along with the tin, to which it was loosely attached, and the weight of both was then 758.75 grains. The gum was then stretched upon the tin, by means of the teeth at each end, to a surface of about five inches square, the tin being bent so as to leave a free space between it and the gum, in order that when immersed in water no air bubbles might be entangled. In this situation, the weight of both in water was found to be 746.75 grains. Here was a difference of twelve grains, which could be owing only to a diminution of specific gravity; and in order to be sure that there was no fallacy or inaccuracy in the experiment, the gum was immediately disengaged from one end of the tin, so as to allow it to shrink; and being again weighed in this state in the water, it was found to have recovered exactly its former weight."

From this very remarkable experiment, the doctor argues to what may probably happen in the contraction of the muscles. "This point," he says, "cannot be decided but by an experimental examination. It might be determined whether a muscle occupies most space when relaxed or when contracted, by finding its specific gravity in each of those states by means of the hydrostatical balance. But this would be found extremely difficult; for the state of contraction is very transitory, and the motion itself would produce such a disturbance as would render the result unsatisfactory. As there is this obstacle to an experiment on a living muscle, it occurred to me that it might be performed on the muscles of a fish, which had undergone the operation of *crimping*, as it is called; for in consequence of dividing the muscles, by cutting them when alive, they undergo a contraction which continues after death: and, upon comparing, by the hydrostatical balance, portions of muscle which had been crimped, with those of the opposite side of the same fish, which had on purpose been saved from this operation, it did not appear that there was any difference in the specific gravity. Two trials were made; one with the masseter muscles of a skate, the other with the sides of a large trout."

To determine whether the contraction or relaxation of a living muscle made any alteration in its density, our author took one half of a living eel, and put it into a glass flask, of which the mouth was afterwards fused by a blow-pipe, and drawn out like the stem of a thermometer. The flask and tube being then filled with water, our author observed, with great attention, whether the convulsive agonies of the creature would make the fluid rise or fall; but it did neither. The tail part of the eel was made use of in this experiment, that there might be no deception from the other, which contained the organs of respiration, and the air bladder. In one of his trials, the tail portions of two eels were introduced into the flask; but though they were frequently both in convulsions at once, not the least motion of the fluid in the tube could be perceived. On this occasion, also, the doctor made some experiments to decide the question, Whether the mere circumstance of *life* made any alteration in the gravity of bodies? His first trials were with animals of warm blood, inclosed in oil-skin and close tin-vessels: but not being satisfied with the accuracy of these, from the difficulty of cutting off all communication with the external air, he inclosed live eels in flasks; and having sealed them hermetically, he found that the weight of them when alive and dead was the very same.

The result of all our author's experiments is, that "the contraction of the muscle produces no change in its density, and that animal life differs from inanimate matter in this respect, as well as in most of its other properties and laws. One purpose in nature for muscles always preserving the same density, may be, that as some of them act in confined cavities, inconveniences might arise from their occupying more space at one time than at another. In the extremities of crustaceous animals, for instance, which are filled with muscles, a change of density would be apt to burst them.

"Another circumstance in which the contractions of muscles differ from simple elasticity is, that the former, however frequent and violent, does not produce any heat, as collision and tension are known to do. This may admit of some cavil with regard to animals of warm blood; for one of the theories with regard to animal heat is, that it arises from the perpetual vibration of muscular fibres, particularly those of the vascular system; but this will not hold with respect to animals of cold blood, in which the actions of life are equally vigorous. The principal phenomena, therefore, of muscular motion, are the shortening of the fibres, the lateral swell, the increase of cohesion and hardness, and the unchanged density and temperature. It would appear, from the two last circumstances, that the intimate motions of the particles, in relation to one another, must be different from what take place in the several instances of contraction and expansion of dead bodies. In the expansion arising from the action of heat, and the contraction from cold, the change of density shows, that in the one case the ultimate particles must recede from each other, and in the other they must approach. The same may be said of elasticity. But as there is no alteration in the density of a muscle in passing from relaxation to contraction, this change cannot consist in the approximation of the integrant parts of the fibres, but must depend on some other circumstances in the intimate dispositions of the particles. In attempting to conceive in what this consists, the following explanation may be offered. It is probable that the regular structure of solid bodies depends on the polarity and shape of their integrant parts. Now all bodies, except such as are spherical, must have a long and a short axis; and let us imagine the fibres of muscles to be composed of spheroidal particles, we may then conceive relaxation to consist in their being disposed with their long axis in the line of their fibres; and contraction to consist in their short axis being disposed more or less in that direction. This will not only account for the decurtation and uniform density, but for the lateral swell, and also for the increased hardness and cohesion; for though the particles do not approach or recede, as in bodies simply elastic, yet their power of attraction will be increased by their centres being brought nearer, and by being applied to each other by more oblate surfaces. This hypothesis accords with what has been before proved concerning the unchangeable density; for what is lost in one dimension is gained in another: and the cause for there being no increase in temperature depends, probably, on the same circumstance by which the density is preserved unaltered."

Thus far the doctor has proceeded upon a plan, which may become plausible, by means of an hypothesis, at least; but, in the prosecution of his subject, he is involved in the same difficulty which has proved too hard for every other person, and which he, indeed, does not attempt to solve. This is the action of stimuli, by which the muscles are exerted to contraction, and upon which all the phenomena of life depends; and which, indeed, is the thing that particularly ought to be explained: but of this our author is forced to confess his entire ignorance, and to content himself with enumerating the stimuli, of which he cannot explain the action. Stimuli then, according to him, are divided into internal and external. An example of the former kind is the circulation of the blood, which is kept up by an exciting influence of the blood upon the heart and vessels which contain and impel it. The earliest perceivable instance of muscular motion, is the beating of the heart, as is seen in the first rudiments of the embryo in an egg, and called the *punctum saliens*. There seems to be established by nature, a certain habitude of action between the vessels and their fluids; for if a fluid even more mild than the blood, such as milk, be injected into the circulation, it will produce great disturbance; and if the blood, by being deprived of the influence of respirable air, becomes destitute of a certain property which it would naturally acquire in the act of respiration, it does not prove a stimulus to the heart.

In like manner, all the containing parts are accommodated to the nature of their respective contents.—The intestines are so calculated as to have proper motions excited in them by the aliment and the secretions which are mixed with it; and there are bodies which, though perfectly mild, such as alimentary substances, of difficult digestion, yet excite more violent commotions in the stomach, than other substances which are very acrimonious. The various effects of poisons in different parts of the body, may also be mentioned as an illustration of the peculiar susceptibility of the several organs of the body. The poison of a viper, for instance, is perfectly innocent, not only in the receptacles of the animal which produces it, but may be taken into the stomach of any animal without the least bad effect, and only exerts its deleterious power, when brought in contact with a wounded part. Some vegetable poisons, on the contrary, such as that of laurel water, prove deadly when taken into the mouth, or applied to any part of the alimentary canal, but are innocent when injected into the veins. It may be remarked also, that the receptacles of the several secreted fluids, such as the gall-bladder, and bladder of urine, are so adapted to their natural contents, by a due measure of irritability, as to bear their accumulation to a certain degree, and then to expel them. We have here also a proof, that irritability is not in proportion to sensibility; for both these receptacles are extremely sensible to pain and irritation from extraneous acrimony, though so moderately sensible to the acrimony of their natural contents. This disposition in the several organs to perform their natural functions, in consequence of the stimulus of the respective fluids they contain, has, aptly enough, been called the natural perception of these organs.

Our author now considering that the internal organs are calculated to perform their functions, in consequence of certain stimuli, concludes, the application of chemical and mechanical stimuli is not a mode of experiment likely to produce useful knowledge; and hence, he thinks, we may suggest the most likely means of restoring lost irritability and action to the vital functions, when suspended by suffocation, strangulation, or immersion. In these cases, he says, that all other means are far inferior to that of inflating the lungs with atmospheric air, and stroking and pressing the ribs in such a manner as to imitate natural respiration. The only other thing which he supposes to be any way useful, is the application of heat to such as have been immersed in cold water; but of cool air to those who have suffered from mephitic vapours.

The doctor having then considered some other parts of the animal economy, enters into an investigation of the analogy between motion and sensation. "This analogy," says he, "is the more exact, that the nerves seem to be the instruments of both; for not only the organs of sensation and voluntary motion, but those of involuntary motion, are supplied with nerves, and dependent upon them; for if the influence of the nerves leading to the heart or intestines, is interrupted by cutting, ligature, or palsy, the function of these parts is thereby destroyed. Thus, as there is a peculiar sensibility belonging to the several senses, so is there a peculiar irritability belonging to the several organs of motion. The intention of nature, therefore, in distinguishing nerves to every muscular organ, was probably in order to constitute those peculiar perceptions on which the various vital and natural functions depend. But I give this only as a conjecture; and though the nervous influence may thus *modify* irritability, there is reason to think that it does not *bestow* it."

Our author controverts the principle which has been held by some very able physiologists, that all muscular irritability depends upon a sentient principle. "There have been several instances," says he, "of the production of fœtuses without the brain; and a principal fact in support of this opinion is, the existence of animals without brain or nerves. That there are such, was, it seems, first observed by Haller, and has been confirmed by Mr. Hunter; who maintains farther, that the stomach is the centre or seat of life, more essential to it than the brain. That the stomach should be an organ of so much consequence, seems natural enough, from the importance of its function, which is that of assimilation; and life can be more immediately and completely extinguished by an injury to it, such as a blow, than by the same violence to any other part of the body. It is also well known, that the muscular fibres of animals endowed with a nervous system, will retain their irritability for some time after their separation from the brain and nerves. It is evident, likewise, from the phenomena of vegetation, that irritability may exist in nature without sensation, consciousness, or any suspicion of the existence of a nervous system. In favour of this opinion, it is farther observable, that those animals which are destitute of brain and nerves, are of the class of *vermes*, the most simple in nature, having only one function, viz. that of assimilation; and, therefore, not requiring that variety of action, and those perceptions which are peculiar to more complex animals. Lastly, the state of an egg before incubation, and the condition of those animals which become torpid from cold, and afterwards revive, afford facts which favour this opinion; as they show that there is a certain principle of self-preservation, independent not only of the operation of the nervous system, but even of the circulation; for in this quiescent state, those portions of animal matter are preserved, for a great length of time, from that corruption to which they would otherwise be liable; and their fluids are prevented from freezing in a degree of cold which would congeal them, were they destitute of every principle of life."

In the course of his reasoning, our author considers the nervous system not only as a mere appendage to life, but as tending to impede its operation, and shorten its existence. "Simple life," adds he, "will not only survive sensation, but will survive it longer if the animal is killed by destroying the nervous system, than if it had been destroyed by hæmorrhagy, suffocation, or other violence. If a fish, immediately upon being taken out of the water, be stunned by a violent blow on the head, or by having the head crushed, the irritability and sweetness of the muscles will be preserved much longer than if it had been allowed to die with the organs of sense entire. This is so well known to fishermen, that they put it in practice in order to make them longer susceptible of the operation called *crimping*. A salmon is one of the fishes least tenacious of life, insomuch that it will lose all signs of life in less than half an hour after it is taken out of the water, if suffered to die without any farther injury; but if, immediately after being caught, it receives a violent blow on the head, the muscles will show visible irritability for more than twelve hours afterwards.

To the same purpose, our author observes, that in warm-blooded animals an excessive exertion of voluntary motion immediately before death, prevents the muscles from being rigid when cold, and renders them more prone to putrefaction. Thus, if an ox is killed immediately after being overdriven, the carcase will not become stiff when it grows cold, nor is it capable of being preserved by means of salt. In confirmation of the same hypothesis also, our author observes, that in some disorders of the brain, such as hydrocephalus, and apoplectic palsy, in which the functions of the brain are suspended, the office of digestion is sometimes better performed than in health.

From all this, our author concludes, along with Mr. Hunter, that the exercise of sensation is inimical to life, and that a sort of fatigue is induced by this, as well as by voluntary motion; "so that all that intercourse carried on through the nerves, whether *towards* the brain in the case of sensation, or *from* the brain in acts of volition, tends to wear out the animal powers. And, as intense and long-continued thought, though not terminating in any outward action, tends also to produce an inability for farther exertions, it would appear, that the brain or sensorium is more particularly the organ which is subject to that species of sufferance called *fatigue*. From these facts we perceive the necessity of sleep, which consists in a temporary suspension of sensation, volition, and thought; and is a resource of nature, whereby the powers of life recover themselves after satiety and fatigue, which are provided as guards to warn us when nature is in danger of being strained, either by repletion or over-exertion; and it is evident that such barriers were absolutely necessary, in order to set bounds to operations which are only occasionally requisite, and which would otherwise depend on the caprice of the will. The exercise of sensation and voluntary motion, in a moderate degree, is conformable to the intention of nature, and therefore salutary; and it is only when they are excessive that they tend to wear out the powers of life, and more especially if these are not duly recruited by sleep. It follows, from the same principle, that when life is threatened by certain diseases, of which the chief symptom is irritation, any means by which sensation, whether natural or morbid, and muscular motion, whether voluntary or involuntary, convulsive or spasmodic, can be soothed or suspended, will prove salutary, by allowing the powers of life to rally as it were, and to recover themselves. In this consists the operation of narcotic medicines, such as opium; which, in complaints both of a general and local nature, proves useful, not merely as a palliative by the removal of temporary pain or spasm, or by procuring sleep, but as a principal instrument of recovery, by allowing the powers of life to exert their natural action, in consequence of the removal of irritation."

In treating this subject, the doctor considers the effects of opium as affecting simple or sensitive life; and to determine this, he made the following experiments: Having made a solution of opium in water, he put into one portion of it some sound living eels, and others with their heads bruised; and, in a number of trials, it was found that the sound eels generally died much sooner than the bruised ones. This, however, was the case only when the solution was of a certain degree of strength, such as half a grain of opium, at least, to an ounce of water; for, when only about half this strength, the sound eels lived much longer, the time being then protracted to that in which the bruised eels would have died merely in consequence of their injury; but it must be observed, that even the wounded eels died much sooner than when put into plain water.

From all this, our author concludes, "that the great masses of muscle in the trunk and extremities of the body, are the instruments of the mind in acting upon external bodies; and we may therefore rank in the list of stimuli, the nervous power by which the will and the passions excite external motions. This is a function sufficiently important for the nerves, without admitting them as the principle on which irritability depends."

Having disclaimed all inquiry into the connection between muscular motion and volition, the doctor proceeds to consider the effects of the different passions upon the muscles. Though these are distinct from the motions directly produced by the will, yet he considers them among those arising from consciousness; "for there are emotions of the mind, which have visible and powerful effects upon the heart and vascular system, which are organs entirely out of the reach of the will. Not to mention the well-known effects of grief, fear, and joy, which affect the whole circulation, there are certain passions and sentiments which produce partial and local effects. These are established by nature, either to answer some important purpose in nature, as in the case of the congestion of the fluids in the parts of generation, in consequence of the venereal appetite, or to serve as natural expressions, as in the case of blushing or weeping. One of the most striking effects of the passions upon muscular action, is the influence they have upon the strength or mechanical force of the voluntary muscles. Fear produces debility almost amounting to palsy. Courage and ardour of mind, on the contrary, add to the natural strength. When the mind is agitated by some interesting object, and calls upon the body for an extraordinary exertion to effect its end, the muscles are thereby enabled, as it were by magic, to perform acts of strength, of which they would be entirely incapable in cold blood. In circumstances of danger, for instance, where life or honour are at stake, exertions are made for overcoming mechanical resistance, which seem incredible, and would be impossible, were not the mind in a sort of phrensy; and it is truly admirable in the economy of nature, that an idea in the mind should thus, in a moment, augment the powers of motion, and inspire additional resources of strength adequate to the occasional calls of life. The great increase of strength in maniacs, is also referable to the passions of the mind. These considerations would almost lead us to doubt, whether or not the accounts we have of the great feats of strength ascribed to individuals in the heroic ages, be fabulous or not. It is also worthy of remark, that in great and lasting exertions of strength, to which men are impelled by active and generous affections, fatigue is not induced in the same proportion, by many degrees, as by the same quantity of muscular action in the cool and deliberate actions of common life."

Having thus discussed the subject of *internal* stimuli, our author next proceeds to take notice of the second class, viz. such as are *external.* These are either immediate or remote, viz. such as are excited by mechanical means, or by acrimony directly and artificially applied to a muscular fibre; or such as occur in the instances of sympathy, and in the case of those instincts which nature has instituted for the purpose of self-preservation in brutes, and in the early part of human life. "There are certain habitudes," says he, "between outward stimuli and the moving powers whereby natural propensities are constituted, equally necessary to the support of life as the internal functions. Thus, in a new born animal, the first contact of the external air excites the act of respiration, and the contact of the nipple excites the act of sucking; both of which actions are absolutely necessary to the maintenance of life, and require the nice co-operation of a great number of muscles, prior to all experience. Actions of this kind are called *instinctive;* but though different from those of voluntary motion, they nevertheless run into one another; so that what was at first merely instinctive, may afterwards become a matter of deliberate choice. The same muscles are the instruments of both; and they differ from the muscles obeying the internal stimuli, such as the heart, in being liable to fatigue, and thereby concurring with the exercise of sensation and of thought, in rendering sleep necessary. There are no muscles, except those of respiration, of which the constant action is necessary to life, and which are void of consciousness in their ordinary exercise, but which are yet, in some measure, under the control of the will. The principal end answered by this power of the will over the muscles of respiration in man, is to form and regulate the voice. But, though instinctive motions are in some cases convertible into those which are voluntary, they ought by no means to be confounded together; for even those animals which are destitute of brain and nerves, are capable of actions evidently of the instinctive kind. A leech, for instance, being brought into contact with a living animal, is impelled, by an instinct of its nature, to fasten upon it, and suck its blood. There is something very similar to this even in vegetables; as in the case of tendrils and creeping plants being stimulated by the contact of other bodies to cling round them in a particular direction."

Besides these observations on the inferior animals, our author brings some experiments to show that instinctive actions, even in animals furnished with a brain and nerves, do not depend on sensation. Having divided the spinal marrow of a live kitten a few days old, he irritated the hind-paws by touching them with a hot wire. By this the muscles of the posterior extremities were thrown into contractions, so as to produce the motion of shrinking from the injury; and the same effects were observed in another kitten, of which the head was entirely separated from the body. In repeating this experiment, he found that when the spinal marrow was cut through, between the lumbar vertebræ and os sacrum, the posterior extremities lost their irritability, but the tail resumed it. Even the head retained its irritability after it was cut off; as appeared by touching the ears with a hot wire, or by pricking them: "and," says our author, "as the extremities are also irritable, it will not be said that consciousness and sensation exist in two separated portions of the body."

The effects of habit are then considered: and the conclusion from the doctor's reasoning upon this subject is, that "there is a *co-ordinance*, or pre-established harmony, as it were, between the faculties of animals and the laws of external matter, which is the foundation of all the instinctive habits of animals, as well as the rational conduct of man."

To the law of habit have been referred the effects of certain contagions, such as that of the small-pox, which do not produce their effect more than once in life. With respect to this he observes, "that upon whatever principle this property of the animal economy depends, it is an undoubted fact, that these morbid poisons, after exciting a certain degree of disturbance, and a certain series of diseased actions, no longer make any impression on the powers of life, otherwise there could be no such thing as recovery: for at the time in which a person begins to recover from the small-pox, the poison actually present in the circulating system, is multiplied infinitely beyond what it was when it excited the disease. The constitution has, therefore, at that time, with respect to this acrimony, acquired an insensibility, or rather want of irritability; and this it preserves ever afterwards. This, however, holds only with regard to those morbid poisons which excite febrile affections, and seems to be a necessary provision of nature to guard against such noxious principles as are generated within the body itself."

Having lastly considered the effects of *irritation* upon the human body, the doctor goes on to consider a very remarkable property of living muscles, viz. that of their being in a constant state of tension, more or less independent of any temporary stimulus. This is evident from what happens when any muscle is cut; for then there is an immediate retraction of the separated parts; and that this is their natural state, is farther proved by the spontaneous motion which takes place in consequence of the relaxation of an antagonist muscle, as when the mouth is drawn to one side in consequence of hemiplegia. Some degree of tension, indeed, is necessary for the performance of the natural motions of the muscles, whether voluntary or involuntary; and the vigour with which the several actions are performed, depends on the due degree of this tone.

This tone of the muscles is every where maintained by a certain counteracting mechanical power: the great muscles are kept on the stretch by the bones; the heart and vessels by the mass of fluids; and the intestines by the aliments taken in, and their other contents. Diseases of various kinds may arise from the different degrees of tension; and the vascular system is more apt to be affected by different degrees of tension, than any other part of the body; and our author considers what is called a *nervous* habit, as one of the effects of the want of tension. He likewise attributes to the different degrees of tension, more than to any thing else, the great difference of constitutions observable among mankind. He observes, also, that the tension of the muscles is greatly affected by sympathy.—"This," says he, "is particularly observable in the blood-vessels and intestines; for a relaxation in these will produce a like affection in every other part of the animal system. With regard to the intestines, it may be mentioned among other proofs, that it is common for persons in a state of great weakness to be affected by syncope, and even instantaneous death, in the act of evacuating the bowels. It seems to be from a like cause that a temporary lowness is produced by an abscess being opened."

The doctor concludes his subject, with considering the muscles as mechanical powers. "As they constitute the strength of animals, it may be proper to consider the relation of their strength to their bulk, and the relation of the bulk and strength of the body to the density and cohesion of its own materials; and to the bulk, density, and cohesion of the external inanimate bodies, with which it is conversant.

"It has been demonstrated by Galileo, that in similar unequal bodies, of a cylindrical or prismatic shape, such as the limbs of animals nearly are, the ratio of their efforts to break, by their own weight, is in the quadruplicate ratio of their length; but that the resistance they make to the same force, is only in the triplicate ratio of their lengths. It follows from this, that in order to endow the limbs of animals with the same relative force, it is not only necessary that the bones should possess an increased proportion of thickness, in order to give an adequate increase of what may be called the dead strength; but a similar increase of living strength is necessary, by a suitable addition of muscular power, in order to keep pace with the increased size of the bones. Now we observe, in fact, that in the large-sized animals, such as the bull and the elephant, the thickness both of their bones and muscles becomes greater, in proportion to the length of their limbs, than in the smaller animals, and they are, therefore, of a less elegant form. But nature has not carried this so far, as to compensate for the disadvantage arising from the increase of size; for the greater animals have not the same proportional strength, in relation to their bulk, that the smaller animals have. It has been computed that a flea can draw from seventy to eighty times its own weight, whereas a horse cannot, with ease, draw more than three times his own weight. This disproportion between size and strength, is very observable between different individuals of the human species: for tall men are not muscular, even in the simple proportion of their stature."

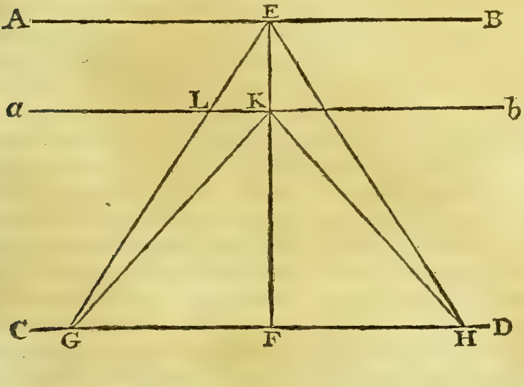
Our author now proceeds to assign some reasons why the stature of mankind, in general, is not larger than we see it. Upon this subject, see the article GIANT, in the Encyclopædia Britannica, where it is attempted to show, that, by increasing the proportioned strength of the materials, the size of the human body might have been augmented in any proportion. To this, however, the doctor replies, that "had the bones been harder, they would not have been calculated for the common duration of life, the effect of which being calculated to increase their hardness and dryness, they must be endowed originally with a certain degree of softness and succulence: and, with regard to muscles, a degree of hardness, much greater than they possess, would have been incompatible with their contractility." But this reasoning does not seem to be conclusive. The bones of a lion are said to be much harder than those of any other animal; yet we do not find that these creatures are liable to any kind of disease in consequence of this superior hardness. Neither is any inconvenient degree of hardness in the muscles a necessary consequence of their increased strength; for silk, though equally soft and flexible, nay, much more so than hemp or flax, is nevertheless much stronger; and we cannot by any means doubt, that if men had formerly been of a larger stature than they are at present, the materials of their bones and muscles might have been proportionably stronger, without the least injury or impediment to any of the operations of life.

When we consider the manner in which the muscles act upon the bones into which they are inserted, we may be apt to think that nature has been very prodigal of mechanical power; for considering the bones as levers, the muscles act upon them at a very great disadvantage, being always inserted much nearer the fulcrum than the weight to be raised. Thus the two muscles of the arm, names *biceps* and *brachiæus internus*, in order to support in the hand a weight of one pound with the fore-arm at right angles to the humerus, must exert a power equal to ten pounds. Another circumstance, also, which tends to waste the power, is the obliquity with which they are inserted into their bones; so that the greater part of the force is expended in pressing one bone against another at the articulation, and only a small part of it in making the flexures and extensions. These disadvantages, however, are compensated by a number of conveniences which could not have been obtained on any other plan. We must distinguish between those actions which consist in pressure, and those which depend on percussion; for, as the momentum of this last depends on velocity, it is evident that there must be a great advantage from the insertion of the tendon being near the centre of motion, as greater velocity, with less expence of contraction, will thus be communicated to the extremity. The muscles, for instance, which are attached to the *olecranon*, in performing those actions with the hand which require rubbing, act with a disadvantage exactly proportional to the inequality of the distance from their insertion to the joint of the elbow, and that from the same joint to the hand. This is an act of pressure. But in the case of percussion, as in the action of using a hammer, there is an evident advantage resulting from the velocity communicated to the extremity; for, in order to have produced the same velocity, with the insertion at a greater distance from the centre of motion, a much greater degree of contraction would have been necessary; and our author shows that fatigue principally depends on a contraction of the muscles. "If any one," says he, "will take the trouble of comparing the fatigue of the biceps muscle, in bearing a weight in the hand with the elbow joint bent to a right angle, with that of bearing the same weight, for the same length of time, with the joint at an acute angle, he will be sensible how much the degree of fatigue depends on contraction; and, by attending to the relative situation of muscular fibres, it will appear that Nature, in distributing the fibres of muscles obliquely, has had in view not only to increase their number, but to save contraction."

In considering the actions of the various muscles in producing the different actions of the body, we find scarce one produced that can be called direct. In some instances we find two muscles, or two sets of muscles, co-operating; so that the motion effected by them shall be in the diagonal of their direction. This is the case of the oblique muscles of the abdomen in some of their actions, and of the intercostal muscles in all theirs Sometimes, different portions of the same muscle combine, in like manner, to produce a similar effect; and in all the long muscles, however simple their origin and insertion may be, there is an internal obliquity of their fibres with regard to one another; for these do not run from end to end, but there are parts of the tendon running into the belly of the muscle, so as to divide it into penniform and rhomboidal portions. This distribution of the fibres takes off from the length; but as it takes place in those cases where the origin and insertion are at a considerable distance, this can be afforded: and this, as well as the waste of power in consequence of oblique action, is more than compensated by the increased strength from the fibres being multiplied; for, in consequence of this structure, there is an extent of tendon afforded, sufficient for the insertion of a greater number of fleshy fibres.

The doctor illustrates this principle in the mechanism of muscular action from the example of fish; a species of animals which exert greater muscular powers than any others. "The muscles of most fish," says he, "consist of regular series of oblique short fibres, forming those strata which every one must have observed in their muscular substance. Their motions are more simple and limited than those of land animals, but much more vigorous; for a fish in the sea has to make its way through a medium about a thousand times more dense than air, and with more rapidity than those which inhabit the land. Nature, therefore, instead of giving them muscles, whose fibres would run straight from one end of their body to the other, has multiplied their numbers, by distributing them into short and oblique portions. I have seen the sword of a sword-fish sticking in a plank, which it had penetrated from side to side; and, when it is considered that the animal was then moving through so dense a medium, and in the same direction with the ship, we must form a high conception of its muscular power."

Lastly, our author gives a mathematical demonstration, that by the obliquity of the muscles a very considerable quantity of contraction is saved, and consequently a proportional degree of fatigue prevented.—"Let the line AB," says he, "in the annexed diagram, represent a moveable bone, and the line CD a fixed bone parallel to it. Let FE, perpendicular to these lines, represent a muscle acting in its own direction, and the lines GE, HE, represent two muscles acting obliquely, and producing, by a diagonal action, the same effect as the other. If the bone AB be brought to the situation *ab* by the action of the muscle FE, the muscle will then be in the situation FK. If the bone is brought into the same situation by the action of the muscles GE, HE, these muscles will then be in the situation GK, HK.



"The proposition to be demonstrated is, that the line GK bears a greater proportion to the line GE, than the line FK does to the line FE; for FK is to FE as GL is to GE (Euc. Elem. B. vi. Prop. 2.); and the angle ELK being less than a right angle, the angle GLK, which is adjacent to it, must be greater than a right angle; and the angle GKL being in the same triangle with GLK, must be less than a right angle. The line GK, therefore, which subtends the greater angle, is greater than the line GL, subtending the lesser, and, therefore, bears a greater proportion to GE. But the line GL is to GE as FK is to FE; and, therefore, GK bears a greater proportion to GE than FK does to FE; that is, the fibres of the muscles acting obliquely, suffer a less proportional decurtation than those of the muscle acting directly.

"It is farther obvious, that the more oblique the action becomes, the greater saving there will be of contraction; for in moving the line *ab* towards CD, the line FK diminishes in a swifter ratio than the line GK; and when the former has vanished, the latter is in the situation GF."

Besides these advantages, in point of diminishing fatigue, there are others relating to the shape of the members. Thus, if the insertions of the muscles had been at a great distance from the joints, they must, upon every occasion, have passed like bowstrings from one bone to the other, and the limbs must have been exceedingly clumsy and unwieldy: all the motions must, also, have been extremely slow; and, notwithstanding the superior strength which people would then have enjoyed, it is very plain that they would scarce have been fit for any of the offices of life which they now perform.

MUSCULAR POWER. See Muscular motion, and Irritability.

MU'SCULUS, (dim. of *mus*, a mouse, from its resemblance to a flead mouse). See Muscle.

MU'SCULUS CUTA'NEUS. See Platysma myoides.

MU'SCULUS PATIE'NTIÆ. See Levator scapulæ.

MU'SCULUS TUBÆ NOVÆ. See Circumflexus.

MU'SCUS, (from μοςχος, *tender*, so called from its delicate and tender consistence); moss.

MU'SCUS ARBO'REUS; the *Lichen plicatus*, Linn. We are informed by that great botanist, that this plant is applied, by the Laplanders, to parts which are excoriated by a long journey, and that its effects in this way are very useful. It is slightly astringent and styptic, and is applied, with the latter intention, to bleeding vessels.

MU'SCUS CANI'NUS. See Lichen cinereus terrestris.

MU'SCUS CLAVA'TUS. See Lycopodium.

MU'SCUS CRA'NII HUMA'NI. See Usnea.

MU'SCUS CUMA'TILIS, a cryptogamious plant; the *Lichen aphthosus*, Linn. This is said to act powerfully on the intestines, though it is never used in the practice of the present day.

MU'SCUS ERE'CTUS, the upright club-moss; a pharmacopœial name for the *Lycopodium selago*, Linn. The decoction of this plant acts violently as a vomit and purgative; and was formerly, on that account, employed to produce abortion, by abandoned women.

MU'SCUS ISLA'NDICUS. See Lichen islandicus.

MU'SCUS MARI'TIMUS. See Corallinus.

MU'SCUS PULMONA'RIUS QUE'RCINUS. See Pulmonaria arborea.

MU'SCUS PYXIDA'TUS, the cup-moss; a very common little plant. It is the *Lichen cocciferus*, and *pyxidatus* of Linnæus, for both are used indifferently, by the common people, for the cure of the hooping-cough.

MUSE'UM, a name which originally signified a part of the palace of Alexandria, which took up at least one fourth of the city. This quarter was called the museum, on account of its being set apart for the muses and the study of the sciences. Hence the word *museum* is now applied to any place set apart as a repository for things that have an immediate relation to the arts. The British museum, in London, is the noblest cabinet of curiosities in the kingdom. The name museum is also given to a collection of anatomical preparations, calculated for the illustration of particular facts in medicine. Dr. William Hunter left behind him a noble museum; as did his brother, the late Mr. John Hunter. The latter collection is now in the possession of the Royal College of Surgeons in London, who are erecting a spacious building for its reception, and for the reading of public lectures on anatomy and surgery.

MUSGRAVE (Dr. William), a learned physician and antiquary, was born at Charlton-Musgrave, in Somersetshire, about the year 1657; and studied at New-college, Oxford. Having distinguished himself by his knowledge in his profession, and his skill in natural philosophy, he was elected fellow of the Royal Society: and being made Secretary in 1684, he continued the Philosophical Transactions from No. 167 to 178, inclusive. After having taken his degrees in physic, and being admitted a fellow of the College of Physicians, he went and settled at Exeter, where he practised physic with great reputation and success. Being a man of extensive learning, he composed, at his leisure-hours, several curious and valuable works; as, 1. *De arthritide anomala sive interna Dissertatio.* 2. *De arthritide symptomatica Dissertatio.* 3. *Julii Vitalis epitaphium, cum commentario.* 4. *De legionibus epistola.* 5. *De aquilis Romanis epistola.* 6. *Inscriptio Terraconensis, cum commentario.* 7. *Geta Britannicus, &c.* 8. *Belgium Britannicum.* This learned physician died in 1721.

MUSHROOM, the general name for several species of *agaricus.* See AGARICUS. The *agaricus chanterellus*, *deliciosus*, *violaceus*, &c. have been all named mushrooms; but that which is eaten as such, in this country, is the *agaricus campestris*, Linn. Similar to it in quality is the *champignion*, or *agaricus pratensis.* Broiled with salt and pepper, or stewed with cream and some aromatic, they are extremely delicious, and, if not eaten to excess, by no means insalubrious. But the the greatest care should be taken to ascertain the true fungus, and not to eat those of a poisonous nature. See AMANITÆ. A sapid liquor called *Catchup* is made by throwing salt on mushrooms, which causes them to part with their juice.

MUSK. See MOSCHUS.

MUSK CRANE'S-BILL. See GERANIUM MOSCHATUM.

MUSK-MELON. See MELO.

MUSK-SEED. See ABELMOSCHUS.

MUSQUITOE, or MUSKITO, the *culex pipiens* of Linnæus; a most troublesome insect in hot climates. See CULEX. Dr. Moseley, in his treatise on tropical diseases, says—"Though musquitoes are a great vexation in all the islands, yet they are worse on the continent. It is said at Mexico, and many other places, that they sometimes kill people with their bites. Sir Henry Morgan thought, from the amazing quantity which he saw at the lake Maracayba, that it was a cloud before him.

"Their bites raise little lumps, or swellings, in the skin, which cause an uncommon degree of itching; these are scratched sometimes into painful acrid ulcers, particularly in the legs. A bite, if not scratched, or irritated, though extremely disagreeable, will not long continue troublesome. Some people apply oil, vinegar, lime-juice, or camphorated spirits, to the part, to allay the itching and tingling. In the inland and woody situations, even those who have been long resident in these countries, find it convenient to wear a sort of loose linen buskins, to guard their legs in an evening; and it is an universal custom to have a gauze curtain, or net, to surround the bed, to keep them away by night: otherwise, in some places, it would be impossible to sleep.

"Fire and smoke drive them away; and this is another practice used by people who reside in the woods, and interior parts of the islands. On the continent, near woods and stagnant waters, the Indians bury themselves in the sand, in an evening, having no other means to avoid their persecution."

MUSSEL, the *mytilius edulis* of Linnæus. This has a strong shell, slightly incurvated on one side, and angulated on the other. The end near the hinge is pointed; the other rounded. When the epidermis is taken off, it is of a deep blue colour. It is found in immense beds both in deep water and above low-water mark. The finest mussels in Britain are those called *Hambleton hookers*, from a village called *Hambleton.* They are taken out of the sea, and placed in the river Wier, within reach of the tide, where they grow very fat and delicious. This species inhabits the European and Indian seas. Between the tropics it is largest, and smallest within the polar circle. It is said to be hurtful if eat too often or in too great quantities; and even that it is sometimes poisonous in itself. The symptoms consequent on eating mussels are accurately described in the second volume of the Memoirs of the Academy at Brussels: "The signs which announce the noxious effects of boiled mussels, are an universal uneasiness or numbness, that commonly takes place three or four hours after they have been eaten. These symptoms are succeeded by a tightness of the throat, a sense of heat about the head and eyes, immoderate thirst, nausea, and sometimes vomiting. If the patient has the good fortune to vomit up the whole of the offensive matter, this evacuation is generally sufficient to stop the progress of the complaint; but if he does not bring up any, or only a part of the noxious substance, the disorder becomes more or less alarming, according to the quantity of deleterious matter in the first passages and the particular constitution of the patient. The want of a sufficient evacuation by vomit increases the tightness of the throat, and the swelling of the face, eyes, and tongue; all the parts within the mouth appear inflamed, and as it were excoriated, and the redness soon spreads to the outer surface, appearing first in the face, and extending from thence to the neck, breast, and abdomen, and by degrees over the whole body. *This particular eruption is the most characteristic of the malignancy of mussels;* it is constantly accompanied with a kind of delirium, with a singular uneasiness, and an insupportable itching; it has no affinity with the eruption produced by the erysipelatous fever, with the scarlatina, measles, purpura urticata, or any other known species of red eruption: it has these particularities, viz. that it never appears unless mussels have been eaten; that it is not preceded by fever; that it is accompanied by symptoms which appear united in no other disease; and lastly, that the whole surface of the body, though redder than in any other eruptive disease, appears as it were spotted with an infinite number of red spots of a deeper red than the rest of the skin. These points are infinitely smaller than a millet seed; if we examine them through a lens, we see distinctly that they are the opening or pores of the cuticle, which leave minute spots of the cutis exposed to our view, while the redness which is seen only through the epidermis appears of a paler hue."

Dr. Cullen attributes these occasional bad effects from the eating of mussels rather to idiosyncrasy than any other cause.

MUST, sweet wine, newly pressed from the grape; or the new liquor obtained from fruit before it has worked or fermented. This is apt to occasion flatulency and colic in persons who have weak or irritable bowels.

MUSTARD, BLACK. See Sinapi.

MUSTARD, HEDGE. See Erysimum.

MUSTARD, TREACLE. See Thlaspi.

MUSTARD MITHRIDATE. See Thlaspi.

MUSTARD, YELLOW. See Sinapi.

MUTILLA, a troublesome insect of which there are ten species. The most remarkable is the *occidentalis* or velvet ant, an inhabitant of North America. This has six legs, with short crooked antennæ; the abdomen large, with a black list crossing the lower part of it, and another black spot at the joining of the thorax: excepting which, the whole body and head resembles crimson velvet. The trunk or shell of the body is of such a strong and hard contexture, that though trod upon by men and cattle they receive no harm. They have a long sting in their tails, which causes inflammation and great pain for half an hour to those who are stung by them; which usually happens to negroes and others that go barefooted. They are mostly seen running very nimbly on sandy roads in the hottest summer-weather; and always single. What they feed on, in what manner they breed, and where they secure themselves in winter, is unknown. The remedies used for their sting are such as are applied to the bites of the moskitoe.

MUTI'TAS, (from *mutus*, dumb), dumbness; a genus of disease in the class *locales* and order *dyscinesiæ* of Cullen. Three species are described, viz. 1. *Mutitas organica*, as happens when the tongue is removed or injured. 2. *Mutitas atonica* arising from an affection of the nerves of the organ. 3. *Mutitas surdorum*, depending upon being born deaf. Dumb people are generally born deaf; in which case the disease is incurable by medicine: though even such people may be taught not only to read and write, but also to speak and to understand what others say to them. The method in which this has been accomplished is extremely curious, but not to our purpose in the present work. In these cases, the dumbness proceeds principally, if not solely, from the deafness. For when it proceeds from a defect of any of the organs necessary for speech, the tongue for instance, it is always incurable; but if it arise from a palsy, the medicines applicable in that case will sometimes restore the speech. It is fortunate for persons in this lamentable situation, that some ingenious methods are now taken to supply their deficiencies, by the exercise of those senses that remain to them. Several schools for instructing the deaf and dumb are to be found in London, and one of them is a charitable establishment.

MUTTON, the flesh of a sheep after it has been killed. For the properties of this very common article of food see Animal food.

MYACA'NTHA, (*μυςκανθα*; from *μυς*, *a mouse*, and *ακανθα*, *a thorn*); so called because it is said that its prickly leaves are used to cover whatever is intended to be preserved from mice. See Ruscus.

MYDRI'ASIS, (*μυδριασις*: from *μυδαω*, *to abound in moisture*; so named because it was thought to originate in redundant moisture), a morbid dilatation of the pupil of the eye, with or without a defect of vision. It is known by the pupil always appearing of the same diameter in the light. The species are, 1. *Mydriasis amaurotica*, which, for the most part, but not always, accompanies an amaurosis. 2. *Mydriasis hydrocephalica*, which owes its origin to an hydrocephalus internus, or internal dropsy of the ventricles of the cerebrum. It is not uncommon amongst children, and is the most certain diagnostic of the disease. 3. *Mydriasis verminosa*, or a dilatation of the pupil from saburra and worms in the stomach or small intestines. 4. *Mydriasis a synechia*, or a dilatation of the pupil, with a concretion of the uvea to the capsula of the crystalline lens. 5. *Mydriasis paralytica*, or a dilated pupil, from a paralysis of the orbicular fibres of the iris: it is observed in paralytic disorders, and from the application of narcotics to the eye. 6. *Mydriasis spasmodica*, or from a spasm of the rectilinear fibres of the iris, as often happens in hysteric and spasmodic diseases. 7. *Mydriasis* from atony of the iris, the most frequent cause of which is a large cataract distending the pupil in passing out when extracted. This vanishes in a few days after the operation, in general; but if the pupil has been long dilated, it may remain so for life.

MY'LO, (from *μυλη*, *a grinder tooth*). Anatomical names compounded with this word belong to muscles, which are attached near the grinders; as in the following instances.

MY'LO-HYOIDEUS, a muscle first described by Fallopius. It is thus called from its origin near the *dentes molares*, and its insertion into the os hyoides. It is a thin, flat muscle, situated between the lower jaw and the os hyoides, and is covered by the anterior portion of the digastricus. It arises fleshy, and a little tendinous, from all the inner surface of the lower jaw, as far back as the insertion of the pterygoideus internus, or, in other words, from between the last dens molaris and the middle of the chin, where it joins its fellow, to form one belly, with an intermediate tendinous streak, or *linea alba*, which extends from the chin to the os hyoides where both muscles are inserted into the lower edge of the basis of that bone. This has induced Riolanus, Winslow, Albinus, and some other anatomists, to consider it as a single penniform muscle. Its use is to pull the os hyoides upwards, forwards, and to either side.

MY'LO-PHARYNGEUS, (*μυλοφαρυγγαιος*; from *μυλω, the grinding tooth*, and *φαρυγξ, the pharynx)*, a muscle that arises near the molares, and is inserted in the pharynx. See Constrictor pharyngeus superior.

MYNSICHT, (Hadrian), physician to the duke of Mecklenburgh and several other German princes, was distinguished for his knowledge of chemistry, at the beginning of the 17th century. He published a work entitled *Armentarium Medico-Chymicum*, which has undergone various editions. In this work he gives a description of several medicines, about the virtues of which he is not always to be depended upon. To him was owing the discovery of the *Sal de duobus* or the *Arcanum*, a remedy once very much in use.

MYODESO'PSIA, (*μυωδεσωψια* ; from *μυαι, a fly*, and *ωψια, vision)*; a disease of the sight, in which the person perceives black spots, an appearance of flies, cobwebs, or fragments of black wool, before his eyes.

MYOLO'GIA, (*μυολογια*; from *μυς, a muscle*, and *λογος, a discourse)*; myology, or the doctrine of the muscles. See Muscles.

MYO'PIA, (*μυωπια*; from *μυω, to wink*, and *ωψ, the eye)*; that defect of vision called near-sighted, or purblind. See Sight. As myopes are considered those persons who cannot see distinctly above twenty inches. The myopia is likewise attributed to all who cannot see at three, six, or nine inches. The proximate cause is the adunation of the rays of light in a focus before the retina. See Optics. The species are, 1. *Myopia*, from too great a convexity of the cornea. The cause of this convexity is either from nature, or a greater secretion of the aqueous humour: hence on one day there shall be a greater myopia than on another. An incipient hydrophthalmia is the origin of the myopia. 2. *Myopia*, from too great a longitude of the bulb. This length of the bulb is native, or acquired from a congestion of the humours in the eye; hence artificers occupied in minute objects, as the engravers of seals, and persons reading much, frequently after puberty become myopes. 3. *Myopia*, from too great a convexity of the anterior superfices in the crystalline lens. This is likewise from birth. The parallel rays which fall into the cornea, by so much they fall more obliquely, so much the more convex is the cornea, or crystalline lens, or vitreous humour in the anterior superficies. But the angle of refraction is equal to the angle of incidence: therefore the angle of refraction so much sooner will be formed as the cornea or lens is more convex. This perfectly accounts for short-sightedness; but an anterior too great convexity of the cornea is the most common cause. 4. *Myopia*, from too great a density of the cornea, or humours of the eye. Optics teach us by so much sooner the rays of light are forced into a focus, by so much the diaphanous body is denser. 5. *Myopia*, from a mydriasis or too dilated a pupil; for so much the wider the aperture of the diaphragm is in an optical instrument, so much the nearer is the focus. 6. *Myopia infantilis*, From the great convexity of the cornea, infants are often myopes; though by degrees, as they advance in years, they perceive objects more remotely, by the flattening of the cornea.

MY'OPS, (*μυωψ*, from *μυω, to wink*, and *ωψ, the eye)*, a person who is near-sighted. See Sight.

MYO'SIS, (of the Gr. *μυωςις*); a contraction, or too small diameter of the pupil. This is known by viewing the perforation of the pupil, which is smaller than usual, and remains so even in a dark place, where naturally, if not diseased, it dilates. It occasions weak sight, or a vision that remains only a certain number of hours in the day; but if wholly closed, total blindness is the consequence. The species of this disorder are, 1. *Myosis spasmodica*, which is observed in the hysteric, hypocondriac, and in other spasmodic or nervous affections. It arises from a spasm of the orbicular fibres of the iris. 2. *Myosis paralytica*, arises in paralytic disorders. 3. *Myosis inflammatoria*, which arises from an inflammation of the iris or uvea, as in the internal ophthalmia, hypopium, or wounded eye. 4. *Myosis*, a customary contraction of the pupil. This is frequently experienced by those who contemplate very minute objects; by persons who write; by the workers of fine needle-work; and by too frequent an attention to microscopical inquiries. 5. *Myosis*, from a defect of the aqueous humour, as after extraction. 6. *Myosis nativa*, with which infants are born. 7. *Myosis naturalis*, a coarctation of the pupil by light, or from an intense examination of minute objects. These affections of the pupil are temporary, and spontaneously vanish, as we every day experience.

MYOSI'TIS, (*μυοςιτις*, from *μυς, a muscle)*, an inflammation of a muscle. This is the term given by Sagar to acute rheumatism.

MYOSO'TIS, (*μυοςωτος*, from *μυς, a muscle*, and *ȣς, ωτος, an ear*; so called because its leaves are hairy, and grow longitudinally like the ear of a mouse). See Pilosella.

MYOTO'MIA, (*μυωτομια*, from *μυων, a muscle*, and *τεμνω, to cut)*; myotomy, or the dissection of the muscles.

MY'RICA GALE; the systematic name of the dutch myrtle. See Myrtus Brabantica.

MYRIOPHY'LLON, (*μυριοφυλλον*, from *μυριος, infinite*, and *φυλλον, a leaf*, named from the number of its leaves). See Millefolium.

MYRI'STICA AROMA'TICA; a name given by Swartz to the nutmeg tree.

MYRI'STICA MOSCHA'TA; the systematic name of the tree which produces the nutmeg. See Nux moschata.

MYRI'STICA NUX. See Nux moschata.

MYR'OXYLON PERUI'FERUM, (*μυροξυλον*, from *μυρον, an ointment*, and *ξυλον, wood)*; the systematic name of the tree which affords the Peruvian balsam. See Balsamum Peruvianum.

MYROBA'LANUS, (*μυροϐαλανος*, from *μυρο, an unguent*, and *ϐαλανος, a nut*; so called because it was formerly used in ointments), a myrobalan; a dried fruit, of the plum kind, brought from the East Indies. Myrobalans have an unpleasant, bitterish, and very austere taste, and strike an inky blackness with solutions of iron. They are said to have a gently purgative as well as an astringent and corroborating virtue. In this country, however, they have been long expunged from the pharmacopœias, nor are they ever used in the present practice.

MYROBA'LANUS BELLI'RICA; the belliric myrobalan. This fruit is of a yellowish grey colour, and an irregularly roundish or oblong figure, about an inch in length, and three quarters of an inch thick. Its properties resemble those of the other species.

MYROBA'LANUS CHE'BULA; the chebule myrobalan. This fruit resembles the yellow in figure, but it is larger, of a darker colour inclining to brown, or blackish, and has a thicker pulp.

MYROBA'LANUS CITRINA, the yellow myrobalan; a fruit somewhat longer than the belliric, having generally five large longitudinal ridges, and as many smaller between them. It is somewhat pointed at both ends.

MYROBA'LANUS E'MBLICA; the emblic myrobalan. This is of a dark blackish grey colour, roundish, about half an inch thick, with six hexagonal faces, opening from each other.

MYROBA'LANUS INDICA; the Indian or black myrobalan. The fruit of this species is of a deep black colour, oblong, octangular, and differing from all the others in having no stone, or only the rudiments of one. From this latter circumstance they are supposed to have been gathered before maturity.

MYROBALANS. See MYROBALANUS.

MY'RRHA, (of *Myrrha*, Heb.) myrrh; a gum-resin which, from the account of Mr. Bruce, is procured from a tree that very much resembles the *acacia vera*, which is the *Mimosa nilotica* of Linnæus. There can be little doubt indeed in referring it to that genus, especially as it corresponds with the description of the tree, given by Dioscorides. The tree that affords the myrrh, which is obtained by incision, grows on the eastern coast of Arabia Felix, and in that part of Abyssinia which is situated near the Red Sea, and is called by Mr. Bruce, Troglodite. Good myrrh is in the form of tears. It should be of a yellow, or reddish-yellow colour, becoming redder when breathed on, light, brittle, of an unctuous feel, pellucid, shining; presenting white semicircular striæ in its fracture; of a very bitter aromatic taste, and a strong, peculiar, not unpleasant odour. It is not good if whitish, dark-coloured, black, resinous, ill-smelled, or mixed with impurities, which is too commonly the case.

Neumann ascertained that water and alcohol are both of them capable of taking up the whole of the taste and smell of the myrrh, the extract made by either after the other being insipid. The alcohol distilled from the tincture elevated none of the flavour of the myrrh; but during the inspissation of the decoction a volatile oil arose, containing the whole of the flavour of the myrrh, and heavier than water, while the extract was merely bitter. From 7680 parts of myrrh he got 6000 watery extract, 180 volatile oil, and 720 alcoholic; and inversely, 2400 alcoholic, and 4200 watery. It has been observed that the tincture is transparent, and, when poured into water, forms a yellow opaque fluid, but lets fall no precipitate, while the watery solution is always yellow and opaque: and that myrrh is not fusible and is difficultly inflammable. Mr. Hatchett found it soluble in alkalies.

The medical effects of this aromatic bitter are to warm and strengthen the viscera; it frequently occasions a mild diaphoresis, and promotes the fluid secretions in general. Hence it proves serviceable in languid cases, diseases arising from a simple inactivity, suppressions of the uterine discharges in women, cachectic disorders, and where the lungs and thorax are oppressed by viscid phlegm. Myrrh is likewise supposed in a peculiar manner to resist putrefaction in all parts of the body; and in this light stands recommended in malignant, putrid, and pestilential fevers, and in the small-pox; in which last it is said to accelerate the eruption. The present practice does not seem to expect any peculiar virtue from myrrh; and it is now perhaps less employed than formerly, except in cases of dyspepsia, in which it often proves of service. Some writers, however, and particularly Dr. Simmons, in his Treatise on Consumption, have bestowed very high encomiums on it, even in cases of tuberculous phthisis; and although it can by no means be represented as a remedy very much to be depended on, yet there is reason to believe that it has been serviceable in some cases.

Rectified spirit extracts the fine aromatic flavour and bitterness of this drug, and does not elevate any thing of either in evaporation: the gummy substance left by this menstruum has a disagreeable taste, with scarcely any of the peculiar flavour of the myrrh: this part dissolves in water, except some impurities which remain. In distillation with water, a considerable quantity of a ponderous essential oil arises, resembling in flavour the original drug. Myrrh was one of the ingredients used in the process of embalming dead bodies by the ancient Egyptians, and its properties in this way greatly depended on its essential oil. For obtaining its full effects, myrrh must be given in doses of half a drachm or upwards: and it is thought to be advantageously united with a proportion of nitre, cream of tartar, or some other refrigerant salt.

Myrrh is exhibited, 1. In substance; in the form of powder, or made up into pills, in doses from ten grains to a drachm. 2. Dissolved in water, as in Dr. Griffith's famous but unchemical *myrrh mixture*. 3. Dissolved in alcohol as in the tincture of myrrh. The officinal preparations are:—*Tinctura myrrhæ*. Edin. Lond. Dubl. *Tinct. aloes æther*. Edin. *Tinct. aloes cum myrrha*, Edin. Lond. *Pulv. myrrhæ comp.* Lond. *Pulv. aloes cum ferro*, Loud. *Pil. galb. comp.* Lond. *Pil. rhæi comp.* Edin. *Pil. aloes cum myrrha*, Lond. Edin. *Pil. assæ fæt. comp.* Edin.

MYRTACA'NTHA, *μυϱτακανθα*, from *μυϱτος*, *a myrtle*, and *ακανθα*, *a thorn*), so called from its likeness to myrtle, and from its prickly leaves, butcher's-broom. See RUSCUS.

MYRTI′LLUS, the myrtle. The berries which are directed in the pharmacopœias by the name of *baccæ myrtillorum*, are those of the *Vaccinum myrtillus* of Linnæus. When prepared with vinegar, they are esteemed antiscorbutic, and when dry possess astringent virtues.

MYRTIFORM CARUNCLES, *carunculæ myrtiformes;* the fleshy remains of the hymen after coition. See Glandulæ myrtiformes.

MYRTIFORM GLANDS. See Glandulæ myrtiformes.

MYRTLE, COMMON. See Myrtus.

MYRTLE, DUTCH. See Myrtus Brabantica.

MY′RTUS, (μυρτος, from μυρρα, myrrh, because of its smell; or from *Myrha*, a virgin, who was fabled to have been turned into this tree), myrtle; the *Myrtus communis*, Linn. The berries of this plant were formerly recommended in alvine and uterine fluxes, and other disorders arising from relaxation and debility. They have a roughish, and not unpleasant taste, and appear to be moderately astringent and corroborant. They partake also of aromatic qualities, but in an inconsiderable degree.

MY′RTUS BRABA′NTICA, gaule, sweet-willow, or Dutch myrtle; *Myrica gala*, Linn. The leaves, flowers, and seeds of this plant, have a strong fragrant smell, and a bitter taste. These are said to be of use for destroying moths and cutaneous insects, and the infusion has been given internally as a stomachic and vermifuge remedy; but it is now disregarded.

MY′RTUS CARYOPHYLLA′TA; the systematic name of the tree which affords the cassia bark. See Cassia caryophyllata.

MY′RTUS COMMU′NIS; the systematic name of the common myrtle. See Myrtus.

MY′RTUS PIME′NTA; the systematic name of the tree which bears the Jamaica pepper. See Pimento.

MY′STAX; the hair which forms the beard, in man, on each side of the upper lip.

N.

NÆVI MATE′RNI, (*nævus*, Heb.); mother's marks. These are marks found upon the skin of children at birth, and are various in their texture, depending, as it is superstitiously imagined, upon the longing or aversion of the mother; hence they resemble mulberries, grapes, bacon, &c. Their seat is mostly in the rete mucosum, or cellular membrane. It is seldom that these adventitious substances need any medical treatment, and this, when required, must depend upon circumstances.

NAILS (*Ungues*, Lat.), horny laminæ, situated on the extremities of the fingers and toes. They are composed of several planes of longitudinal fibres, united together; these strata end at the extremity of each finger, and are all nearly of an equal thickness, but of different lengths. The principal use of the nails is to strengthen the fingers and toes.

NAKED, in botany, a term applied to those seeds that are not inclosed in any pod or capsule.

NAPE′LLUS, (dim. of *napus*, a kind of turnip, because it has a bulbous root like a turnip); wolf's bane. See Aconitum.

NA′PHTHA, an inflammable substance of the bituminous kind, of a light brown colour, and incapable of decomposition, though frequently adulterated with heterogeneous mixtures. By long keeping, it hardens in the air into a substance resembling a vegetable resin; and in this state it is always of a black colour, whether pure or mixed with other bodies. According to Mongez, there are three kinds of naphtha, the white, reddish, and green or deep-coloured; and it is, in fact, a true petrol or rock-oil, of which the lightest and most inflammable is called *naptha*. It is said to be of an extremely fragrant and agreeable smell, though very different in this respect from vegetable oils. It is also transparent, extremely inflammable, dissolves resins and balsams, but not gum-resins nor elastic gum. It dissolves in the essential oils of thyme and lavender, but is insoluble in spirit of wine and ether. It burns with a blueish flame, and is as inflammable as ether; like which, it also attracts gold from nitro-muriatic acid.

Naphtha, according to Cronstedt, is collected from the surface of some wells in Persia; but Mr. Kirwan informs us, that it issues out of white, yellow, or black clays, in Persia and Media. The finest is brought from a peninsula in the Caspian Sea, called by Kæmpfer *Okefra*. It issues out through the earth into cisterns and wells, purposely excavated for collecting it, at Baku in Persia. Different kinds of this substance are also found in Italy, in the duchy of Modena, and in Mount Ciaro, twelve leagues from Plaisance.

The formation of naphtha and petroleum, is by most chemists ascribed to the decomposition of solid bitumens by the action of subterraneous fires; naphtha being the lightest oil, which the fire disengages first; what follows gradually acquiring the colour and consistence of petrol. Lastly, the petrolea, united with some earthy substances, or altered by acids, assume the appearance of mineral pitch, pisasphaltum, &c. This opinion seems to be supported by the phenomena attending the distillation of amber; where the first liquor that rises is a true naphtha; then a petroleum of a more or less brown colour; and lastly, a black substance like jet, which being farther urged by the fire, leaves a dry friable matter, &c. It is further observed, that nature frequently produces all the different kinds of petrolea near the same spot; of which we have an instance at Mount Testin, in the duchy of Modena, in Italy. Some, however, are of opinion, that these mineral oils, or bitumens, are formed from the vitriolic acid, and various oily and fat substances, found in the bowels of the earth.

Like the other petrolea, naphtha is employed, externally, to relieve rheumatic pains, to prevent chilblains, and to stimulate paralytic limbs.

NA′PTHÆ FLORES, a term sometimes applied to the flowers of the citrus aurantium. See Aurantium.

NA′PUS, (of the Gr. *ναπος*; from *napus*, Rabb.), also called *Napus sylvestris*, and *Bunias*, wild navew or rape; the *Brassica napus*, Linn. The seeds of this plant yield, upon expression, a large quantity of oil, called rape-oil, which is sometimes ordered in stimulating liniments.

NA′PUS DU′LCIS. See Rapus.

NA′PUS SYLVE′STRIS. See Rapus.

NARCO′SIS (*ναρκωσις*; from *ναρκοω, to stupefy*); stupefaction, stupor, or numbness.

NARCO′TICA, (from *ναρκοω, to stupefy*), narcotics; soporiferous drugs, which bring on a stupefaction. Among narcotics, the most eminent are those usually prepared for medical uses, from the poppy, especially opium. Mandragora, hyoscyamus, stramonium, datura, &c. are also of this class. Dr. Cullen, after the general idea of the operation of narcotics, given under the article Sedantia, remarks, that although their effects are first and especially on the nerves to which they are immediately applied, they are yet very constantly, at the same time, conveyed to other communicating nerves, more or less, according to the number and sensibility of the nerves to which they are first applied. The most remarkable and frequent instance of this is in their application to the internal surface of the stomach; where both the number and peculiar sensibility of the nerves give occasion to a very extensive and widely diffused operation: for almost every application to a particular part is communicated, more or less, to the origin of the nerves or common sensorium; from which, again, its operation is more or less communicated to the whole system. The effects of our narcotics, commonly and especially, first appear in those functions in which the mobility of the nervous fluid admits the most readily of a change; that is, the animal functions, in the cessation of which sleep consists; and therefore it is that this is so commonly induced.

At the same time, the effects appear also in the vital functions, so far, that the motions of these are weakened, and the frequency of their action rendered less; and although this, from other considerations, may not constantly appear, there are, however, innumerable experiments, which prove that it is frequently, and even commonly, the effect of narcotics.

The power of narcotics, in diminishing the mobility of the nervous powers, appears still more considerably, and without ambiguity, in the natural functions. Thus, the activity of the alimentary canal, that chief organ of the natural functions, is always diminished by narcotics any how thrown into the body. Another effect of narcotics relative to the natural functions, is the diminution and suspension of all secretions, and of every excretion except that of sweat.

From all this it appears, that the operation of narcotics extends to every function depending upon the energy of the brain; with respect to which they show a sedative power; which, though various in its degree, and variously modified, both by the different conditions of the narcotic and by the different conditions of the body to which it is applied, yet the effects are universally and directly sedative.

Dr. Cullen allows, however, that a considerable difficulty occurs here; since narcotics, instead of proving always sedative, or diminishing the action of the heart, often seem to be powerfully stimulant; and, in their first operation, often increase the force and frequency of the circulation. With regard to this, some have imagined, that in the same narcotic substance there is a stimulant as well as a sedative matter; and that there is a degree of foundation for this opinion, appears from this, that the substance of the narcotic is acrid to the taste, and when applied to the skin readily inflames it; and that in wine, or other ardent spirits commonly acting as narcotics, the stimulant matter is in large proportion. But, on the other hand, the direct stimulant power is doubtful; as in many substances the sedative power appears in masses of a bulk so very small: and in that bulk the stimulant matter can hardly be in such proportion as to stimulate the heart very powerfully; as we know no other instance of a pure stimulant that in the same bulk will have that effect, even when applied to the stomach, or in any other way to the body. Dr. Cullen thinks, another consideration may be also offered here. There is no ground, he says, to suppose, that where a stimulant and sedative power are combined in the same matter, that, as frequently happens here, the stimulant power should commonly act before the sedative.

To explain, therefore, the stimulant effects that often appear from the exhibition of narcotics, it seems necessary to assign some other cause than the direct stimulant power of the substance applied; and it appears to be that resistance and consequent activity, which the animal economy is suited to oppose to every application that has a tendency to hurt it. This power is well known in the schools of physic, under the title of the *vis conservatrix*, or *vis medicatrix naturæ*; which, however difficult to explain, must, as a general law of the animal economy, be admitted.

There is no doubt that this might be fairly adduced, to account for the stimulant effects which so often appear upon the exhibition of narcotics, which are indeed very often evident and considerable; but they do not imply any directly stimulant power in the narcotic substance, as they can be so well accounted for by considering them as indirect stimulants. Thus it is frequently the effect of narcotics to excite that delirium which is well known under the name of ebriety. This often appearing with the same circumstances that are ascribed to a stimulant power, has been frequently supposed to arise from a stimulus applied to the brain;

and it is true that it does, in some measure, depend upon the stimulant operation which here takes place in the manner that has been explained: but were it proper here, it might be shown, by the laws of the animal economy, that a stimulus is commonly insufficient; and that it is only by *the concurrence of a sedative power* that the symptoms of ebriety, produced by the exhibition of narcotics, can be accounted for. Dr. Cullen concludes, therefore, upon the whole, that the operation of narcotics is always *directly sedative.* For an account of particular narcotics, see their several names, but more especially, Opium.

NARD, CELTIC. See Nardus Celtica.

NARD, INDIAN. See Nardus Indica.

NARDUS, (of the Gr. ναρδος; from nard, Syr.); spikenard.

NA′RDUS CE′LTICA, or *Spica Celtica*; Celtic nard. The *Valeriana Celtica*, Linn. The root of this plant, which is a native of the Alps, has been recommended as a stomachic, carminative, and diuretic. At present it is disused in this country; though its sensible qualities promise some considerable medicinal powers. It has a moderately strong smell, and a warm, bitterish, sub-acrid taste.

NA′RDUS I′NDICA, *Spica nardi*, or *Spica Indica*; Indian nard, or spikenard. The root of this plant, *Andropogon nardus*, of Linnæus, was an ingredient in the mithridate and theriaca of the old dispensatories. It is moderately warm and pungent, accompanied with a flavour not disagreeable. It is said to be used amongst the Orientals as a spice and perfume. Indeed, this plant was highly valued by the ancients, both as an article of luxury and medicine. The *unguentum nardinum* was used at baths and feasts, as a favourite perfume. It had also a great character among them as a medicine, both internally taken and externally applied, more especially as an antidote. Hippocrates, Galen, and Alexander Trallian, recommend it in the dropsy, gravel, &c. and it is commended by Celsus in pains of the stomach and bowels, both internally and externally. Galen prescribed the oleum nardinum to the emperor Marcus Aurelius, when afflicted with a cholera morbus. It was externally applied to the stomach on wool; and the success was so great, that Galen afterwards enjoyed the highest confidence of that emperor. In a work attributed to Galen, also, it is mentioned that a medicine, composed of this and some other aromatics, was found useful in long protracted fevers; and the natives of India at present consider it as a very efficacious febrifuge. Its sensible qualities, indeed, promise it to be of considerable efficacy in some cases, as it has a pungency of taste superior to contrayerva, and little inferior to serpentaria. But though the name of this plant, with its supposed uses, have long been familiar in the writings of physicians, the genus and species of the plant have only been ascertained of late years. See the Philosophical Transactions for 1790, where Dr. Blane gives an account of this plant in a letter sent by his brother from Lucknow, in 1786.

NA′RDUS RU′STICA; an old name of the asarabacca. See Asarum.

NA′RES, (pl. of *naris*, a nostril); the nostrils. The bony cavity of the nostrils is of a pyramidal figure, and situated under the anterior part of the cranium, in the middle of the face. It is composed of fourteen bones, viz. the frontal, two maxillary, two nasal, two lachrymal, two inferior spongy, the sphænoid, the vomer, the ethmoid, and two palatine bones, which form several eminences and cavities. The former are, the septum narium, the cavernous substance of the ethmoid bone, called the superior conchæ, and the inferior spongy bones. The cavities are three pair of pituitary sinuses, namely, the frontal, sphænoid and maxillary; the anterior and posterior foramina of the nostrils; the ductus nasalis, the sphæno-palatine foramina, and anterior palatine foramina. All these parts are covered with periosteum, and a pituitary membrane, which secretes the mucus of the nostrils. The arteries of this cavity are branches of the internal maxillary; and the veins empty themselves into the internal jugulars. The nerves are branches of the olfactory, ophthalmic, and superior maxillary. The use of the nostrils is for smelling, respiration, and speech. They are subject to obstructions from catarrhal affections, and from polypi. See Polypus.

NA′RIS COMPRESSOR. See Compressor naris.

NASA′LIS. See Compressor naris.

NA′SI, DEPRESSOR. See Depressor labii superioris alæque nasi.

NA′SI, OSSA. Two small bones of the nose are so termed, which form the bridge of the nose. In figure these are quadrangular and oblong.

NASTU′RTIUM. See Nasturtium Indicum.

NASTU′RTIUM AQUA′TICUM, (*Nasturtium, quod nasum torquent*, because the seed, when bruising, irritates the nose), the water-cresse, an indigenous plant. *Sisymbrium nasturtium*, Linn. *Sisymbrium siliquis declinatis, foliis pinnatis, foliolis subcordatis.* Class, *Tetradynamia.* Order, *Siliquosa.* It grows plentifully in brooks and stagnant waters. The leaves have a pungent taste, and a quick penetrating smell, like that of mustard seed, but much weaker. This vegetable has obtained a place in the materia medica, for their antiscorbutic qualities, which have been long and very generally acknowledged. The most pleasant way of administering them is in form of a sallad, in which way they are commonly eaten at our tables.

NASTU′RTIUM HORTE′NSE, dittander; the *Lepidium sativum floribus tetradynamiis; foliis oblongis, multifidis*, Linn. This plant possesses warm, nervine, and stimulating qualities, and is used as an antiscorbutic, antiseptic, and stomachic remedy, by the lower orders of the people.

NASTU′RTIUM I′NDICUM, the greater Indian cress; the *Trapæolum majus*, Linn. This plant, which is a native of Peru, was first brought to France in 1684, and there called *La grande capucine.* In its recent state, and more especially its flowers, have a smell and taste resembling those of water-cress; and the leaves, on being bruised, emit a pungent odour, somewhat like that of horse-radish. On distillation, they impregnate water, in a considerable degree, with their smell and flavour. Hence, in all those cases where the warm antiscorbutic vegetables are recommended, this plant may be occasionally adopted as a pleasant and effectual variety. Patients to whom the nauseous taste of scurvy-grass is intolerable, may find a grateful substitute in the nasturtium. The flowers are frequently used in sallads, and the capsules are by many highly esteemed as a pickle, and a good substitute for the caper. The flowers, in the warm summer months, about the time of sunset, have been observed to emit sparks like those of electricity.

NA'TES, (from *nato*, *to flow;* because the excrements are discharged from them); the fleshy parts upon which we sit, vulgarly named the buttocks.

NA'TES CE'REBRI. See TUBERCULA QUADRIGEMINA.

NA'TES CE'REBRI, a fanciful name for the two circular protuberances of the brain, situated on the back-side of the medulla oblongata, near the cerebellum.

NA'TRIX, in botany, the name given, by Rivinus, to a genus of plants nearly allied to the anonis, and comprehended with it in one genus, by Linnæus, under the name of anonis. See REST-HARROW.

NA'TRON, (so called from *Natron*, a lake in Judea where it was produced), called by the different names of *Natrum*, *Barilla*, *Soda*, *Mineral alkali*, and *Fossil alkali.* This alkali is chiefly obtained from the *Salsoli kali* of Linnæus. Many other plants, indeed, on being burned, are found to afford this salt, and some in a greater proportion. These are: 1. The *Salsola sativa*, Linn. *Salsola sonda*, or *Kali d' Alicante*, which grows abundantly on that part of the Spanish coast that is washed by the Mediterranean sea. Professor Murray says it supplies all the best soda consumed in Europe. See BARILLA. 2. *Salsola soda*, Linn. the *Kali majus cochleato semine*, or *Le Salicor*, which grows on the French Mediterranean coast. This is much used in Languedoc for the preparation of natron, which is usually exported to Sicily and Italy. 3. *Salsola tragus*, Linn. This plant affords an ordinary kind of soda, with which the French frequently mix that made in Languedoc. This adulteration the Sicilians distinguish by the term *salvaggia*. 4. *Salicornia herbacea*, Linn. This is common in salt marshes, and on the sea-shore, all over Europe. Linnæus prefers the soda obtained from this plant to that of all the others; but it is much mixed with common salt. 5. *Salicornia Arabica*, Linn. *Mesembryanthemum nodiflorum*, Linn. *Plantago squarrosa*, Linn. All these, according to Alpinus, afford fossil alkali. It has also been procured from several of the Fuci, especially the *fucus vesiculosus*, distinguished in England by the name of kelp. Various other marine plants might also be noticed, as yielding barilla or soda by combustion; but the principal are confined to the genus *Salsola*, and that of *Salicornia*. The Salsola kali, on the authority of Rauwolf, is the species from which this salt is usually obtained in eastern countries.

In those places where the preparation of soda forms a considerable branch of commerce, as on the coast of the Mediterranean, the seeds of the salsola are regularly sown in a proper situation near the sea, which usually shoot above ground in the course of a fortnight. About the time the seeds become ripe, the plants are pulled up by the roots, and exposed in a suitable place to dry, where their seeds are collected; this being done, the plants are tied up in bundles, and burned in an oven constructed for the purpose, where the ashes are then, while hot, continually stirred with long poles. The saline matter, on becoming cold, forms a hard solid mass, which is afterwards broken into small pieces.

By chemical analysis, soda is generally found to contain a portion of vegetable alkali, and neutral salts, as common salt, and sometimes vitriolated tartar, or Glauber's salt, likewise sulphurated kali, and not unfrequently some portion of iron is contained in the mass. It is therefore to be considered as more or less a compound, and the goodness of natron is to be estimated accordingly. The method of purifying this salt is directed in the London pharmacopœia, under the title of *Natron præparatum*, and in the Edinburgh pharmacopœia under that of *Sal alkalinus fixus fossilis purificatus.* The pure crystals, formed of Alicant barilla, are colourless, transparent, lamellated, of a rhomboidal figure, and one hundred parts are found to contain twenty of alkali, sixteen of aerial acid, and sixty-four of water; but upon keeping the crystals for a length of time, if the air be not excluded, the water evaporates, and they assume the form of a white powder. According to Inslin, one ounce of water at the temperature 62° of Fahr. dissolves five drachms and fifteen grains of the crystals.

Natron has been thought useful in scrophulous disorders. It is seldom, however, given in its simple state, but in the form of burnt sponge. In combination with vitriolic acid, this alkali forms Glauber's salt, or *natrum vitriolatum;* with nitrous acid, *cubic nitre;* with marine acid, *common salt;* with the sedative salt of Homberg, *borax;* with cream of tartar, *Rochelle salt*, or *sal Seignette.* Besides these, natron, or the mineral alkali as it is termed, is in common use in the manufacture of soap, which last is an article of the materia medica, whose virtues, according to Bergius, are detergent, resolvent, and aperient, and its use recommended in jaundice, gout, calculous complaints, and in obstructions of the viscera. See SAPO.

NA'TRON MURIA'TUM. See MURIAS SODÆ.

NA'TRON PRÆPARA'TUM, called also *Soda præparata*, *Sal sodæ*, and *Alkali minerale aeratum;* a salt which consists of soda saturated with carbonic acid. It is therefore called *carbonas sodæ* in the new chemical nomenclature. Given in doses of from ten grains to half a drachm, it acts as an attenuant and antacid; and, joined with bark and aromatics, it is highly commended in the cure of the scrophula. It is likewise a powerful solvent of mucus, a deobstruent and diuretic, and an antidote against oxid of arsenic and muriated mercury. The other diseases in which it is administered, are those arising from an abundance of mucus in the primæ viæ; calculous complaints, gout, some affections of the skin, rickets, tinea capitis, crusta lactea, and worms. Externally it is recommended by some in the form of lotion, to be applied to scrophulous ulcers.

NA'TRON TARTARISA'TUM, a modern name for *Sal Rupellensis*, *Sal polychrestum Seignetti*, or *Alkali minerale tartarisatum.* This neutral preparation is a combination of the acid of tartar with soda, and called, in the new chemical nomenclature, *tartris sodæ.* It possesses mildly cathartic, diuretic, and deobstruent virtues, and is administered in the dose of from half an ounce to an ounce as a cathartic, and in the dose of from twenty to thirty grains, in abdominal physconia, and torpidity of the kidneys, in which cases it is often found useful.

NA'TRON VITRIOLA'TUM, also called *Alkali minerale vitriolatum*, *Sal mirabile*, or *Sal catharticus Glauberi;* Glauber's salt. This preparation, being a sulphat of the mineral alkali, is termed *sulphas sodæ* in the new chemical nomenclature. It possesses cathartic and diuretic qualities, and is well known as a mild cathartic. It is found sometimes formed by nature, but that used medicinally is prepared by art, and more to be relied on.

NA'TRUM, the nitre of the ancients, but with us the soda or mineral alkali. See Nitrum, and Natron.

NATURAL 'ACTIONS. We call by the name of natural actions or functions, those by which the body is preserved, as digestion, hunger, perspiration, &c. See Function.

NATURALS, in medicine, whatever naturally belongs to an animal, in opposition to non-naturals. See Non-naturals.

NATURE, according to Mr. Boyle, has eight different significations; it being used, 1. For the Author of Nature, whom the schoolmen call *Natura Naturans*, being the same with God. 2. By the nature of a thing we sometimes mean its essence; that is, the attributes which make it what it is, whether the thing be corporeal or not; as when we attempt to define the nature of a fluid, of a triangle, &c. 3. Sometimes we confound that which a man has by nature with what accrues to him by birth; as when we say, that such a man is noble by nature. 4. Sometimes we take nature for an internal principle of motion; as when we say, that a stone by nature falls to the earth. 5. Sometimes we understand, by nature, the established course of things. 6. Sometimes we take nature for an aggregate of powers belonging to a body, especially a living one; in which sense physicians say, that nature is strong, weak, or spent; or that, in such or such diseases, nature left to herself will perform the cure. 7. Sometimes we use the term *nature* for the universe, or whole system of the corporeal works of God; as when it is said of a phœnix, or chimera, that there is no such thing in nature. 8. Sometimes too, and that most commonly, we express by the word *nature* a kind of semi-deity, or other strange kind of being.

"If," says the same philosopher, "I were to propose a notion of nature, less ambiguous than those already mentioned, and with regard to which many axioms relating to that word may be conveniently understood, I should first distinguish between the universal and the particular nature of things. Universal nature I would define to be *the aggregate of the bodies that make up the world in its present state*, considered as a principle; by virtue whereof they act and suffer, according to the laws of motion prescribed by the Author of all things. And this makes way for the other subordinate notion; since the particular nature of an individual consists in the general nature applied to a distinct portion of the universe: or, which is the same thing, it is a particular assemblage of the mechanical properties of matter, as figure, motion, &c."

NAU'SEA, (*ναυςεα*, from *ναυς, a ship;* because it is a sensation similar to that which people experience upon sailing in a ship), a strong inclination to vomit without effecting it; also that disgust of food which approaches to the act of vomiting. It is an attendant on cardialgia, and a variety of other disorders, pregnancy, &c. occasioning an aversion for food, an increase of saliva, disgusting ideas at the sight of various objects, loss of appetite, debility, &c.

NAVEL, the centre of the lower part of the abdomen; being that part where the umbilical vessels passed out of the placenta of the mother. See Umbilicus.

NAVEW, GARDEN. See Rapus.

NAVEW, SWEET. See Rapus.

NAVEW, WILD. See Rapus.

NAVICULA'RE OS, (from *navicula*, a little boat), or *Os scaphoides;* a bone of the carpus and tarsus, so called from its supposed resemblance to a boat. See Carpus and Tarsus.

NE'BULA, a term strictly signifying a *cloud* but figuratively applied to appearances, having some degree of likeness to it in the human body: as to films upon the eyes. It is also employed in the same sense as *molecula*, for a peculiar appearance or quality in the urine.

NECK, (*Collum*, Lat.), in anatomy that column on which the head is elevated above the shoulders. The parts which form the neck are divided into external and internal. The external parts are the common integuments, several muscles, eight pair of cervical nerves, the eighth pair of nerves of the cerebrum, and the great intercostal nerve, the two carotid arteries, the two external jugular veins, and the two internal, the glands of the neck, viz. the jugular, submaxillary, cervical, and thyroid. The internal parts are the fauces, pharynx, œsophagus, larynx, and trachea. The bones of the neck are seven cervical vertebræ. See Cervix.

NECRO'SIS, (*νεκρωςις*, from *νεκροω, to destroy);* the dry gangrene; a species of mortification, in which the parts become dry, insensible, and black, without any previous inflammation, as in the mortification of the feet and toes in old persons. See Mortification.

NECTA'RIUM, (from *nectar*, the fabled drink of the Gods) in botany, a cup or appendage to the petals of a flower, appropriated for containing the honey. There is a manifest impropriety in terming the nectarium a part of the corolla, since Linnæus might, with equal propriety, have termed it a part or appendage of the stamina, calyx, or pointal, as it is confined to no particular part of the flower, but is as various in point of situation as of form. The truth is, the term *nectarium* is exceedingly vague; and, if any determinate meaning can be affixed to it, is expressive of all the singularities which are observed in the different parts of flowers.

The tube, or lower part of flowers with one petal, Linnæus considers as a true nectarium, because it is generally found to contain the sweet liquor formerly mentioned. This liquor Pontedera compares to that called *amnios* in pregnant animals, which enters the fertile or impregnated seeds: but that this is not at least its sole use, is evident from this circumstance; that the honey or liquor in question is to be found in flowers where there are either no seeds, or those which, from the want of male organs, cannot be impregnated. Thus the male flowers of nettle and willow, the female flowers of sea-side laurel and black bryony, the male and female flowers of *clutia*, *liggelaria*, and butcher's broom, all abound with the honey or nectar alluded to.

The following are the principal diversities, both in form and situation, of this striking appendage to the flower. 1. In many flowers the nectarium is shaped like a spur or horn; and that either in flowers of one petal, as valerian, water-milfoil *(urticularia)*, butterwort, and calves-snout; or in such as have more than one, as lark-spur, violet, fumatory, balsam, and orchis. 2. In the following plants, the nectarium is properly a part of the corolla, as lying within the substance of the petals: ranunculus, lily, iris, crown-imperial, water-leaf, mouse-tail, ananas or pine-apple, dog's-tooth violet, piperidge bush, vallisneria, hermannia, uvularia, and swertia. 3. The nectarium is frequently placed in a series or row within the petals, though entirely unconnected with their substance. In this situation it often resembles a cup, as in narcissus. A nectarium of this kind is said by Linnæus to crown the corolla. The following are examples: daffodil, sea-daffodil, campion, viscous campion, swallow-wort, stapelia, cynanchum, nepenthes, cherleria, balsam-tree, African spiræa, witch-hazel-olax, and passion-flower. 4. In Indian cress, buckler, mustard, Barbadoes cherry, and monotropa, the nectarium is situated upon or makes part of the calyx. 5. The nectarium in bastard flower-fence is seated upon the antheræ or tops of the stamina; whence the name *adenanthera*, or *glandular anthera*, which has been given to this genus of plants. In the following list it is placed upon the filaments; bean-caper, bay, fraxinella, marvel of Peru, bell-flower, lead-wort, roëlla, and commelina. 6. In hyacinth, flowering-rush, stock July-flower, and rocket, the nectarium is placed upon the seed-bud. 7. In honey-flower, orpine, buck-wheat, collinsonia, lathræa, navel-wort, mercury, clutia, higgelaria, sea-side laurel, and African spiræa, it is attached to the common receptacle. Lastly, in ginger, nettle, dyer's weed, skrew-heart-seed, costus, turmeric, grewia, bastard orpine, vanelloe tree, and willow, the nectarium is of a very singular construction, and cannot properly fall under any of the foregoing heads.

In discriminating the genera, the nectarium often furnishes an essential character. Plants which have the nectarium distinct from the petals, that is, not lodged within their substance, are affirmed by Linnæus to be generally poisonous. The following are adduced as examples: monkshood, hellebore, columbine, fennel-flower, grass of Parnassus, barren-wort, oleander, marvel of Peru, bean-caper, succulent swallow-wort, fraxinella, and honey-flower.

NEEDLE, an instrument, variously shaped according to the purposes for which it is intended. For the purpose of putting ligatures in flesh-wounds, surgeons' needles are generally made crooked, as represented at fig. 9, 10, &c. in Pl. X. The largest are needles used in amputation; the next, needles for wounds; the finest needless for sutures. There are others, very short and flat, for tendons; others, still shorter, and the eye placed in the middle, for tying together blood-vessels, &c. Needles for couching cataracts are of various kinds; all of which have a small, broad, and sharp point or tongue; and some with a sulcus at the point. See Pl. XVI. Vol. I. Surgeons have sometimes used two needles in this operation; one with a sharp point for perforating the coats of the eye, and another with a more obtuse point for depressing or couching the opaque crystalline lens; but care should be taken in the use of any of these, that they be well polished. Mr. Warner observes, that the blade of the couching needle should be at least a third part larger than those generally used upon this occasion, as great advantages will be found in the depressing of the cataract, by the increased breadth of the blade of that instrument. The handle, also, if made somewhat shorter than usual, will enable the operator to perform with greater steadiness, than he can do with a larger-handled instrument.

NEGRO, *homo pelli nigra;* a name given to a variety of the human species, who are entirely black, and are found in the Torrid zone, especially in that part of Africa which lies within the tropics. In the complexion of negroes we meet with many various shades: but they likewise differ far from other men in all the features of their face. Round cheeks, high cheek-bones, a forehead somewhat elevated, a short, broad, flat nose, thick lips, small ears, ugliness, and irregularity of shape, characterize their external appearance. The negro women have the loins greatly depressed, and very large buttocks, which gives the back the shape of a saddle.

The origin of the negroes, and the cause of their remarkable difference from the rest of the human species, has much perplexed the naturalists. Mr. Boyle has observed, that it cannot be produced by the heat of the climate; for though the heat of the sun may darken the colour of the skin, yet experience does not show that it is sufficient to produce a true blackness like that of the negroes. In Africa itself, many nations of Ethiopia are not black; nor were there any blacks originally in the West Indies. In many parts of Asia, under the same parallel with the African region inhabited by the blacks, the people are but tawny. There are negroes in Africa beyond the southern tropic; yet a river sometimes parts nations, one of which is black, and the other only tawny. Dr. Mitchel, of Virginia, (see Phil. Trans. No. 476), has endeavoured to prove, that the influence of the sun in hot countries, and the manner of life of their inhabitants, are the remote causes of the colour of the Negroes, Indians, &c. Lord Kaimes, on the other hand, and such philosophers as he, whose genius and imagination are too lively to submit to a dry and painful investigation of facts, have contended, that no physical cause is sufficient to change the colour, and what we call the regular features of white men, to the dark hue and deformity of the woolly-headed negro. Their arguments have been examined with much acuteness and ingenuity by Dr. Stanhope Smith of New Jersey, Dr. Hunter, and professor Zimmermann, who have made it in some degree probable, that the action of the sun is the original and chief cause of the black colour, as well as distorted features of the negro.

True negroes are found in no quarter of the globe where the heat of the climate is not very great. They exist no where but in the Torrid zone, and only in three regions situated in that zone, to wit, in Senegal, in Guinea, and on the western shores of Africa, in Nubia, and the Papous land, or what is called *New Guinea.* In all these regions the atmosphere is scorching, and the heat excessive. The inhabitants of the north are whitest; and as we advance southwards towards the line, and those countries on which the sun's rays fall more perpendicularly, the complexion gradually assumes a darker shade. And the same men, whose colour has been rendered black by the powerful action of the sun, if they remove to the north, gradually become whiter (at least their posterity), and lose their burnt colour. Whites, when transported into the burning regions of the Torrid zone, are at first subject to fever; the skin of the face, hands, and feet, becomes burnt, hardens, and falls off in scales. Hitherto the colour of negroes appears to be only local, extrinsic, and accidental, and their short frizzled hair resembles fine wool. May we not also suppose, that the varieties in the colour of negroes, who are always naked, are owing to the different temperature of their climates?

The young negroes at birth, and even negro fœtuses, have a considerable resemblance to whites, excepting only that the scrotum and glans penis are black, and that they have a black or brown thread or circle on the extremity of the nails. These marks are a certain sign that the infant will be black; and negro fathers, who suspect the fidelity of their wives, consider the want of them as a sufficient reason for abandoning the offspring. Among the Indians, the scrotum is grey, and in mulattoes of a pale red. The bodies of young negroes are whitish for the first eight days, but their natural colour, though weak, is easily discernible: the skin begins to grow brown, then assumes a colour inclining to that of bistre, and last of all becomes black. It is well known, however, to modern anatomists, that the reticulum mucosum in negroes is really as black as ink, and that this mucous colouring shines through the epidermis, which is thin and transparent.

In the *Journal de Physique* of M. Rosier, for 1777, M. Dicquemare has published an account of a white negro girl who was born at Dominica in 1759 of black parents. She has all the features of the negroes, especially those of Lower Guinea; and her hair, eyebrows, and eye-lashes, are the same in every respect, except the colour. Her hair, though a kind of very short wool, is fair; and her eye-brows as well as eyelashes are of a yellowish pale colour. The colour of her skin is a dead white; her cheeks, lips, nose, and other sanguine parts, have a slight teint of red, which becomes stronger when she is affected with liveliness or fear. Her eyes are long; the pupils approach, or sometimes recede from each other, with a continual and involuntary motion; she is weak but not short-sighted. Light is disagreeable to her, and towards night she sees neither better nor farther than others. She has a timid air, a soft voice, and the smell of green leeks; but her skin is not soft like that of the negroes. Her parents have had several black children; but it is said, that an older one, who was born white, gradually became blacker as he grew up, and at last assumed the colour of the *cabres*. A white negro girl has also been exhibited in London; and during the years of 1778 and 1779 there was one in Paris whose mistress tried, but without success, to get placed among the rare animals in the Menagerie at Chantilly.

Such is the progress of physical effects and causes in the degradation of the colour of the human species. Crossing the breed for four generations has been thought sufficient to render a negro white, and a white black. It is evident that the mixtures, a mulatto man with a quarteron or mestizo woman, will produce other colours approaching to white or black, in proportion to the progression above stated. Thus we see that the white or black colour is only an accidental variety in warm climates, which is confirmed or effaced in foreign climates. In the same manner, the black colour, which in most climates is natural to several kinds of brute animals, is altered or entirely effaced in a different zone. The blackbird, the raven, and the bear, which with us are black, are grey or white in the north. The union of the same species in the same climates makes these varieties hereditary. We repeat it; the black colour in the Torrid zone proceeds from a cause altogether extrinsic, depends solely on local temperature, and in the human species is as accidental as the brown, the red, the yellow, the olive, and the tawny colour.

NEP. See Nepeta.

NEPE'TA, (from *nepte*, Germ.), *Herba felis*, *Nep*, or cat-mint; so called because cats are very fond of it. *Nepeta cataria; floribus spicatis; verticillis subpedicellatis; foliis petiolatis, cordatis, dentata-serratis*, Linn. The leaves have a moderately pungent aromatic taste and a strong smell like that of a mixture of spearmint and pennyroyal. This herb is recommended in uterine disorders, dyspepsia, and flatulency, but it is seldom employed.

NE'PETA CATA'RIA; the systematic name of the cat-mint. See Nepeta.

NEPHRA'LGIA, (*νεφραλγια*, from *νεφρος*, *the kidney*, and *αλγος*, *pain*), pain in the kidnies.

NEPHRI'TICA, (*νεφρετικα*, from *νεφρος*, *the kid-*

ney). Medicines are termed *nephritic* that are employed in the cure of diseases of the kidneys.

NEPHRITIC-WOOD. See Lignum nephriticum.

NEPHRI'TICUM LIGNUM. See Lignum nepriticum.

NEPHRI'TICUS LAPIS. See Jade-Stone.

NEPHRI'TIS, (*νεφριτις*, from *νεφρος*, *a kidney);* an inflammation of the kidney. This is a genus of disease in the class *pyrexia*, and order *phlegmasiæ* of Cullen; known by pyrexia, pain in the region of the kidneys, and shooting along the course of the ureter; drawing up of the testicles; numbness of the thigh; vomiting; urine high coloured, and frequently discharged; costiveness and colic pains.

The nephritis has the same symptoms in common with other inflammations; but its distinguishing mark is the pain in the region of the kidney, which is sometimes obtuse, bnt more frequently pungent. The pain is not increased by the motion of the trunk of the body so much as a pain of the rheumatic kind affecting the same region. It may also frequently be distinguished by its shooting along the course of the ureter, and it is often attended with a drawing up of the testicle, and a numbness of the limb on the side affected; though indeed these symptoms most commonly attend the inflammation arising from a calculus in the kidney or ureter. The disease is also attended with frequent vomiting, and often with costiveness and colic pains. The urine is most commonly of a deep red colour, and is voided frequently and in a small quantity at a time. In more violent cases the urine is commonly colourless. There are other species of nephritis enumerated by authors, as that proceeding from gravel, &c. but these are only symptomatic.

The remote causes of this disease may be various; as external contusion, violent or long-continued riding; strains of the muscles of the back incumbent on the kidneys; various acrids in the course of circulation conveyed to the kidneys; and perhaps some other internal causes not yet well known: the most frequent is that of calculous matter obstructing the *tubuli uriniferi*, or calculi formed in the pelvis of the kidney, and either sticking there or falling into the ureter.

Mr. Walter, professor at the Medico-Chirurgical College of Berlin, speaking of the last-mentioned cause of *nephritis*, observes, that every calculus in the kidneys, originates in the interior of them, increasing from within towards without. Any heterogeneous matter, salt, earthy particles, blood, mucus, &c. remaining in one of the calices or infundibula of the kidneys, and not being carried away through the ureter by urine, causes a disposition to a stone. For forming such a calculus nature employs one or several calices or infundibula; and stones are, as it were, according to certain laws, but rarely generated in the other substance of the kidneys. The irritation of the foreign body occasioning a congestion of blood at the place of its seat, the growth of the calculus is promoted by the adhesion of similar particles. When the calculus is generating more in the middle of the kidneys, so as to be capable of extending itself equally; when the irritation is not become vehement enough to produce inflammation and suppuration, and the corruption of the kidneys proceeds slower than the growth of the calculus, this may increase to an extraordinary size, without the kidney's being in the least morbidly affected. The largest calculus of this kind which Mr. Walter speaks of, weighed three ounces and a half and two scruples.

A gangrene in the kidneys is commonly the consequence of a calculus, but rarely of a previous vehement nephritis. It occurs, when the inflammation occasioned by the irritation of the calculus extends to the whole substance of the kidneys, and continues a long time in a violent degree, and when the blood stagnates in the vessels; the substance of the kidneys is consumed by suppuration, and the blood becomes extravasated, and is found sometimes quite dissolved.

The immediate event in this disease is not different from that of other inflammations; the remote consequences, however, are essentially different. The kidneys are sometimes consumed, extended and excavated by topical suppuration, so that nothing remains of them but the external membrane, and they resemble a bladder. This disease, however, may in some cases be cured, whereas the dropsy in the kidney, which frequently occurs, is always incurable, and brings on death at last.

When any of those causes operating as inducing the inflammation still continue to act, the first object in the cure must be the removal of them; but the principal intention to be had in view, is the resolution of the inflammation which has already taken place. But when, notwithstanding efforts for this purpose, the disease terminates in suppuration, it must be the endeavour of the practitioner to promote the discharge of purulent matter, and the healing of the ulceration in the kidney. These different objects are principally accomplished by bleeding, external fomentation, frequent emollient clysters, antiphlogistic purgatives, and by the free use of mild and demulcent liquids. The use of blisters is scarce admissible, or at least will require great care to avoid any considerable absorption of the cantharides.

Dr. Fordyce says it admits of a natural cure, viz. the urine grows high coloured, is secreted in greater quantity, and at last is copious, thick, and mixed with mucus, relieving, and gradually diminishing the pain and other symptoms, till the patient's health is restored.

NEPHROTO'MIA, (*νεφροτομια*, from *νεφρος*, *a kidney*, and *τεμνω*, *to cut);* nephrotomy, or the operation of extracting a stone from the kidney, an expedient seldom if ever resorted to at present.

NE'RIUM ANTIDYSENTE'RICUM, *(Nerium*, of the Gr. *νηριον*: from *νηρος*, *humid;* so called because it grows in moist places, and *antidysentericum*, from its virtues); the systematic name of the tree which affords the *cadoga pala* bark. See Conissi cortex.

NERVES, (*nervi*, of the Gr. *νευρον*); white medullary cords that serve for sensation. This name was applied by the ancients to the tendons; which will account for the opposite meaning of the terms *nerve* and *nervous*, in their writings.

Nerves are composed of a great many threads lying parallel to each other, or nearly so, at their exit from the medulla. This fibrous texture is evident at the origin of most of the nerves within the skull; and in the cauda equina of the spinal marrow, we can divide them into such small threads, that a very good eye can scarce perceive them; but these threads, when looked at with a microscope, appear each to be composed of a great number of smaller threads. How small one of these fibrils of the nerves is, we know not; but when we consider that every, even the most minute, part of the body is sensible, and that this must depend upon the nerves (which, all conjoined, would not make a cord of an inch diameter) being divided into branches or filaments to be dispersed through all these minute parts, we must be convinced, that the nervous fibrils are very small.—From the examination of the least visible, it is demonstrated, that each fibre in the retina of the eye, or expanded optic nerve, cannot exceed the size of the 32,400th part of a hair.

The medullary substance, of which the nervous fibrils are composed, is very tender, and would not be able to resist forces as the nerves are exposed to within the bones, nor even the common force of the circulating fluids, were not the pia mater and tunica arachnoides continued upon them; the former giving them firmness and strength, and the latter furnishing a cellular coat to connect the threads of the nerves, to let them lie soft and moist, and to support the vessels which go with them. It is this cellular substance that is distended when air is forced through a blow-pipe thrust into a nerve, and that makes a nerve appear all spongy, after being distended with air till it dries; the proper nervous fibrils shrivelling so in drying, that they scarce can be observed. These coats would not make the nerves strong enough to bear the stretching and pressure they are exposed to in their course to the different parts of the body; and therefore, where the nerves go out at the holes in the cranium and spine, the dura mater is generally wrapped closely round them, to collect their disgregated fibres into tight firm cords; and that the tension which they may happen to be exposed to may not injure them before they have got this additional coat, it is firmly fixed to the sides of the holes in the bones through which they pass.

The nervous cords, thus composed of nervous fibrils, cellular coat, pia and dura mater, have such numerous blood-vessels, that after their arteries only are injected, the whole cord is tinged of the colour of the injected liquor; and if the injection is pushed violently, the cellular substance of the nerves is at last distended with it. A nervous cord, such as has been just now described, has very little elasticity, compared with other parts of the body. When cut out of the body, it does not become observably shorter, while the blood-vessels contract three-eighths of their length.

Nerves are generally lodged in a cellular or fatty substance, and have their course in the insterstices of muscles and other active organs, where they are guarded from pressure; but in several parts they are so placed, as if it was intended that they should there suffer the vibrating force of arteries, or the pressure of the contracting fibres of muscles.

The larger cords of the nerves divide into branches as they go off to the different parts; the branches being smaller than the trunk from which they come, though not proportionally so, for, as Soemmerring observes, they rather form cones with apices toward the brain, and basis toward the superficies of the body. Where the nerves separate, they generally make an acute angle.

In several places, different nerves unite into one cord, which is commonly larger than any of the nerves which form it. Several nerves, particularly those which are distributed to the bowels, after such union, suddenly form a hard knot considerably larger than all the nerves of which it is made. These knots were called *corpora olivaria*, and are now generally named *ganglions.* The ganglions have thicker coats, more numerous, and larger blood-vessels, than the nerves; so that they appear more red and muscular. On dissecting the ganglions, fibres are seen running longitudinally in their axes, and other fibres are derived from their sides in an oblique direction to the longitudinal ones. Commonly numerous small nerves, which conjunctly are not equal to the size of the ganglion, are sent out from it, but with a structure no way different from that of other nerves.

The nerves sent to the organs of the senses, lose there their firm coats, and terminate in a pulpy substance. The optic nerves are expanded into that soft tender web, the retina. The auditory nerve has scarce the consistence of mucus in the vestibulum, cochlea, and semi-circular canals of each ear. The papillæ of the nose, tongue, and skin, are very soft. The nerves of muscles can likewise be traced till they seem to lose their coats, by becoming very soft; from which, and what we observed of the sensatory nerves, there is reason to conclude, that the muscular nerves are also pulpy at their terminations, which we cannot, indeed, prosecute by dissection. It would seem necessary that the extremities of the nerves should continue in this soft flexible state, in order to perform their functions right: for, in proportion as parts become rigid and firm by age, or any other cause, they lose of their sensibility, and the motions are more difficultly performed.

Though the fibres in a nervous coat are firmly connected, and frequently different nerves join into one trunk, or into the same ganglion; yet the sensation of each part of the body is so very distinct, and we have so much the power of moving the muscles separately, that, if the nerves are principal agents in these two functions, we have reason to believe that there is no union, confusion, or immediate communication of the proper nervous fibrils, but that each fibre remains distinct from its origin to its termination.

Many experiments and observations concur in proving, that when nerves are compressed, cut, or any other way destroyed, the parts served by such nerves, farther from the head or spine than where the injuring cause has been applied, have their sensations, motions, and nourishment, weakened or lost; while no such effects are seen in the parts nearer to the origin of those nerves: and in such experiments, where the cause impeding the nerves to exert themselves could be removed, and the structure of the nerves not injured, as for example, when a ligature made upon a nerve, and stopping its influence, has been taken away, the motion and sensation of the parts soon were restored. From which it would appear, that the nerves are principal instruments in our sensations and motions; and that this influence of the nerves is not inherent in them, unless the communication between these cords and their origin is preserved.

Experiments and observations show, too, that when parts of the encephalon or spinal marrow have been irritated, compressed, or destroyed, the parts of the body, whose nerves had their origin from such affected parts of the encephalon or spinal marrow, became convulsed, paralytic, insensible, or wasted; and in such cases where the injuring cause could be removed from the origin of the nerves, the morbid symptoms observed in the parts to which these nerves were distributed, went off upon the removal of that cause. From which, it is thought reasonable to conclude, that the nerves must not only have a communication with their origin, but that the influence they have upon the parts they are distributed to, depends on the influence which they derive from the medulla encephali and spinalis.

If such causes produce constantly such effects in us, and other creatures living in nearly the same circumstances as we do, the conclusions already made must be good, notwithstanding examples of children and other creatures being born without brains or spinal marrow; or notwithstanding that the brains of adult creatures can be much changed in their texture by diseases; and that tortoises, and some other animals, continue to move a considerable time after their heads are cut off. We may be ignorant of the particular circumstances requisite or necessary to the being or well-being of this or that particular creature; and we may be unable to account for a great many phenomena; but we must believe our eyes in the examination of facts; and if we see constantly such consequences from such actions, we cannot but conclude the one to be the cause, and the other the effect. It would be as unjust to deny the conclusions just now made, because of the seemingly preternatural phenomena mentioned at the beginning of this, as it would be to deny the necessity of the circulation of the blood in us and most quadrupeds, because a frog can jump about, or a tortoise can walk along, after all the bowels of its thorax and abdomen are taken out, or because the different parts of a worm crawl after it has been cut into a great many pieces. It is, therefore, almost universally allowed, that the nerves are principal instruments in our sensations, motion, and nourishment; and that the influence which they have is communicated from their origin, the encephalon and medulla spinalis. But authors are far from agreeing about the manner in which this influence is communicated, or in what way nerves act to produce these effects. Some alleging, that the nervous fibres are all solid cords, acting by elasticity or vibration; others maintaining, that those fibres are small pipes conveying liquors, by means of which their effects are produced. Certainly very considerable objections may be made to both doctrines; and, therefore, with the late Dr. Alexander Monro, the most approved writer on this subject, we are disposed to conclude that the office of the nerves is effected by the medium of a *nervous fluid.*

Anatomists have generally said, that there are forty pairs of nerves in all; of which ten come out from the encephalon, and the other thirty have their origin from the spinal marrow.

1. Of the ten pairs of nerves which come from the encephalon, the *first* is the *olfactory*, which long had the name of the *mamillary processes* of the brain, because in the brutes, cows and sheep, which were most commonly dissected by the ancients, the anterior ventricles of the brain are extended forward upon these nerves, and adhere so firmly to them, that they seem to make the upper side of the nerves. Each of them being large, where it begins to be stretched out, and gradually becoming smaller as it approaches the cribriform bone, was imagined to resemble a nipple. Those who mistook the ventricles for part of the nerves, observing the cavity in them full of liquor, concluded, that these olfactory nerves served to convey the superfluous moisture of the brain to the holes of the ethmoid bone through which it passed into the nose. But in man, the ventricles of whose brain are not thus extended forward, these nerves are small, long, and without any cavity, having their origin from the corpora striata, near the part where the internal carotid arteries are about to send off their branches to the different parts of the brain; and in their course under the anterior lobes of the brain, which have each a depression made for lodging them, the human olfactory nerves become larger, till they are extended to the cribriform bone, where they split into a great number of small filaments, to pass through the little holes in that bone; and being joined by a branch of the fifth pair of nerves, are spread on the membrane of the nose.

The tender structure and sudden expansion of these nerves, on such a large surface, render it impossible to trace them far; which has made some authors deny them to be nerves: but when we break the circumference of the cribriform lamella, and then gently raise it, we may see the distribution of the nerves some way on the membrane of the nose, where they form a beautiful net-work.

The contrivance of defending these long soft nerves from being too much pressed by the anterior lobes of the brain, under which they lie, is singular; because they have not only the prominent orbitar processes of the frontal bone, to support the brain on each side, with the veins going into the longitudinal sinus, and other attachments bearing it up, but there is a groove formed in each lobe of the brain itself for them to lodge in. Their splitting into so many small branches before they enter the bones of the skull, is likewise peculiar to them; for generally the nerves come from the brain in disgregated filaments, and unite into cords as they are going out at the holes of the bones. This contrivance is the best for answering the purpose they are designed for, of being the organ of smelling; for had they been expanded upon the membrane of the nose into a medullary web, such as the optic forms, it would have been too sensible to bear the impressions of such objects as are applied to the nose; and a distribution in the more common way, of a cord sending off branches, would not have been uniform enough for such an organ of sensation.

2. The *second pair* of nerves, the *optic*, arising from the thalami nervorum opticorum, make a large curve outward, and then run obliquely inward and forward, till they unite at the fore part of the cella turcica; then soon divide, and each runs obliquely forward and outward to go out at its proper hole in the sphenoid bone, accompanied with the ocular artery, to be extended to the globe of the eye, within which each is expanded into a very fine cup-like web, that lines all the inside of the eye, to within a little distance of the edge of the crystalline lens, and is universally known by the name of *retina.*

Though the substance of this pair of nerves seems to be blended at the place where they are joined, yet observations of people whose optic nerves were not joined, and of others who were blind of one eye from a fault in the optic nerve, or in those who had one of their eyes taken out, make it doubtful whether there is any such intimate union of substance; the optic nerve of the affected side only being wasted, while the other was large and plump. In many fishes, indeed, the doctrine of decussation is favoured; for their optic nerves plainly cross each other, without any union at the part where they are joined in men and most quadrupeds.

Those people whose optic nerves were not joined, having neither seen objects double, nor turned their eyes different ways, afford also a proof, that the conjunction of the optic nerves will not serve to account for either the uniform motions of our eyes, or our seeing objects single with two eyes, though it may be one cause of the remarkable sympathy of the one eye with the other in many diseases.

The retina of a recent eye, without any preparation, appears a very fine web, with some blood-vessels coming from its centre to be distributed on it; but, after a good injection of the arteries that run in the substance of this nerve, as is common to other nerves, it is with difficulty that we can observe its nervous medullary substance. The situation of these vessels in the central part of the optic nerve, the want of medullary fibres here, and the firmness of this nerve before it is expanded, at its entry into the ball of the eye, may be the reason why we do not see such bodies, or parts of bodies, whose picture falls on this central part of the retina. An inflammation in those arteries of the retina, which several fevers and an ophthalmia are generally attended with, may well account for the tenderness in the eyes, and inability to bear the light, which people have in these diseases. The over-distention of these vessels may likewise serve to account for the black spots observed on bright-coloured bodies especially, and for that smokiness through which all objects are seen by people in some fevers. If these vessels lose their tone, and remain preternaturally distended, no object affects our retina, though the eye externally appears sound; or this may be one cause of an amaurosis or gutta serena. From a partial distention of these vessels, or paralysis of a part of the retina, the central part, or the circumference, or any other part of objects, may be lost to one or both eyes.

3. The *third pair* rise from the anterior part of the processus annularis; and, piercing the dura mater a little before and to a side of the ends of the posterior clinoid process of the sphenoid bone, run along the receptacula, or cavernous sinuses, at the side of the ephippium, to get out at the foramina lacera; after which each of them divides into branches; of which one, after forming a little ganglion, is distributed to the globe of the eye; the others are sent to the musculus rectus of the palpebra, and to the attollens, adductor, deprimens, and obliquus minor muscles of the eye-ball. These muscles being principal instruments in the motions of the eye-lid and eye-ball, this nerve has therefore got the name of the *motor oculi.*

4. The *fourth pair*, which are the smallest nerves of any, derive their origin from the back part of the base of the testes; and then, making a long course on the side of the annular protuberance, enter the dura mater a little farther back, and more externally than the third pair, to run also along the receptacula, to pass out at the foramina lacera, and to be entirely spent on the musculi trochleares, or superior oblique muscles of the eye. These muscles being employed in performing the rotatory motions, and the advancement of the eye-balls forward, by which several of our passions are expressed, the nerves that serve them have got the name of *pathetici.* Why these small nerves should be brought so far to this muscle, when it could have been supplied easily by the motor oculi, does not appear.

5. The *fifth pair* are large nerves, rising from the annular processes, where the medullary processes of the cerebellum join in the formation of that tuber, to enter the dura mater near the point of the petrous process of the temporal bones; and then, sinking close by the receptacula, at the sides of the sella turcica, each becomes in appearance thicker, forms a distinct ganglion, and goes out of the skull in three great branches.

The first branch of the fifth is the *ophthalmic*, which runs through the foramen lacerum to the orbit, having in its passage thither a connexion with the sixth pair. It is afterwards distributed to the ball of the eye with the third; to the nose, along with the olfactory, which the branch of the fifth that passes through the foramen orbitarium internum joins, as was before mentioned in the description of the first pair. This ophthalmic branch likewise supplies the parts at the internal canthus of the orbit, the glandula lacrymalis, fat, membranes, muscles, and teguments of the eye-lids; its longest farthest extended branch passing through the foramen superciliare of the os frontis, to be distributed to the forehead.

The small fibres which this first branch of the fifth and third pair of nerves send to the eye-ball, being situated on the optic nerve, and, after piercing the sclerotic coat, running along the choroid coat on the outside of the retina, in their course to the uvea or iris, may be a cause of the sympathy between the optic nerve and the uvea, by which we more readily acquire the habit of contracting the iris, and thereby lessen the pupil, when too strong light is excluded; and, on the contrary, enlarge the pupil when the light is too faint. This, with the sympathy which must arise from some of the nerves of the membrane of the nostrils, being derived from this first branch of the fifth pair of nerves, may also be the cause why an irritation of the retina, by too strong light, may produce sneezing, as if a stimulus had been applied to the membrane of the nose itself;—why pressing the internal canthus of the orbit sometimes stops sneezing;—why irritation of the nose, on the other hand, causes the eye-lids to shut convulsively, and makes the tears to flow plentifully; and why medicines put into the nose affect diseases of the eyes.

The second branch of the fifth pair of nerves may be called *maxillaris superior*, from its serving principally the parts of the upper jaw. It goes out at the round hole of the sphenoid bone, and sends immediately one branch into the channel on the top of the antrum maxillare; the membrane of which and the upper teeth are supplied by it in its passage. As this branch is about to go out at the foramen orbitarium externum, it sends a nerve through the substance of the os maxillare to come out at Steno's duct, to be distributed to the fore part of the palate; and what remains of it, escaping at the external orbitar hole, divides into a great many branches, that supply the cheek, upper lip, and nostril.—The next considerable branch of the superior maxillary nerve, after giving branches which are reflected through the sixth hole of the sphenoid bone, to join the intercostal where it is passing through the skull with the carotid artery, and the portio dura of the seventh pair as it passes through the os petrosum, is sent into the nose by the hole common to the palate and sphenoidal bone; and the remaining part of this nerve runs in the palato-maxillary canal, giving off branches to the temples and pterygoid muscles, and comes at last into the palate to be lost.—Hence, the ach in the teeth of the upper jaw occasions a gnawing pain deep seated in the bones of the face, with swelling in the eye-lids, cheek, nose, and under lip; and, on the other hand, an inflammation in these parts is often attended with sharp pain in the teeth.

The third, or *maxillaris inferior*, branch of the fifth pair, going out of the oval hole of the sphenoid bone, serves the muscles of the lower jaw, and the muscles situated between the os hyoides and jaw. All the salivary glands, the amygdalæ, and the external ear, have branches from it: it gives a large branch to the tongue, and sends another through the canal in the substance of the lower jaw, to serve all the teeth there, and to come out at the hole in the fore part of the jaw, to be lost in the chin and under lip. Hence a convulsive contraction of the muscles of the lower jaw, or the mouth's being involuntarily shut, a great flow of spittle or salivation, a pain in the ear, especially in deglutition, and a swelling all about the throat, are natural consequences of a violent irritation of the nerves of the lower teeth in the tooth-ach; and pain in the teeth and ear, is as natural a consequence of an angina. Perhaps the sympathy of the organs of tasting and smelling may in some measure depend on their both receiving nerves from the fifth pair.

6. The *sixth pair*, which is the smallest except the fourth, rises from the fore part of the corpora pyramidalia; and each, entering the dura mater some way behind the posterior clinoid process of the sphenoid bone, has a long course below that membrane, and within the receptaculum at the side of the cella turcica, where it is immersed in the blood of the receptacle. It goes afterward out at the foramen lacerum into the orbit, to serve the abductor muscle of the eye. In the passage of this nerve below the dura mater, it lies very contiguous to the internal carotid artery, and to the ophthalmic branch of the fifth pair of nerves. At the place where the sixth pair is contiguous to the carotid, a nerve either goes from each of them in an uncommon way, to wit, with the angle beyond where it rises obtuse, to descend with the artery, and to form the beginning of the intercostal nerve, according to the common description; or, according to other authors, this nerve comes up from the great ganglion of the intercostal, to be joined to the sixth here.

The arguments for this latter opinion are, That, according to the common doctrine, this beginning of the intercostal nerve, as it is called, would rise in a manner not so ordinary in nerves. In the next place, it is observed, that the sixth pair is larger nearer to the orbit, than it is before it comes to the place where this nerve is said to go off; and, therefore, it is more probable that it receives an addition there, rather than gives off a branch. Lastly, it is found, that upon cutting the intercostal nerves of living animals, the eyes plainly were affected; they lost their bright water; the gum was separated in greater quantity; the pupil was more contracted; the cartilaginous membrane, at the internal canthus, came more over the eye; and the eye-ball itself was diminished.

To this it is answered, in defence of the more common doctrine, 1st. That other branches of nerves go off in a reflected way, as well as this does, supposing it to be the beginning of the intercostal; and that the reflection would rather be greater, if it is thought to come up from the intercostal to the sixth. 2dly, It is denied that this nerve is ordinarily thicker at its fore than at its back part; and if it was supposed to be thickest nearer to the orbit, the conclusion made above could not be drawn from this appearance, because other nerves enlarge sometimes where there is no addition made to them; as in the instance already mentioned of the trunk of the fifth pair, while below the dura mater. 3dly, The experiments on living animals show, indeed, that the eyes are affected upon cutting the intercostal nerve; but not in the way which might have been expected, if the intercostal had furnished such a share of the nerve that goes to the abductor muscle of the eye: for it might have been thought, that this muscle would have been so much weakened immediately upon cutting the intercostal, that its antagonist, the adductor, would have greatly prevailed over it, and have turned the eye strongly in toward the nose; which is not said to be a consequence of this experiment. So that the arguments are still equivocal; and more observations and experiments must be made before it can be determined, with certainty, whether the sixth pair gives or receives a branch here. In the mean time, we shall continue to speak about the origin of the intercostal nerves with the generality of anatomists.

At this place, where the intercostal begins, the fifth pair is contiguous and adherent to the sixth; and it is generally said, that the ophthalmic branch of the fifth gives a branch or two to the beginning of the intercostal, or receives such from it. Others deny any such communication between them: and those who affirm the communication confess, that in some subjects they could not see it.

7. The *seventh*, or *auditory* pair comes out from the lateral part of the annular process, behind where the medullary processes of the cerebellum is joined to that tuber; and each being accompanied with a larger artery than most other nerves, enters the internal meatus auditorius, where the two large bundles of fibres, of which it appeared to consist within the skull, soon separate from each other: one of them, entering by several small holes into the vestibule, cochlea, and semicircular canals, is stretched on this inner camera of the ear in a very soft pulpy substance; and, being never seen in the form of a firm cord, such as the other parcel of this and most other nerves become, is called the *portio mollis* of the auditory nerve.

The other part of this seventh pair passes through Galen's foramen cæcum, or Fallopius's aquæduct, in its crooked passage by the side of the tympanum; in which passage, a nerve sent to the lingual branch of the inferior maxillary nerve, along the outside of the tuba Eustachiana, and across the cavity of the tympanum, where it has the name of *chorda tympani*, is commonly said to be joined to it. The very acute angle which this nerve makes with the fifth, or the sudden violent reflection it would suffer on the supposition of its coming from the fifth to the seventh, appears unusual; whereas, if we snppose that it comes from the seventh to the fifth, its course would be more in the ordinary way, and the chorda tympani would be esteemed a branch of the seventh pair going to join the fifth, the size of which is increased by this acquisition. This smaller bundle of the seventh gives branches to the muscles of the malleus, and to the dura mater, while it passes through the bony crooked canal, and at last comes out in a firm cord named *portia dura*, at the end of this canal, between the styloid and mastoid processes of the temporal bone, giving immediately filaments to the little oblique muscles of the head, and to those that rise from the styloid process. It then pierces through the parotid gland, and divides into a great many branches, which are dispersed in the muscles and teguments that cover all the side of the upper part of the neck, the whole face and cranium, as far back as the temples, including a considerable part of the external ear. Its branches, having thus a considerable connexion with all the three branches of the fifth pair, and with the second cervical, occasion a considerable sympathy of these nerves with it. Hence in the tooth-ach, the pain is sometimes very little in the affected tooth, compared to what it is all along the side of the head and in the ear. By this communication or connexion possibly too it is, that a vibrating string held between one's teeth, gives a strong idea of sound to the person who holds it, which nobody else can perceive. Perhaps, too, the distribution of this nerve occasions the head to be so quickly turned upon the impression of sound on our ears.

8. The *eighth pair* of nerves, or *par vagum*, rise from the lateral bases of the corpora olivaria in disgregated fibres; and, as they are entering the anterior internal part of the holes common to the os occipitis and temporum, each is joined by a nerve which ascends within the dura mater from the tenth of the head, the first, second, and inferior cervical nerves: this, students well know, has the name of the *nervus accessorius.* When the two get out of the skull, the accessorius separates from the eighth, and, descending obliquely outward, passes through the sterno-mastoideus muscle, to which it gives branches, and afterward terminates in the trapezius muscle of the scapula. In this course it is generally more or less joined by the second cervical nerve. Why this nerve, and several others which are distributed to muscles, are made to pierce through muscles, which they might have only passed near to, is not known.

The large eighth pair, soon after its exit, gives nerves to the tongue, larynx, pharynx, and ganglion of the intercostal nerve; and, being disjoined from the ninth and intercostal, to which it adheres closely some way, runs straight down the neck behind the internal jugular vein, and at the external side of the carotid artery. As it is about to enter the thorax, a large nerve goes off from the eighth of each side: this branch of the right side turns round from the fore to the back part of the subclavian artery, while the branch of the left side turns round the great curve of the aorta; and both of them, mounting up again at the side of the œsophagus, at which they give branches, are lost at last in the larynx. These are called the *recurrent nerves.* The muscles of the larynx being in a good measure supplied with nerves from the recurrents, it is to be expected, that the cutting of them will greatly weaken the voice, though it will not be entirely lost so long as the superior branches of the eighth pair are entire. Why the recurrent nerves rise so low from the eighth pair to go round a large artery, and to have such a long course upward, we know not.

The eighth pair, above and at or near the place where the recurrent nerves go off from it, or frequently the recurrents themselves, send off small nerves to the pericardium, and to join with the branches of the intercostal that are distributed to the heart; but their size and situation are uncertain.

After these branches are sent off, the par vagum on each side descends behind the great branch of the trachea, and gives numerous filaments to the lungs, and some to the heart in going to the œsophagus. The one of the left side running on the fore part of the œsophagus, communicates by several branches with the right one in its descent, to be distributed to the stomach: the right one gets behind the œsophagus, where it splits and rejoins several times before it arrives at the stomach, to which it sends nerves; and then, being joined by one or more branches from the left trunk, they run toward the cæliac artery, there to join into the great semilunar ganglion formed by the two intercostals.

From the distribution of this par vagum, it appears how tickling the fauces with a feather excites an inclination to vomit;—why coughing occasions vomiting, or vomiting raises a cough;—why an attempt to vomit is sometimes in danger of suffocating asthmatic people;—why the superior orifice of the stomach is so sensible, as to be looked on as the seat of the soul by some;—why people subject to distentions of the stomach, have so often the sensation of balls in their breast and throat;—why the globus hystericus is so often attended with a violent strangulation at the glottis.

9. The *ninth pair* of nerves comes from the inferior part of the corpora pyramidalia, to go out of the skull at their proper holes of the occipital bone. After their egress they adhere, for some way, firmly to the eighth and intercostal; and then sending a branch, that in many subjects is joined with branches of the first and second cervical nerves, to be distributed to the thyroid gland, and muscles on the fore part of the trachea arteria, the ninth is lost in the muscles and substance of the tongue. Some have thought this nerve, and others have esteemed the third branch of the fifth pair of nerves, to be the proper gustatory nerves. We know no observation or experiments to prove either opinion, or to assure us that both nerves do not serve for tasting and for the motion of the tongue. May not the distribution of this nerve to the muscles below, as well as above the os hyoides, contribute to their acting more uniformly in depressing the lower jaw or head?

10. The *tenth pair* rises in separate threads from the sides of the spinal marrow, to go out between the os occipitis and first vertebra of the neck. After each of them has given branches to the great ganglion of the intercostal, eighth, ninth, and first cervical nerves, it is distributed to the straight, oblique, and some of the extensor muscles of the head. Whether the name of the tenth of the head, or of the first vertebral, ought to be given to this pair of nerves, is of no such consequence as to deserve a debate, though it has some of the marks of the spinal nerves, to wit, its being formed of filaments proceeding from both the fore and back part of the medulla, and a little ganglion being formed where these filaments are joined.

The almost universal connexion and communication which this nerve has with the other nerves of the body, may lead us to understand the following, and a great many more phenomena:—Why tickling the nose causes sneezing:—Why the too great quantity of bile in the cholera occasions vomiting as well as purging:—Why people vomit in cholics, in inflammations, or other irritations of the liver, or of the ducts going from it and the gall-bladder:—Why a stone in the kidneys or ureters, or any other cause irritating those organs, should so much more frequently bring on vomiting and other disorders of the stomach, than the stone or any other stimulating cause in the bladder does:—Why vomiting is a symptom of danger after child-birth, lithotomy, and other operations on the parts in the pelvis:—Why the obstructions of the menses are capable of occasioning strangulations, flatulency, colics, stomach-ach, and even convulsions in the extremities:—Why intestinal worms excite an itching in the nose, or grinding of the teeth:—Why irritations in the bowels occasion sometimes universal convulsions.

The *spinal nerves* rise generally by a number of disgregated fibres from both the fore and back part of the medulla spinalis; and soon after form a little knot or ganglion, where they acquire strong coats, and are extended into firm cords; but the ganglion is entirely formed by the posterior bundle. They are distinguished by numbers, according to the vertebræ from between which they come out; the superior of the two bones forming the hole through which they pass, being the one from which the number is applied to each nerve. There are generally said to be thirty pair of them: seven of which come out between the vertebræ of the neck, twelve between those of the back, five between those of the loins, and six from the false vertebræ.

(1.) The *first cervical* pair of nerves comes out between the first and second vertebræ of the neck; and, having given branches to join with the tenth pair of the head, the second cervical and intercostal, and to serve the muscles that bend the neck, it sends its largest branches backwards to the extensor muscles of the head and neck; some of which, piercing through these muscles, run up on the occiput to be lost in the teguments here; and many fibres of it advance so far forward as to be connected with the fibrils of the first branch of the fifth pair of the head, and of the portio dura of the auditory nerve. Hence possibly it is, that a clavus hystericus changes suddenly, sometimes from the forehead, to a violent pain and spasm in the back part of the head and neck.

(2.) The *second cervical* is soon joined by some branches to the ninth of the head and intercostal, and to the first and third of the neck; then has a large branch that comes out at the exterior edge of the sterno-mastoideus muscle, where it joins with the accessorius of the eighth pair; and is afterwards distributed to the platysma-myoides, teguments of the side of the neck and head, parotid gland, and external ear, being connected to the portio dura of the auditory nerve, and to the first cervical. The remainder of this second cervical is spent on the levator scapulæ, and the extensors of the neck and head. Generally a large branch is here sent off to join the accessorius of the eighth pair, near the superior angle of the scapula. To the irritation of the branches of this nerve it probably is, that in an inflammation of the parotid gland, the neck is pained so far down as the clavicle, the head is drawn towards the shoulder of the affected side, and the chin is turned to the other side.

(3.) The *third pair of the neck* passes out between the third and fourth cervical vertebræ; having immediately a communication with the second, and sending down a branch, which, being joined by a branch from the fourth cervical, forms the *phrenic* nerve. This, descending, enters the thorax between the subclavian vein and artery; and then, being received into a groove formed for it in the pericardium, it has its course along this capsula of the heart, till it is lost in the middle part of the diaphragm. The right phrenic has a straight course; but the left one is obliged to make a considerable turn outwards to go over the prominent part of the pericardium, where the point of the heart is lodged. Hence, in violent palpitations of the heart, a pungent acute pain is felt near the left orifice of the stomach. The middle of the diaphragm scarce could have been supplied by any other nerve which could have had such a straight course as the phrenic has.

The other branches of the third cervical nerve are distributed to the muscles and teguments at the lower part of the neck and top of the shoulder. No wonder then that an inflammation of the liver or spleen, an abscess in the lungs adhering to the diaphragm, or any other cause capable of irritating the diaphragm, should be attended with a sharp pain on the top of the shoulder, as well as wounds, ulcers, &c. of this muscle itself. If the irritation of this muscle is very violent, it may occasion that convulsive contraction of the diaphragm which is called an *hiccough.*

(4.) The *fourth cervical* nerve, after sending off that branch which joins with the third to form the phrenic, and bestowing twigs on the muscles and glands of the neck, runs to the armpit, where it meets with the *fifth*, *sixth*, and *seventh* cervicals, and *first* dorsal, that escape in the interstices of the musculi scaleni, to come at the armpit, where they join, separate, and rejoin in a way scarcely to be competently expressed in words; and, after giving several considerable nerves to the muscles and teguments which cover the thorax, they divide into several branches, to be distributed to all the parts of the superior extremity. Seven of these branches we proceed to describe under their particular names.

1. The *Scapularis* runs straight to the cavitas semilunata of the upper costa of the scapula, which is a hole in the recent subject, by a ligament being extended from one angle of the bone to the other, giving nerves in its way to the muscles of the scapula. When it has passed this hole, it supplies the supra-spinatus muscle; and then, descending at the anterior of the spine of the scapula, it is lost in the other muscles that lie on the back of that bone.

2. The *Articularis* sinks downwards at the axilla, to get below the neck of the head of the os humeri, and to mount again at the back part of it; so that it almost surrounds the articulation, and is distributed to the muscles that draw the arm back, and to those that elevate it.

3. The *Cutaneus* runs down the fore part of the arm near the skin, to which it gives off branches; and then divides on the inside of the fore-arm into several nerves, which supply the teguments there, and on the palm of the hand. In opening the basilic vein of the arm at the ordinary place, the same symptoms are sometimes produced as in opening the external jugular vein, and from a like cause, to wit, from hurting a branch of this cutaneous nerve with the lancet.

4. The *Musculo-cutaneus*, or *perforans Casseri*, passes through the coraco-brachialis muscle; and, after supplying the biceps flexor cubiti and brachiæus internus, passes behind the tendon of the biceps, and over the cephalic vein, to be bestowed on the teguments on the outside of the fore-arm and back of the hand. This nerve is sometimes hurt in opening the cephalic vein, and causes pain and numbness in the part.

5. The *Muscularis* has a spiral course from the axilla, under the os humeri, and backward to the external part of that bone, supplying, by the way, the extensor muscles of the fore-arm, to which it runs between the two brachiæi muscles, and within the supinator radii longus. At the upper part of the fore-arm it sends off a branch, which accompanies the supinator longus till it comes near the wrist, where it passes obliquely over the radius, to be lost in the back of the hand and fingers. The principal part of this nerve pierces through the supinator radii brevis, to serve the muscles that extend the hand and fingers, whose actions are not injured when the supinator acts. Part of this nerve is lost upon the ligament of the wrist.

6. The *Ulnaris* is extended along the inside of the arm, to give nerves to the muscles that extend to the fore-arm and to the teguments of the elbow: toward the lower part of the arm it slants a little backward, to come out at the groove behind the internal condyle of the os humeri, through which it runs to the ulna: in its course along this bone, it serves the neighbouring muscles and teguments; and, as it comes near the wrist, it detaches a branch obliquely over the ulna to the back of the hand, to be lost in the convex part of several fingers. The larger part of the nerve goes straight forward to the internal side of the os pisiforme of the wrist; where it sends off a branch, which sinks under the large tendons in the palm, to go cross to the other side of the wrist, serving the musculi lumbricales and interossei, and at last terminating in the short muscles of the thumb and fore-finger. What remains of the ulnar nerve after supplying the short muscles of the little finger, divides into three branches; whereof two are extended along the sides of the sheath of the tendons of the flexors of the little finger, to furnish the concave side of that finger; the third branch is disposed in the same way upon the side of the ring finger next to the little finger.

On leaning or pressing on the internal condyle of the os humeri, the numbness and tingling we frequently feel, point out the course of this nerve. Dr. Monro knew weakness and atrophy in the parts which we mentioned this nerve to be sent to, after a wound in the internal lower part of the arm.

7. *Radialis* accompanies the humeral artery to the bending of the elbow, serving the flexors of the cubit in its way; then, passing through the pronator radii teres muscle, it gives nerves to the muscles on the fore part of the fore-arm, and continues its course near to the radius, bestowing branches on the circumjacent muscles. Near the wrist, it sometimes gives off a

nerve which is distributed to the back of the hand, and the convex part of the thumb and several of the fingers, instead of the branch of the muscular. The larger part of this nerve, passing behind the annular ligament of the wrist, gives nerves to the short muscles of the thumb; and afterward sends a branch along each side of the sheath of the tendons of the flexors of the thumb, fore-finger, middle finger, and one branch to the side of the ring finger, next to the middle one, to be lost on the concave side of those fingers.

Though the radial nerve passes through the pronator muscle, and the muscular nerve seems to be still more unfavourably placed within the supinator brevis, yet the action of these muscles does not seem to have any effect in hindering the influence of these nerves; for the fingers or hand can be bended while pronation is performing vigorously, and they can be extended while supination is exercised.

The manner of the going off of these nerves of the fingers, both from the ulnar and radial, is, that a single branch is sent from the trunk to the side of the thumb and little finger farthest from the other fingers; and all the rest are supplied by a trunk of a nerve, which splits into two, in some way, before it comes as far as the end of the metacarpus, to run along the sides of different fingers that are nearest to each other.

The *twelve dorsal nerves of each side*, as soon as they escape from between the vertebræ, send a branch forward to join the intercostal, by which a communication is made among them all; and they soon likewise give branches backward to the muscles that raise the trunk of the body, their principal trunk being extended outwards to come at the furrow in the lower edge of each rib, in which they run toward the anterior part of the thorax, between the internal and external intercostal muscles, giving off branches in their course to the muscles and teguments of the thorax.

The *first* dorsal contributes to form the brachial nerves; and the two branches of the intercostal, which come down to the thorax, form a considerable ganglion with it. The *six* lower dorsal nerves give branches to the diaphragm and abdominal muscles. The *twelfth* joins with the first lumbar, and bestows nerves on the musculus quadratus lumborum and iliacus internus. It has been asked: May not the communications of all these nerves be one reason, why the parts they serve act so uniformly and conjunctly in respiration, and conspire together in the convulsive motions of coughing, sneezing, &c.? The communications of these lower ones with the intercostals, may serve to explain the violent effort of the abdominal muscles in a tenesmus, and in parturition.

The *five lumbar nerves* on each side communicate with the intercostal and with each other, and give branches backwards to the loins. The *first* communicates with the last dorsal, sends branches to the abdominal muscles, to the psoas and iliacus, and to the teguments and muscles on the fore part of the thigh; while its principal branch joins with the other nerves, to form the crural nerve. The *second lumbar* nerve passes through the psoas muscle; and is distributed nearly in the same way as the former; as is also the *third*. Branches of the second, third, and fourth, make up one trunk, which runs along the fore part of the pelvis; and, passing in the notch at the fore part of the great hole common to the os pubis and ischium, is spent on the adductor muscles, and on the teguments on the inside of the thigh. This nerve is called the *obturator*, or *posterior crural* nerve. By uniting branches from the first, second, third, and fourth lumbar nerves, a nerve is formed that runs along the psoas muscle, to escape with the external iliac vessels out of the abdomen, below the tendinous arcade of the external oblique muscle. This nerve, which is named the *anterior crural*, is distributed principally to the muscles and teguments on the fore part of the thigh. A branch, however, of this nerve runs down the inside of the leg to the upper part of the foot, keeping near to the vena saphena; in opening of which with a lancet at the ankle, the nerve is somewhat hurt, and occasions sharp pain at the time of the operation, and numbness afterward. The remainder of the fourth lumbar, and the fifth, join in composing the largest nerve of the body, to be described below.

Whoever attends to the course of these lumbar nerves, and of the spermatic vessels and nerves upon the psoas muscle, with the oblique passage of the ureter over that muscle, will not be surprised, that when a stone is passing in this canal, or even when it is inflamed, the trunk of the body cannot be raised erect, without great pain; or that the skin of the thigh becomes less sensible, and the thigh is drawn forward, and that the testicle often swells and is drawn convulsively towards the abdominal ring.

The *six pair of the false vertebræ* consist each of small posterior branches sent to the hips, and of large anterior branches. The first, second, and third, after coming through the three upper holes in the fore part of the os sacrum, join together with the fourth and fifth of the loins, to form the largest nerve of the body, which is well known by the name of *sciatic*, or *ischiatic* nerve: this, after sending large nerves to the different parts of the pelvis, and to the external parts of generation and the podex, as also to the muscles of the hips, passes behind the great tuber of the os ischium, and then over the quadrigemini muscles to run down near to the bone of the thigh at its back part, giving off nerves to the neighbouring muscles and teguments. Some way above the ham, where it has the name of *poplitæus*, it sends off a pretty large branch that passes over the fibula, and, sinking in among the muscles on the anterior external part of the leg, runs down to the foot, to be lost in the upper part of the larger toes, supplying the neighbouring muscles and teguments every where in its passage. The larger branch of the sciatic, after giving branches to the muscles and teguments about the ham and knee, and sending a large cutaneous nerve down the calf of the leg, to be lost at last on the outside of the foot and upper part of the lesser toes, sinks below the gemellus muscle, and distributes nerves to the muscles on the back of the leg; among which it continues its course, till, passing behind the internal malleolus, and in the internal hollow of the os calcis, it divides into the two *external* and *internal plantar* nerves: the internal is distributed to the toes in the same manner that the radial nerve of the hand serves the concave side of the thumb and fingers; and the external plantar is divided and distributed to the sole of the foot and toes, nearly as the ulnar nerve is in the palm of the hand, and in the concave part of the fingers.

What was said of the nerves in general, if applied to the particular distribution of the nerves of the inferior extremities, will show, how people with fractured legs, should be subject to convulsive startings of the limb:—Why, upon tying the blood-vessels in an amputation of the leg, the patients should complain of violent pain in their toes;—why such patients should also be troubled with startings;—why, for a considerable time after the amputation of the diseased limb, when the suppuration is well advanced, they should complain of pain in the sore which occasioned the operation.

The *fourth*, which, with the two following, is much smaller than the three superior, soon is lost in the vesica urinaria and rectum. The *fifth* proceeds between the extremity of the os sacrum and coccygis, to be distributed principally to the levatores ani. The *sixth*, which may be considered as the termination of a substance called *ligamentum denticulatum*, advances forward below the broad shoulders of the first bone of the os coccygis, and is lost in the sphincter ani and teguments covering it.

The branches of the four last cervical nerves, and of the first dorsal, which are bestowed on the superior extremities, and the two crurals, with the sciatic, which are distributed to the inferior extremities, are much larger proportionally to the parts they serve, than the nerves of the trunk of the body, and especially of the viscera, are. The size of the nerves of the inferior extremities seem larger, proportionally, than in the superior extremities; the inferior extremities having the weight of the whole body to sustain, and that frequently at a great disadvantage. The effect of the nerves here being injured, we see when people happen, in sitting, to compress the sciatic nerve: they are incapable for some time after to support themselves on the affected limb; and this is still more remarkable in the sciatica or hip-gout, in which the member is not only weakened, but gradually wastes and is diminished in bulk.

To know, with accuracy, the course of the human nerves, we must neither rely on verbal description, nor even on the best executed delineations. Both, however, may materially assist the student; and for this reason we have given, in plate XXIX. a fore and back view of the human figure, calculated to afford a general idea of the course of the principal nerves as laid down by the late Dr. Monro.

Fig. 1. shows the first branch of the fifth pair of nerves. 2. The second branch of the fifth pair. 3. The third branch of the fifth pair. 4. The trunk of the eighth pair cut. 5. The recurrent nerve. 6. The great sympathetic nerve. 7. The uppermost ganglion of the great sympathetic nerve. 8. The ramus splanchnicus of the great sympathetic nerve. 9. A branch of the sub-occipital, or tenth pair of the head, joining with the great sympathetic nerve. 10. The first cervical nerve. 11. The seventh cervical nerve. The intermediate cervicals come out in a similar manner. 12. The phrenic nerve. 13. The axillary plexus. 14. The muscular nerve of the arm. 15. The articular nerve. 16. The spiral nerve. 17. The radial nerve. 18. The ulnar nerve. 19. The first intercostal nerve. 20. The last intercostal nerve. The other ten come out in the same manner. 21. The first lumbar nerve. 22. The last lumbar nerve. The three intermediate lumbar nerves come out in a similar way. 23. Branches from the external thoracic nerves running down upon the side of the thorax. 24. Branches sent off from the intercostal and lumbar nerves to supply the outer part of the thorax and abdomen. 25. Nerves of the os sacrum. 26. The obturator nerve. 27. The anterior crural nerve. 28. A branch of the anterior crural nerve, which runs near the vena saphena major. 29. The anterior tibial nerve running down to the foot.

In the back view, fig. 1. shows the recurrent nerve. 2. A branch of the fourth cervical nerve, joining the recurrent one before it terminates on the musculus trapezius. 3. Branches of the fifth pair, perforating the scalenus medius, to be spent upon the rhomboid muscles. 4. Branches of the sub-occipital nerve, running to the small muscles at the under and back part of the head. 5. Posterior branches of the cervical nerves. 6. Posterior branches of the dorsal nerves. 7. Posterior branches of the dorsal and lumbar nerves running to the erector muscles of the back. 8. Posterior branches of the dorsal nerves, penetrating the intercostal muscles. 9. Branches from the last dorsal, and from the lumbar nerves, supplying the lumbar and abdominal muscles. 10. Branches from some of the lower cervical nerves, running to the muscles on the back part of the scapula. 11. The articular nerve. 12. A branch from the axillary plexus running to the musculus latissimus dorsi. 13. Another branch from the axillary plexus running to the latissimus dorsi and serratus magnus. 14. The spiral nerve. 15. The ulnar nerve. 16. Small branches coming through the holes in the back part of the os sacrum running to the muscles, &c. there. 17. A small branch running out between the os sacrum and os coccygis. 18. The end of the cauda equina running through the canal at the back part of the os sacrum. 19. The sciatic nerve. 20. Branches from the sciatic nerve to the muscles on the back part of the pelvis. 21. Branches from the sciatic nerve to the muscles, &c. about the anus. 22. Branches from the sciatic nerve to the glutæus maximus and muscles, at the upper and back part of the thigh. 23. Trunk of the sciatic nerve, sending off branches to the muscles on the back part of the thigh. 24. The fibular nerve sent off from the sciatic one. 25. The posterior tibial nerve, which is a continuation of the sciatic nerve.

The diseases to which the nerves are obnoxious, are noticed under the article NERVOUS DISEASES.

NERVINA, (from *nervus*, a nerve); nervines, or neurotics. These are medicines that relieve disorders of the nerves, but the term is now disused.

NERVOUS DISEASES. See Neuroses. These are either general or local. The former include a train of symptomatic affections, to which physicians have been compelled to apply this term merely for want of a better: and till we are better acquainted with the physiology of the nerves, it is not to be supposed that we can pretend to an accurate knowledge of their diseases. Persons who have diseased viscera, lead sedentary lives, are addicted to study, agitated with long anxiety, of irritable tempers, and who are easily affected by external occurrences, &c. are the most subject to the complaints called nervous. The symptoms have been found to resemble almost every disorder to which the human body is subject: according to the part more immediately affected, and the peculiarities of the patient's constitution, the different diseases proper to that part will seem to predominate. As the occasional cause then is, and the part in which its influence is exerted, the symptoms will be, wind in the stomach and bowels, heart-burn, sour eructations, nausea, want of appetite, and indigestion, or an uncommon craving for food, and quick digestion; debility, faintness, a sense of emptiness about the stomach when hungry, a strong desire for uncommon food, inflation of the stomach, pain and cramp in it, oppression about the præcordia, uneasy sensations, low-spiritedness, anxiety, timidity, strong pulsations within the abdomen, spasms in the bowels, partial distentions of the bowels, colic pains, a rumbling noise in the bowels from wind, the belly often lax, but more frequently costive, pains in the back and belly resembling the gravel, a sense of irritation and heat in the neck of the bladder, with a frequent desire of making water, a copious discharge of limpid urine, sudden flushes of heat all over the body, rigors, a sense of cold in certain parts as if water were poured upon them, and at other times an universal glow; flying pains in the limbs, pain in the back and between the shoulders, pains attended with a hot sensation, shifting often from the sides or back to the interior parts of the abdomen, cramps or convulsive motions of the muscles, or of a few of their fibres, sudden startings of the legs or arms, frequent involuntary motion of the muscles of the neck, or head, or arms, or legs; a general convulsion affecting at once the stomach, bowels, throat, legs, arms, and almost the whole body, in which the patient struggles as in an epileptic fit; long faintings, which, in some instances, follow one another after short intervals, palpitation of the heart, the pulse variable, a dry cough, with difficult breathing or a constriction of the lungs, which in some persons return periodically; yawning, hiccough, sighing, a sense of suffocation as if from a ball or lump in the throat, crying, laughing; in the day the patient is mostly cool, with a slow or natural pulse, but in the time of sleep hot flushes often spread over the whole body; the pulse is quicker and stronger, and faintness or sickness is felt; a giddiness, especially after rising up hastily; pains in the head, which in many return periodically; pain in a small part of the head, which generally fixes on the crown, as if a nail was driven in; singing in the ears, dimness of sight, mist before the eyes, objects seen double, unusual smells perceived, obstinate watchings, sometimes attended with uneasiness which is not to be described, but which is lessened by getting out of bed; disturbed sleep, frightful dreams, night-mare, drowsiness, fear, peevishness, sadness, despair; at intervals, the spirits are too active and gay, wandering thoughts, impaired memory, ridiculous fancies, strange persuasions of their labouring under diseases from which they are free, and imagining their complaints as dangerous as they find them troublesome.

After being long afflicted with some of these (for they never are all present in the same person), the patient sometimes becomes melancholy or maniacal, or falls into the jaundice, dropsy, phthisis pulmonalis, palsy, apoplexy, or some other fatal disease.

Those who are liable to the above symptoms have been distinguished into the following classes by authors: but it is impossible that such an arrangement can be made with any degree of precision. They call simply *nervous*, 1. Such as, though usually in good health, are yet, on account of a præternatural irritability of the nerves, apt to be affected frequently with violent tremors, palpitations, faintings, and convulsions, from fear and grief, surprise, or other passions, and from whatever disagreeably affects the more sensible parts of the body. 2. Persons who, besides being liable to the symptoms mentioned in the first class, from the same causes, are always troubled with indigestion, flatulence, &c. are said to be *hysteric*, or *hypochondriacal*. 3. Those who from a less delicate feeling are scarcely ever affected with palpitation of the heart, fainting, &c. from disturbed passions; but, on account of the disordered state of their stomach and bowels, are seldom free from indigestion, flatulence, want of appetite, or too great craving, and such symptoms as arise from these causes; to wit, eructations, costiveness, oppression about the præcordia, low spirits, disagreeable imaginations, disturbed rest, &c. have been ranked as strictly *hypochondriacal*. People who labour under the symptoms enumerated in the three foregoing classes, are, no doubt, properly considered as being affected with some *disease of the nervous system*; but, as we have before observed, a more precise and determinate account of them is not to be attained in the present state of our knowledge.

The means of relief in these cases must be sought for in the class of antispasmodic and tonic remedies; the cold, or in some cases the tepid, or even warm bath; an attention to the non-naturals, mental occupation, cheerful society, &c. However troublesome nervous disorders are, they have this advantage, viz. that their subjects are not very liable to diseases of the inflammatory kind, and rarely, if ever, suffer much from them. But before any thing by way of cure is attempted, the patient should be informed that his disorder admits of relief, but hardly of a radical cure; for the remaining disposition to be strongly affected by slight causes, not being changed, relapses are so easily occasioned, that a continuance of health, when all manifest symptoms are removed, cannot be promised. Secondly, it should be observed, that without due perseverance in the use of proper means, no advantage can be expected from medicine. The nerves that excite the vital functions, arise from the cerebellum; those that are subservient to the senses proceed chiefly from the basis of the brain; and those that are destined to the voluntary motions of the touch are principally from the spinal marrow. The following are the phenomena attending *local injury of the nerves.*

In many instances, if the nerve is cut, compressed, or destroyed, all motion, sensation, and nutrition in that part to which the *nerve* is distributed, are lost: yet this does not always happen; for if all, or at least the principal *nerves* in the part are not destroyed, it recovers its health and vigour. This is evident in performing the operation for the aneurism, in which case, if the *nerve* is tied with the brachial artery, a temporary numbness only is felt, and sensation in any degree below the ligature is not lost. If a ligature is made on the *nerve* on the side of the windpipe, the patient will be dumb. If a pointed instrument is pushed between the occiput and atlas of a dog; he dies instantly. The same symptoms happen in wounds of the cerebrum, cerebellum, and medulla spinalis. All *nerves* which have their origin below an injury of the medulla spinalis, lose their sense and motion. A member may be deprived of its motion, and yet not lose its sensation; or it may lose its sensation, and retain its motion. Sensation remains some time after the limb is amputated. Pressure makes a part paralytic. As the *nerves* are continuations of the medullary part of the brain and spinal marrow, it is probable that they are partly nourished by those vessels which are spread on that production of pia mater which surrounds them, in like manner as the brain derives its nourishment from the arteries of pia mater: if this be the case, we may readily see why the nerves lose their powers when they are wholly deprived of the arterial blood, and also retain them, in some measure, after the brain is ossified.

The accidental puncture of a nerve in bleeding, has been productive of the most serious consequences. These have been well described by Mr. Abernethy, of London. By delineations annexed to his Essay on this subject, he shows, that if the patient be bled in the *vena mediana basilica*, the branches of the *internal cutaneous nerve* are exposed to injury: or, if the *vena mediana cephalica* be opened, the branches of the *external cutaneous nerves* may be wounded. See the plate.

In common language, surgeons have called those cords, nerves, which are really composed of multitudes of separate nerves. In examining the opinion which has prevailed, of a nerve being *partially divided*, it is to be considered, that nerves of equal size with the cutaneous nerves of the arm, are distributed in considerable numbers throughout the body; and that, in the many operations performed, and wounds daily occurring, it would be strange if a partial division of a nerve should not happen; yet, no peculiar symptoms are observed usually to ensue. The pain which some people suffer from bleeding, seems to indicate an injury done to a nerve; indeed, in some cases, it is impossible to avoid dividing branches of nerves in bleeding, as they sometimes pass before the vein. These branches, so frequently wounded, must, many times, suffer a partial division: yet why should not a half-divided nerve unite without causing a general derangement of the nervous system. Yet, Mr. Abernethy allows, it is possible that an inflammation of the nerve may accidentally ensue; which would be aggravated if it were kept tense, in consequence of imperfect division. In the cases related by Mr. Pott, and Dr. Monro, some days elapsed after the receipt of the injury, before any alarming derangement of the nervous system ensued. Inflammation of the surrounding parts also appeared; and these observations make it evident, that the disease consists in inflammation of the injured nerve, in common with the other wounded parts.

With regard to what is the most probable method of relieving the effects arising from an *inflamed nerve*, the general opinion is, that the nerve is only partially divided, and that a total division will free the patient from the inconvenience. Mr. Pott supposed, that the wounded nerve was situated at one or the other extremity of the wound which had been made in the vein: he therefore proposed to divide it totally, by enlarging a little the original orifice. It is, however, possible that the point of the lancet might injure a nerve, lying beneath the vein. Mr. Bell directs an extensive transverse incision to be made through the original wound; but if the injured nerve be situated at the upper or lower extremity of the orifice, it will remain unaffected by this operation. Mr. Bell also advises the incision to be continued to the bone; but this Mr. Abernethy thinks both dangerous and unnecessary.

If the injured nerve be inflamed, it is doubtful whether even a total division at the inflamed part would effectually relieve the general nervous irritation, which the disease has occasioned. To intercept the communication of the inflamed nerve with the sensorium, does, however, promise perfect relief; and this intention can only be accomplished, by making a transverse incision above the orifice in the vein. The incision need not be very extensive, for the injured nerve must lie within the limits of the original orifice; and it need only descend as low as the fascia of the fore-arm; for all the filaments of the cutaneous nerve lie above this fascia. The vein which had been opened, and some filaments of the cutaneous nerves, are all the parts of consequence which will be divided in this operation. The proximity of the division of the nerves to the vein, must be regulated by the supposed extent of the disease. However, as the extent of the inflammation of the nerve is uncertain, Mr. Abernethy submits it to the consideration of his readers, whether it may not be advisable, in some cases, to divide either of the cutaneous nerves still more remotely from the injured nerve.

Mr. Everard Home, of London, in the Transactions of a Society formed there for Medical and Chirurgical improvement, has given an account of some *tumors formed in the substance of nerves*, and the means employed for their removal. He says, these may be distinguished from other tumors by a pain which is felt in the direction of the tumor, and in the part beyond it, even at the time when the tumor itself is moveable laterally in the surrounding parts. They may be also distinguished by the motion of the tumor, being chiefly in a lateral direction, but not in the direction of the nerve to any extent; and by the attempt to produce this longitudinal motion, being attended with considerable pain. In the *removal of such tumors*, it appeared: 1. That, the taking away three inches of a nerve is productive of less violent effects than are occasioned by inflammation and suppuration in the substance of the nerve for an equal extent. 2. The inflammation of a nerve, like that of a tendon, appears to affect the general system in a greater degree than would be expected, by a man unacquainted with pathology, from the little severity of the symptoms, or sensation in the part affected.

NERVOUS FEVER. See Typhus.

NERVOUS FLUID, another name for the nervous principle, or that power by which the parts calculated for action are excited. The vascularity of the cortical part of the brain, and of the nerves themselves, their softness, pulpiness, and natural humid appearance, give reason to believe, that between the medullary particles of which they are principally composed, a fine fluid is constantly secreted, which may be fitted to receive and transmit, even more readily than other fluids do, all impressions which are made on it. It appears to exhale from the extremities of the nerves. The lassitude and debility of muscles from too great exercise, and the dulness of the sensorial organs from excessive use, would seem to support this opinion, which has, for its ablest advocate, the celebrated Dr. A. Monro. The nervous fluid has no smell nor taste; for the cerebrine medulla is insipid and inodorous. Nor has it any *colour*, for the cerebrum and nerves are white. It is of so subtile a consistence, as never to have been detected. Its mobility is stupendous, for in less than a moment, with the consent of the mind, it is conveyed from the cerebrum to the muscles, like the electric matter. Whether the nervous fluid be carried from the organ of sense in the sensorial nerves to the cerebrum, and from thence in the motory nerves to the muscles, cannot be possitively affirmed, but may be proved. The constituent principles of this liquid are perfectly unknown, as they cannot be rendered visible by art, or proved by experiment. Upon making a ligature upon a nerve, the motion of the fluid is interrupted, which proves that something corporeal flows through it. It is therefore a weak argument to deny its existence because we cannot see it; for who has seen the matter of heat, oxygen, azot, and other elementary bodies, the existence of which no philosopher in the present day doubts? The *electric matter*, whose action on the nerves is very great, does not appear to constitute the nervous fluid; for nerves exhibit no signs of spontaneous electricity; nor can it be the *magnetic matter*, as the experiment of Gavian with the magnet demonstrates; nor is it *oxygen*, nor *hydrogen*, nor *azot;* for the first very much irritates the nerves, and the other two suspend their action. The nervous fluid, therefore, is *an element sui generis*, which exists and is produced in the nerves only; hence, like other elements, it is a thing unknown, and only to be known by its effects. The pulpous softness of some nerves, and their lax situation, does not allow them and the brain to act on the body and mind only by *oscillation*. Lastly, a tense cord, although it be tied, will oscillate. The *use* of the nervous fluid is, 1. It appears to be an intermediate substance between the body and the soul, by means of which the latter thinks, perceives, and moves the muscles subservient to the will. Hence the body acts upon the soul, and the soul upon the body. 2. It appears to differ from the *vital principle;* for parts live and are irritable which want nerves, as is the case with bones, tendons, plants, insects, &c.

NERVOUS SYSTEM. This consists of the medullary substance of the brain, cerebellum, medulla oblongata, and spinalis; and of the same substance continued into the nerves, by which it is distributed to different parts of the body. Dr. Hooper distinguishes the whole of this system into four parts, viz. 1. The medullary substance contained in the cranium and vertebral cavity; the whole of which seems to consist of distinct fibres, but without the smaller fibres being separated from each other by any evident enveloping membranes. 2. Connected with one part or other of this system, are those *nerves*, in which the same medullary substance is continued, but being more evidently divided into fibres, each of which is separated from the others by an enveloping membrane derived from the pia mater. 3. Parts of the extremities of certain nerves, in which the medullary-substance is divested of the enveloping membranes from the pia mater, and so situated as to be exposed to the action of certain external bodies, and perhaps so framed as to be affected by the action of certain bodies only: those are named the *sentient extremities* of the nerves. 4. Certain extremities of the nerves so framed as to be capable of a peculiar contractility; and, in consequence of their situation and attachments, to be, by their contractions, capable of moving most of the solid and fluid parts of the body. These are named the *moving extremities* of the nerves; or more commonly, the *moving* or *muscular fibres*. See Nerves.

NETTLE, COMMON. See Urtica.

NETTLE, DEAD. See Lamium album.

NEUROLO'GIA, (*νευϱολογια*; from *νευϱον*, *a nerve*, and *λογος*, *a discourse);* neurology, or the doctrine of the nerves.

NEURO'SES, (of the Gr. *νευϱωσις*; from *νευϱον*, *a nerve)*, nervous diseases. These constitute the second class of Cullen's nosology. It comprehends the affections of sense and motion, disturbed; without either idiopathic pyrexia, or topical disease. See Nervous Diseases.

NEUTRAL SALTS, or secondary salts. Under these names are comprehended such matters as are composed of two primitive saline substances combined together. They are called neutral, because they do not possess the characters of acid nor alkaline salts, which are primitive salts. Epsom salts, alum, nitre, &c. are neutral salts.

NICKEL, a metal, the discovery of which we owe to Cronstedt in 1751; though the substance from which he extracted it was known in the year 1694. Nickel is found in Saxony and other places; generally in the metallic state, more rarely in that of oxid. Its ores have a coppery red colour, generally covered more or less with a greenish grey efflorescence. The most abundant ore is that termed *sulphuret of nickel* or *kupfernickel*, which is a compound of nickel, arsenic, sulphuret of iron, and sometimes cobalt and copper. This ore occurs either massive, or disseminated, but never crystallized: it is of a copper colour, sometimes yellowish, white, or grey. It exists also combined with oxygen, and a little carbonic acid, in what is called *native oxid of nickel, (nickel ochre)*; it then has an earthy appearance, and is very friable: it is found coating *kupfernickel*, and seems to originate from the decomposition of this ore. It is found contaminated with iron in the mineral substance called *martial nickel;* this native combination, when fresh broken, has a lamellated texture: when exposed to the air, it soon turns black, and sometimes exhibits thin rhomboidal plates placed irregularly over each other. It is also found united to arsenic, cobalt, and alumine in the ore called *arseniate of nickel.*

Nickel, when free from heterogeneous substances, is of a pale flesh colour. When fresh broken it has a strong lustre. It has a fine grained compact texture, and can be a little flattened by hammering, similar to cast iron. It leaves a trace when rubbed upon the polished surface of a hard stone. Its specific gravity is 7.380. It requires a very intense heat for fusion. When exposed for a long time to a humid atmosphere, its surface becomes gradually covered with an oxid of a greenish hue; this takes place likewise, and more rapidly, when heated in contact with air. When fused with borax it produces a glass of a hyacinth colour. It unites with phosphorus by fusion, and forms with it a phosphuret which is very fusible, white, and in brilliant needles. With sulphur it forms by fusion a hard yellow mass, with small brilliant facets. Sulphuric acid, assisted by heat, dissolves it. Nitric acid acts on it more readily. Muriatic acid, when heated on it, likewise dissolves part of it. Boracic and phosphoric acids seem to have little or no action on nickel. It readily unites with gold, and renders that metal white and brittle. It likewise fuses with platina, silver, and bismuth. It does not alloy with mercury. It is easily oxidated by the nitrate and the super oxygenated muriate of potash. *It is not magnetic*, nor has it the smallest effect upon the magnetic needle. This has been proved by Mr. Chenevix, who has also shown that the magnetism of common nickel is owing to the iron which so obstinately adheres to it. For a portion of iron, *so small as not to be detected by the best chemical tests*, when combined with nickel, is capable of communicating magnetic properties to the whole mass as strong as if the whole were composed of steel.

To obtain nickel, the ore is first roasted, in order to free it from sulphur and arsenic; it then is changed into a greenish oxid. This oxid is mixed with two or three parts of black flux. The mixture is put into a crucible, and, being covered with decrepitated muriate of soda, it is brought to the state of fusion, by the strongest heat of a smith's forge.

When the crucible is broken, there is found at the bottom, under brown, blackish, and sometimes blue scoriæ, a button of a yellowish white colour, equal in weight to a tenth, a fifth, and even a half of the ore employed. This metal, however, is still far from being pure.

In order to purify it, the button obtained is again broken into small pieces, strongly heated, and then digested with its own weight of concentrated sulphuric acid, and distilled to dryness. The dry mass is dissolved in water and filtered. This solution, in general, deposits crystals of arsenic, and finally affords dark green crystals of sulphate of nickel. This sulphate is re-dissolved in water, and decomposed by carbonate of potash. The precipitate is dissolved in liquid ammonia; the blue solution leaves a residuum which is filtered off, and the filtered solution saturated with nitric acid. The nickel is then precipitated in the form of a greyish green powder, by carbonate of potash. From this oxid the metallic nickel is obtainable by exposing it to heat, first made into a mass with oil and a little charcoal powder.

The nickel obtained in this manner was, until lately, considered as perfectly pure. Mr. Accum says, it possesses, however, magnetic properties, and is therefore contaminated with iron.

In order to obtain this metal in a state of absolute purity, Mr. Chenevix had recourse to the following method:—"Take the native sulphuret of nickel, reduce it to powder, and roast it in contact with charcoal powder over a gentle fire. When no more fumes arise, pour then nitric acid over it, and dissolve it by heat in a Florence flask. Decant the solution, filter it through bibulous paper, and evaporate it to dryness in a glass bason. Dissolve the nitrate of nickel in a sufficient quantity of distilled water, and decompose it by the addition of the strongest liquid ammonia, taking care to add it in excess. The oxid of nickel and cobalt will thus be re-dissolved; then let the solution stand undisturbed till a precipitate again ensues. The solution must then be evaporated; it becomes blue during this process, by the precipitation of the cobalt, which should be separated, and the evaporation be then continued to dryness; the residue will be pure oxid of nickel."

In order to reduce this oxid to the metallic state, let it be made into a paste with oil, mix it with about three parts of black flux, and put it into a crucible, covering it with borax and muriate of soda, and heat the crucible violently for an hour and a half in a forge, a button will then be obtained, which is *pure nickel.*

Mr. Accum says, the ore called *kupfernickel* may be analyzed in the following manner: Let any quantity of the ore be reduced to a fine powder, digest and extract it with nitric acid, as long as this fluid will take up any of the ore. Then transfer the whole on a filter, and wash the residuum by pouring water over it repeatedly. This insoluble residue consists for the most part of sulphur; all the other substances which were contained in the ore, are held in solution by the acid. In order to separate them, dilute the solution with water, a turbidness will ensue, and a white precipitate will gradually fall to the bottom. This is the arsenic which was contained in the ore; it may be collected on a filter. A solution of potash must then be added in excess, and the precipitate boiled for a few minutes. The arsenic and sulphur, part of which remained still in the solution, will thus become completely separated. The precipitate must then be dissolved in acetous acid. On adding to this solution, liquid ammonia, in considerable excess, the iron becomes precipitated, and the cobalt and nickel are retained in the fluid. On evaporating this solution, the cobalt becomes precipitated, which must be separated, and on continuing the evaporation to dryness, the nickel which was contained in the ore is obtained.

The ore called *arseniate of nickel*, requires a treatment a little different from this. One part of the powdered ore must first be boiled with three of potash, in six parts of water, for at least an hour. The residuum must be washed, and then analyzed in the manner stated before.

No medicinal application has hitherto been made of this metal.

NICOTIA'NA, (from *Nicott*, the name of the person who first brought it into Europe), tobacco; the *Nicotiana tabacum foliis lanceolato ovatis sessilibus decurrentibus, floribus acutis* of Linnæus. Class, *Pentandria.* Order, *Monogynia.* This plant is employed medicinally. It is a well known narcotic, which acts, even in small quantity, on all persons when first applied to them. Dr. Cullen says he has known a small quantity of it, snuffed up the nose, produce giddiness, stupor, and vomiting; and when applied in different ways, in larger quantity, there are many instances of its more violent effects, and even of its proving a mortal poison. In all these instances it operates in the manner of other narcotics; but along with its narcotic qualities, it possesses also a strongly stimulant power, perhaps with respect to the whole system, but especially to the stomach and intestines: so as readily, even in no great doses, to prove both emetic and purgative.

By this combination of qualities, all the effects of tobacco may be explained; but we shall first consider its effects when employed by snuffing, smoking, and chewing; practices which have prevailed for two hundred years, and more, in Europe. Like other narcotics, the use of it may be introduced by degrees; so that its peculiar effects, even from large quantities employed, may not, or may hardly at all appear; but this does not at all contradict the account which Dr. Cullen has given of its quality with respect to persons unaccustomed to it, and even of its tendency to show its power in those much accustomed to it: for even in these last, the power of habit has its limits; since persons going but a little beyond their usual dose, have felt very violent effects from it.

The power of habit, in fact, is often unequal; so that in persons accustomed to the use of tobacco, a lesser quantity than what they had been accustomed to, will often have stronger effects than had before commonly appeared. Dr. Cullen knew a lady who had been for more than twenty years accustomed to take snuff, and that at every time of day; but she came at length to observe, that snuffing a good deal before dinner took away her appetite; and she at last found, that a single pinch, taken any time before dinner, took away almost entirely her appetite for that meal. When, however, she abstained entirely from snuff before dinner, her appetite continued as usual; and after dinner, for the rest of the day, she took snuff pretty freely without any inconvenience. This is an instance of the inequality of the power of habit in exerting its effects; but in what particular cases this may take place, is not easy to determine.

1. When tobacco in powder is first applied to the nose, it excites sneezing; but by repetition that effect entirely ceases. At first, if it be not both in small quantity and thrown off immediately by sneezing, it occasions some giddiness and confusion of head; but by repetition these effects cease. Nevertheless, when taken to excess, it produces the same giddiness as when first employed; and in several cases, these effects are not only more considerable, as they act on the sensorium, but as they appear also in other parts of the system, particularly in the stomach, occasioning a loss of appetite, and other symptoms of a weakened tone in that organ.

Indeed persons who take snuff largely, though they seem, from habit, to escape its narcotic effects; yet are in danger from occasional excesses operating in an insensible manner; and producing loss of memory, fatuity, and other symptoms of the weakened or senile state of the nervous system. Dr. Cullen has observed excess in snuff-taking to produce the symptoms of dyspepsia, and particularly pains of the stomach, which, upon accidental interruption of the practice for some days, did not occur; but again, upon a return to snuff, recurred as at first.

One invariable effect of snuffing is its exciting a considerable discharge of mucus from the nose; and there have been several instances of head-ach, tooth-ach, and ophthalmia relieved by this means: and this is to be particularly remarked, that when this discharge of mucus is considerable, the ceasing or suppression of it by *abstaining from snuff*, is apt to occasion the very disorders which it had before relieved. Another effect of snuff is, that as a part of it is carried, by the fauces, into the stomach, it then more certainly produces the dyspeptic symptoms mentioned above. These are the considerations that relate to snuff-taking; and some of them will readily apply to the other modes of using this drug.

2. *Smoking*, when first practised, evinces very strongly the narcotic, vomiting, and even purging powers of tobacco, and it is very often useful as an anodyne; but by repetition those effects cease, or only occur when the quantity smoked is beyond what habit had before admitted of; and even in persons much accustomed to it, it may be carried so far as to prove a mortal poison. From much smoking Dr. Cullen says, all the same effects may arise which have been said to arise from excess in the use of snuff. In smoking the evacuation of mucus concurs with the narcotic power, to relieve the tooth-ach; but smoking does not relieve head-ach and ophthalmia so much as snuffing often does. Sometimes smoking dries the mouth and fauces, and

occasions a demand for drink; but, as commonly, the stimulus it applies to the mucous follicles and salivary glands occasions a frequent spitting.

So far as this spitting is a waste of the proper saliva, it occasions an impediment in the business of digestion; and both by this waste, and by the narcotic power at the same time applied, the tone of the stomach is often weakened, and all the dyspeptic symptoms are produced. Though in smoking a great part of the smoke is again blown out of the mouth, still a part of it must necessarily pass into the lungs; and its narcotic power applied there, often relieves spasmodic asthma; and by its stimulant power it there also sometimes promotes expectoration, and proves useful in the catarrhal or pituitous difficulty of breathing.

Smoking has been frequently mentioned as a means of guarding men against contagion. In the case of the plague, the testimony of Dimerbroek, Dr. Cullen allows, is very strong; but Rivinus and others give us many facts which contradict this: and Chenot gives a remarkable instance of its inutility. We cannot indeed suppose that tobacco furnishes an antidote for any contagion, or that in general it has any antiseptic power, and therefore Dr. Cullen thinks it has not any special use in this case; though, very probably, this or any other narcotic, by diminishing sensibility, may render men less liable to contagion, and also do good by rendering the mind less liable to fear, which has so often the power of predisposing the body for the reception of contagion. In this way the powers of tobacco are therefore on the same footing with those of wine, brandy, and opium.

3. The third mode of using tobacco is that of *chewing* it, when it shows its narcotic qualities as strongly as in any other way of applying it; though the nauseous taste of it commonly prevents its being carried far in the first attempt. When the practice, however, is established, as it is very difficult to avoid some part of it dissolved in the saliva from going down into the stomach; so this, with the nausea excited by the taste, makes vomiting more readily occasioned by this than the other modes of applying it. They are the strong, and even disagreeable impressions repeated, that give the most durable and tenacious habits; and therefore the chewing of tobacco is apt to become one of these; and it is therefore in this way that it is ready to be carried to the greatest excess, and to show all the effects of the frequent and large use of narcotics. As it commonly produces a considerable evacuation from the mouth and fauces, so it is the most powerful in relieving a rheumatic affection of the jaws producing tooth-ach. This practice is also the occasion of the greatest waste of saliva; thus weakening digestion, and producing emaciation.

Of tobacco it has been said, that, besides its narcotic, it possesses also a *stimulant power*, particularly with respect to the alimentary canal. By this it is frequently employed as a medicine for exciting either vomiting or purging, which it does as it happens to be more immediately applied to the stomach or to the intestines. An infusion of from half a drachm to a drachm of the dried leaves, in four ounces of boiling-water affords a powerful emetic; but as this has no peculiar qualities, and its operation is commonly attended with severe sickness, it is not likely ever to come into common practice except amongst the vulgar.

It is more commonly employed as a purgative in glysters; chiefly in cases of very obstinate costiveness; and, in these, its powers have been celebrated by many authors. Dr. Cullen says it is indeed a very effectual medicine, though attended with this inconvenience, that when the dose happens to be in any excess, it occasions severe sickness at stomach, and even vomiting. In the ileus and incarcerated hernia, the *smoke* of burning tobacco has been thrown into the anus with great advantage. The smoke operates here by the same qualities as the infusion; but as the smoke passes much further into the intestines than watery injections, it is thereby applied to a larger surface, and is therefore a more powerful medicine than the infusion. In several instances, however, practitioners have been disappointed of its effects, and have been obliged to have recourse to other means.

The infusion of tobacco, when it is carried into the blood-vessels, has excited its stimulant powers in the kidneys; and it has been therefore recommended as a powerful diuretic in the dropsy. Yet from the small doses that are proper to begin with, hardly any diuretic effects are produced; and though from larger doses they have in some measure appeared, Dr. Cullen seldom found them considerable: and when, to obtain these in a greater degree, he went on increasing the dose, this plan of treatment was constantly restrained by the severe sickness at stomach, and even vomiting, which the medicine occasioned. We have therefore not yet learned the administration of this remedy so as to render it a certain or convenient medicine in any remedy of ascites.

From some experiments, Dr. Cullen is convinced, that tobacco contains a quantity of volatile parts that may be dissipated by long boiling in water; and that by such a practice its emetic, purgative, and narcotic qualities may be greatly diminished: and he thinks the preparation of tobacco in extract, as prescribed in the Wirtemberg Dispensatory, may be employed in pectoral cases with more advantage and safety than the simple infusion or decoction made by a short boiling only. Dr. Cullen found, that by long boiling, this remedy might be given in much larger doses than in the infusion; but still it retained so much of the emetic quality, as not to allow him to employ it as a diuretic without being interrupted in its use by the same emetic quality that had interrupted the use of the infusion.

Besides these internal uses of tobacco, it has likewise been commended as a topical remedy. The infusion has been employed with advantage as a lotion for some obstinate ulcers; but Dr. Cullen says, the many instances of its being absorbed, and proving thereby a violent poison, should dissuade us from such a practice; especially as there are other medicines, of quite as much efficacy, that may be employed in its stead.

Bergius recommended an infusion of tobacco to be employed as a fomentation in the paraphymosis; and perhaps it might answer a good purpose in such cases.

The only officinal preparation of this vegetable is the *Vin. nicotian. tabac.* Edin. which is a very convenient form of administering this remedy internally.

NICOTIA′NA MINOR, called also *Tabacum Anglicum*, *Priapeia*, and *Hyosciamus luteus;* English tobacco: the *Nicotiana rustica* of Linnæus. This plant is much weaker than the Virginian tobacco; and promises, from its more gentle operation, to be a safer remedy in some cases than the latter.

NICOTIA′NA RU′STICA; the systematic name of the English tobacco. See Nicotiana minor.

NICOTIA′NA TABA′CUM: the systematic name of the tobacco plant. See Nicotiana.

NIGE′LLA, (*quasi nigrella;* from *niger*, black, so named from its black seed); the Devil-in-a-bush, or fennel flower: *Nigella sativa*, Linn. This plant was formerly employed medicinally, as an expectorant and deobstruent, but is now disused.

NIGE′LLA SATI′VA; the systematic name of the Devil-in-a-bush. See Nigella.

NIGHT-MARE, *Incubus*, or *Oneirodynia gravans*, an affection in which great uneasiness is felt during sleep. Those seized with it seem to have a weight on their breasts and about their præcordia. Sometimes they imagine they see spectres of various kinds, which oppress or threaten them with suffocation. Neither does this uneasiness continue only while they are asleep; for it is some time after they awake before they can turn themselves in their beds or speak; nay sometimes, though rarely, the disease has proved mortal. The incubus seldom seizes people except when the stomach is oppressed with aliments of hard digestion, and the patient lies on his back. It is to be cured by eating light suppers, and raising the head high; or, if it become very troublesome, antispasmodic medicines are to be administered, and the body strengthened by chalybeates. The same method is to be followed by those who are subject to walking in their sleep; a practice which must necessarily be attended with the greatest danger: and *somnambulism* may justly be considered as merely a different modification of this disease. Accordingly, Dr. Cullen has distinguished the one by the title of *oneirodynia activa*, and the other by that of *oneirodynia gravans*. See Oneirodynia.

NIGHT-SHADE, AMERICAN. See Phytollaca decandria.

NIGHT-SHADE, DEADLY. See Belladonna.

NIGHT-SHADE, GARDEN. See Solanum.

NIGHT-SHADE, PALESTINE. See Solanum sanctum.

NIGHT-SHADE. WOODY. See Dulcamara.

NI′HILUM ALBUM. See Zincum calcinatum.

NI′NSI, RADIX, also called *Ninzin*, or *Nindsin;* a root long supposed to be the same as ginseng. It now appears, however, to be the produce of a different plant, namely, the *Sium ninsi, foliis serratis, pinnatis, ramis ternatis*, of Linneus. It possesses similar, though somewhat weaker, properties, than ginseng.

NI′NZIN. See Ninsi radix.

NIPPLE, the small fleshy projection from the middle of the breasts both of men and women. It is much larger, however, in the latter, and has an opening in it, communicating with the excretory ducts of the lacteal glands. Women have the nipple of different sizes at different ages, and in different constitutions and conditions. In those who are with child, or who give suck, it is pretty large, and generally longer or higher than it is thick or broad; and when it happens to be short, it causes great uneasiness to the child.

The texture of the nipple is spongy, elastic, and liable to divers changes of consistence, being sometimes harder, sometimes more flaccid. It seems to be made up chiefly of ligamentary fasciculi; the extremities of which form the basis and apex of the nipple. These fasciculi appear to be gently folded, or curled, during their whole length; and if, by drawing the fibres out, these folds be destroyed, they return again as soon as that action ceases. Between these spongy and elastic fasciculi lie from twelve to fifteen or twenty particular tubes at small distances from each other, and all in the same direction. These tubes go to the basis of the papilla, and run through the apex in the same number of almost imperceptible holes or orifices; and as they are closely united to the elastic fasciculi, they are folded in the same manner with them.

The body of the papilla is covered by a thin cutaneous production, and by the epidermis. Its outer surface is uneven, being full of small tubercles and wrinkles; among which those near the circumference of the nipple seem to have a transverse or annular disposition, which, however, is not uniform.

This disposition or direction seems to be owing to the elastic folds already mentioned: and from this simple structure it is easy to explain how infants, in sucking the nipple, and women in drawing the teats of cows, bring out the milk. For the excretory tubes being wrinkled in the same manner as the fasciculi, do, by these wrinkles or folds, as by so many valves, hinder the milk contained in the ducts from flowing out; but when the nipple is drawn and elongated, the tubes lose their folds, and the passage becomes straight. Besides this, when they are drawn with a considerable force, the whole body of the mamma is increased in length and contracted in breadth, and thereby the milk is pressed into the open tubes; and thus, by barely pressing the body of the breast, the milk may be forced toward the nipple, and even through the tubes: but those who understand the principles of the air-pump will more readily conceive the manner in which the child draws out the milk.

The nipples are exposed to the different maladies which affect other parts of a like structure, but *excoriation* or *chapping* are the most frequent of the inconveniences to which women who suckle their children are liable. They are more generally affected with *sore nipples* in suckling their first child than at any period afterwards. This may, in some measure, be owing to the smallness of the nipples; but very often it arises from their being unaccustomed to the irritation of sucking. In some cases, the nipples are so flat, and so much sunk in the breast, as to render it difficult for the child to lay hold of them. Here assistance can sometimes be given, by the mother pressing back the prominent part of the breast, so as to make the nipple project between two of her fingers. Should this be insufficient, the nipple may be made to project by applying to it a stout child several months old: but when this cannot be done, breast-glasses may answer the same purpose. By applying these to the nipple, and sucking out the air, the child will commonly be enabled to lay hold of it.

Excoriations, cracks, or chaps, though not attended with a formidable appearance, are frequently more distressing than larger sores. Astringent applications are most to be depended upon in such complaints; particularly a solution of vitriolated iron in water, of such a strength as will not act on the part as a stimulus. Sometimes port wine, brandy properly diluted, or lime-water, are of service; all of which are to be applied warm. After bathing the parts with any of these, the nipple should be covered with spermaceti ointment; but the first remedy is certainly the best. Even a little soft pomatum frequently rubbed upon the part, and covered with a soft linen rag, is sometimes found to give considerable relief. But the nipple should be perfectly cleared of these applications before the child is laid to the breast; and this may be done with a little port wine, or equal parts of brandy and vinegar. If proper attention be paid to these remedies, they will commonly be found to have the desired effect; but if the contrary should happen, another remains to be mentioned, which, in different instances, has given relief: it consists in the application of a thin skin to the nipple, as the neck and part of the body of a swine's bladder with an aperture in it; which, being properly moistened and fixed to the breast, will completely protect it in the time of sucking. Some indeed have employed a small teat taken from a cow, annexing to the thick end a hollow grating of silver, which receives the nipple. This is drawn by the mouth of the child very effectually, the teat, when not in use, being kept in proof spirit, in order to prevent its putrefying. As long as the nipples remain any way affected, small caps of glass or tin are useful for retaining the dressings, defending the nipples from the friction of the clothes, and receiving any milk which may fall from the breast.

NIPPLE-WORT. See Lampsana.

NIRLES, a name for the measles, in the Northern parts of Britain.

NI'TRAS AMMONI'ACÆ, the former *Alkali volatile nitratum*, *Sal ammoniacus nitrosus*, or *Ammonia nitrata*. The virtues of this remedy are irritating, diuretic and deobstruent. Externally, it is employed as a resolvent and sialagogue.

NI'TRAS ARGE'NTI FU'SUS. See Argentum nitratum.

NI'TRAS HYDRA'RGYRI, or *Hydrargyrum nitratum;* a substance of which there are two preparations, viz. the *crystallized* and the *acid* nitrate of quicksilver. Its caustic quality points out its irritating, emetic, diuretic, and alterative virtues. It is used in the cure of chancres and of some phagedenic ulcers. The *unguentum hydrargyri. nitrati* is prepared from it.

NI'TRAS POTASSÆ. See Nitre.

NI'TRAS POTASSÆ FUSUS, *Sal prunellæ*, or *Nitrum tabulatum*. This salt, besides the nitric acid and potash, contains a little sulphuric acid.

NI'TRAS SODÆ, *Alkali minerale nitratum*, or *Nitrum cubicum;* the nitrate of soda. Its virtues are similar to those of nitrate of potash, for which it may be substituted in any case.

NITRATES, the salts, formed by the union of *nitric* acid with different bases; as *nitrate of magnesia*, *nitrate of mercury*, &c. These salts detonate with, or inflame charcoal, and other easily inflammable bodies, at a red heat. They afford oxygen and nitrogen gases at high temperatures, and yield yellowish vapours, (nitrous acid) on the affusion of sulphuric acid, especially if heat be applied. It is upon the property of the detonation of nitrates with inflammable substances that the composition of gun-powder is founded, which consists of five parts of nitrate of potash, one of charcoal, and one of sulphur. According to Mr. Accum, *Powder of fusion*, as it is called, consists of three parts of nitrate of potash, one of sulphur, and one of fine dry saw-dust. If a small quantity of this powder be put into a walnut-shell, with a thin piece of copper coin rolled up, and the money then be covered up with the powder, it may be melted by setting fire to the mixture, which will burn vividly without injuring the shell. A mixture of one part of nitrate of potash and two of acidulous tartrite of potash, (or common flour) after being detonated, forms what is denominated *black flux*. *White flux* is produced by detonating equal parts of nitrate of potash and acidulous tartrite of potash, or flour, in a similar manner.

Nitrate of potash, soda, ammonia, barytes, or strontia may be prepared by neutralizing the carbonates of these alkalies with nitric acid, evaporating the solution, and suffering it to crystallize. Nitrate of magnesia is produced in a similar manner. Nitrate of silver is obtained by dissolving silver in nitric acid, evaporating the solution until a pellicle appears, and then setting it aside to crystallize. Nitrates of mercury, copper, nickel, lime, or cobalt may be produced in a similar manner. Nitrate of iron is obtained by dissolving iron in nitric acid. On evaporating the solution a red precipitate appears, consisting of iron, oxidated to its *maximum*.

NITRE. See Nitrum.

NI'TRUM, (of the Gr. νιτρον), *Nitras potassæ impurus;* saltpetre. This is a perfect neutral salt formed by the union of the nitrous acid with the fixed vegetable alkali.

It exists in large quantities in the earth, and is continually formed in inhabited places: it is found in great quantities upon walls which are sheltered from the rain. It is of great use in the arts: it is the principal ingredient in gun-powder; and, burned with different proportions of tartar, forms the substances called fluxes. It has a sharp, bitterish, cooling taste. It shoots in pretty large crystals, which are generally six-sided prisms, terminated by six-sided pyramids; very brittle, and permanent in the atmosphere; soluble in seven times their weight of water at 60°, and in an equal weight at 212°; melting when exposed to a strong heat, giving out at first oxygen, and afterwards nitrogen gas, until the whole acid be decomposed, and the potash alone remain behind. It deflagrates more or less violently with all oxygenizable substances, oxidizing or acidifying them. When dried in a temperature of 70°, it consists, according to Kirwan, of 44 nitric acid, 51.1 potash, and 4.2 water. It is decomposed by the sulphuric acid and baryta, by the muriate and acetite of baryta, and the sulphates of soda, ammonia, magnesia, and alumine.

Nitre has long been considered a useful medicine. If taken to the extent of from a drachm to half an ounce in the course of a day, in repeated doses, it diminishes the heat of the body, and the frequency of the pulse, it operates by stool, and acts upon the secretion of urine, but it is apt to produce pains in the stomach. In large doses, such as an ounce, taken at one time, it produces the most dreadful symptoms, constant vomiting, purging, mixed with blood, convulsions and death. Accidents of this kind have happened from its being sold by mistake for soda vitriolata. It is best given in small doses, as five to ten grains frequently repeated, and is only admissible in inflammatory diseases. Externally it is used in gargles, for inflammatory sore throats.

Its principal officinal preparations are:—*Acid. nitr.* Lond. Edin. Dubl. *Nitr. purif.* Lond. *Sulphas pot. cum sulph.* Edin. It is purified by dissolving two pounds of nitre in four pints of distilled water, straining the liquor and setting it by to crystallize. When *pure*, nitre, in solution, is not affected by the nitrates of silver or of barytes.

NITRIC ACID; a peculiar acid, obtained from nitre. This acid is liquid, colourless, and transparent, possessing in a very eminent degree all the properties of acids. It tinges the skin yellow, which does not disappear till the *epidermis* wears off. It has a strong affinity for water, and has never yet been found in nature except in combination. It produces heat when added to water. When concentrated it exhales white acrid fumes on being exposed to the air, which are nitric acid in a gazeous state. When poured on oils, charcoal, &c. it sets them on fire. It causes the sulphureous and phosphorous acids to pass to the state of sulphuric and phosphoric acids, by yielding to them part of its oxygen. It is capable of oxidating all the metals except gold, platina, titanium, and tantalite. Mr. Accum says the nitric acid cannot be produced in any considerable quantity, by the direct combination of its principles, without a great deal of labour, though it may be so formed for the sake of experiment.

The following method of obtaining this acid is made use of by chemists:—Take two parts of dry nitrate of potash in coarse powder, put it into a tubulated glass retort, of which it occupies no more than one-third, or one-fourth, and to which a large receiver has been luted containing a little water; then pour on it, in small quantities at a time, one part of concentrated sulphuric acid. As soon as the last quantity of the acid is introduced into the retort apply a very gentle heat, and distil slowly till no more drops issue from the neck of the retort. The acid collected in the receiver is fuming and of a reddish or yellow colour: on being brought in contact with atmospheric air, it sends forth reddish-yellow fumes, which likewise always fill the empty space of the receiver or bottle. In order to deprive it of these fumes, the acid must be re-distilled, or at least heated for some time in a glass retort, with a very gentle heat; the fuming part will rise first, and the remainder will be deprived of all colour and fuming property.

The property of emiting reddish-yellow fumes does not belong to the pure nitric acid, for this is one of the characteristics of another kind of acid, called ni*trous* acid, which we shall presently consider. The fumes which are evolved are nitrous gas, originating from a partial decomposition of a certain part of the acid during its disengagement from the nitrate of potash; hence it is soiled with nitrous gas. On exposing the acid to heat, or re-distilling it, this nitrous gas becomes disengaged, and pale nitric acid is obtained. The combinations of nitric acid with different bases, are called nitrates. See NITRATES.

NITRITES; salts formed by the combination of the *nitrous* acid with different bases; thus, we have the *nitrite of zinc*, *nitrite of silver*, &c.

NITROGEN GAS. See AZOT.

NITROUS ACID, an acid differing from the *nitric* acid, in as much as it holds in solution, or is loosely combined with, a greater or less quantity of nitrous gas, which renders it more or less coloured and fuming, according to the quantity. Nitrous acid exists in the state of gas, in the form of a red vapour, slightly coercible. When combined with water it is of a yellow or orange colour. It emits copious orange-coloured, or red fumes. It is more decomposable than nitric acid and inflames combustible bodies more readily. It has a strong attraction for water, and their combination is attended with an increase of temperature. Different portions of water convert its colour to a deep blue, green, yellow, &c. while the vapours still continue of their original yellowish-red colour.

The common mode of obtaining nitrous acid is to decompose nitrate of potash by means of sulphuric acid, with the assistance of heat. The nitric acid, as has been stated already, suffers a partial decomposition during the process, and hence it is the nitrous acid which is obtained in the first process of distillation.

It seems to be true that nitrous acid of a much darker orange-red colour is obtained by decomposing nitrate of potash by means of sulphate of iron, than when the same salt is decomposed by sulphuric acid. The following is the process made use of by the manufacturers.

Take a quantity of sulphate of iron, deprived of its water of crystallization by heat, and mix it with an equal weight of dry nitrate of potash; put the mixture into a glass retort, to which a very spacious receiver has been luted, containing a little water, and begin the distillation with a very slow fire. As soon as the red vapours cease to come over, let the fire be slackened, and when the vessels are cooled, the receiver may be cautiously withdrawn, and its contents quickly transferred, through a glass funnel, into a bottle, furnished with a ground stopper.

The salts which, according to the principles of the new nomenclature, are called *nitrites*, cannot be formed by a direct combination. See Nitrites. For the *nitric* acid only enters into combination with the body to which it is presented, and the *nitrous* gas becomes disengaged. They may however be obtained by partially decomposing nitrate of potash, or other nitrates, by a moderate heat. These salts however, are more properly to be considered as compounds of nitric acid and the substances with which it is united, to which a portion of nitrous gas slightly adheres; and this gas can be expelled by the addition of any weak acid. Mr. Accum says, they have been very little examined.

NOCTAMBULATION; walking in the night asleep. See Oneirodynia and Night-mare.

NOCTURNAL POLLUTION, or onanism. See Onanism.

NODDING CNICUS; a popular name for the *Cnicus cernuus* of Linnæus. In Siberia the tender stalks of this plant are first peeled, and then boiled, and eaten by the inhabitants.

NODE, a tumor arising on a bone, commonly proceeding from a thickened state of the periosteum. It is one of the symptoms of syphilis. See Lues venerea.

NO'DULUS, or *Nodus*, a knot tied on a rag, including some medicinal ingredient, with which the liquor this *nodulus* is suspended in, is intended to be impregnated. It is also a bag in which the ingredients are included, in order to be suspended in a diet-drink or medicated wine. *Nodus*, is a term sometimes used in the same sense as *Ganglion*.

NOLI-ME-TA'NGERE, touch-me-not, a species of ulcer, of the tetterous kind, thus called from its soreness and difficulty to be healed. It is also a kind of wart on the face, which appears blackish, in which case it presently spreads. It is thus called because it is exasperated by most of the applications employed in the cure.

NO'ME, (from the Gr. νομη, *to eat*); ulcers that sometimes attack the cheek or vulva of young girls. These appear in the form of red and somewhat livid spots; are not attended with pyrexia, pain, or tumor, and in a few days become gangrenous. These ulcers are usually considered as phagedænic. They are accurately described by Celsus.

NONIUS, (Lewis), a learned physician of Antwerp, in the 17th century, wrote several works which are esteemed. The principal of these are, 1. An excellent treatise entiled *Ichthyophagia sive de Piscium esu.* 2. *Hispania;* a work of great use in understanding the ancient geography of Spain. 3. A commentary on the medals of Grece, and those of Julius Cæsar, Augustus, and Tiberius, in folio. It contains Goltzius's two works on the same subject. 4. A commentary on Goltzius's account of Greece, the islands, &c.

NON-NATURALS; a term under which physicians comprehend air, meat and drink, sleep and watching, motion and rest, retention and excretion, and the affections of the mind.

NOPAL, *Raquette*, or *Indian fig;* plants so named by the Indians, from which the cochineal is collected in Mexico. These plants bear fruits which resemble our figs; tinge the urine of those who eat them; and probably communicate to the cochineal the property which makes it useful to the dyer. The Indians of Mexico cultivate the nopal near their habitations, and sow, as it were, the insect which affords the cochineal. They make small nests of moss or fine herbs; put twelve or fourteen cochineals into each nest; place three or four of these nests on each leaf of the nopal; and fasten them there by the prickles of the plant. In the course of a few days, thousands of small insects issue out, and fix themselves upon the parts of the leaf which are best sheltered and afford the most nourishment. The cochineals are collected several times in the course of the year; and are deprived of life by scalding them, or by putting them into an oven. See Cochineal.

NORLA'NDICÆ BACCÆ; the fruit of the *Rubus arcticus* of Linnæus. This illustrious philosopher found these very grateful and refreshing in his tour through the northern part of Sweden. In putrid fevers, exanthematous diseases, and scurvy, like other summer-fruits, they are very serviceable.

NOSE, (*Nasus*, Lat.). See Nares.

NOSOLO'GIA, (νοσολογια; from νοσος, *a disease*, and λογος, *a discourse*), nosology, or the doctrine of the names of diseases. Modern physicians understand by nosology the arrangement of diseases in classes, genera, species, &c. The following is the highly approved, though certainly not unimpeachable arrangement of Dr. Cullen; which, as having been generally adopted in this country, shall be exclusively the object of our attention in the present article. Next to it, the arrangements of Sauvages, Sagar, Vogel, and Linnæus, certainly merit examination, but for these we refer to their works; contenting ourselves with the mere enumeration of their classes.

The classes of Sauvages are:—1. *Vitia.* 2. *Febres.* 3. *Phlegmasiæ.* 4. *Spasmi.* 5. *Anhelationes.* 6. *Debilitates.* 7. *Dolores.* 8. *Vesaniæ.* 9. *Fluxus.* 10. *Cachexiæ.*

The classes of Linnæus are:—1. *Exanthematici.* 2. *Critici.* 3. *Phlogistici.* 4. *Dolorosi.* 5. *Mentales.* 6. *Quietales.* 7. *Motorii.* 8. *Suppressorii.* 9. *Evacuatorii.* 10. *Deformes.* 11. *Vitia.*

The classes of Vogel are:— 1. *Febres.* 2. *Profluvia.* 3. *Epischeses.* 4. *Dolores.* 5. *Spasmi.* 6. *Adynamiæ.* 7. *Hyperæstheses.* 8. *Cachexiæ.* 9. *Paranoiæ.* 10. *Vitia.* 11. *Deformitates.*

The classes of Sagar are:—1. *Vitia.* 2. *Plagæ.* 3. *Cachexiæ.* 4. *Dolores.* 5. *Fluxus.* 6. *Suppressiones.* 7. *Spasmi.* 8. *Anhelationes.* 9. *Debilitates.* 10. *Exanthemata.* 11. *Phlegmasiæ.* 12. *Febres.* 13. *Vesaniæ.*

Dr. Macbride, who has also formed an Arrangement of Diseases, distinguishes four Classes, viz. 1. *Universal diseases.* 2. *Local.* 3. *Sexual.* 4. *Infantile.* But the imperfections chargeable on the arrangements of his predecessors are not less conspicuous in his.

Dr. Cullen's *Arrangement.*

CLASS I. Pyrexiæ. A frequent pulse coming on after an horror; considerable heat; many of the functions injured; the strength of the limbs especially diminished.

Order I. Febres. Pyrexia without any primary local affection, following languor, lassitude, and other symptoms of debility.

Sect. I. *Intermittentes.* Fevers arising from the miasma of marshes; with an apyrexia, or, at least, a very evident remission; but the disease returns constantly, and, for the most part, with a horror or trembling. There is only one paroxysm in a day.

Genus I. Tertiana. Similar paroxysms at an interval of about forty-eight hours, coming on most commonly at mid-day. A tertian hath either;

I. An apyrexia interposed;

1. Varying the duration of the paroxysms.

A. The tertian whose paroxysms are not extended beyond twelve hours.

B. The tertian with paroxysms extended beyond twelve hours.

2. Varying in the return of the paroxysms.

C. The tertian returning every day with unequal paroxysms alternately, similar to one another.

D. The tertian returning every third day, with two paroxysms on the same day.

E. The tertian returning every day, with two paroxysms on every third day, and only one on the intermediate ones.

F. The tertian returning every day, with a notable remission interposed between the odd and the even days, but a less remarkable one between the even and the odd one.

3. Varying in its symptoms.

G. The tertian accompanied with a disposition to sleep.

H. Accompanied with spasms and convulsive motions.

I. Accompanied with an efflorescence on the skin.

K. With phlegmasia.

4. Varying in being complicated with other diseases.

5. Varying as to its origin.

II. With the interposition only of a remission between the paroxysms.

Genus II. Quartana. Similar paroxysms, with an interval of about seventy-two hours, coming on in the afternoon.

I. With the interposition of an apyrexia.

1. Varying in the type.

A. The quartan with single paroxysms, returning every fourth day, none on the other days.

B. With two paroxysms every fourth day, and none on the other days.

C. With three paroxysms every fourth day, and none on the intermediate days.

D. Of the four days having only the third free from fever, with similar paroxysms every fourth day.

E. The quartan coming on every day, with similar paroxysms every fourth day.

2. Varying in its symptoms.

3. Varying in being complicated with other diseases.

II. With a remission only between the paroxysms.

Genus III. Quotidiana. Similar paroxysms, with an interval of about twenty-four hours, coming on in the morning.

I. With the interposition of an apyrexia.

1. Varies in being solitary.

A. Universal.

B. Partial.

2. Complicated with other diseases.

II. With a remission only between the paroxysms.

Sect. II. *Continuæ.* Fevers without any intermission, and not occasioned by marsh miasmata; attended with exacerbations and remissions, though not very remarkable.

Genus IV. Synocha. Great heat; a frequent, strong, and hard pulse; high-coloured urine; the functions of the sensorium a little disturbed.

Genus V. Typhus. A contagious disease; the heat not greatly above the natural; the pulse small, weak, and for the most part frequent; the urine little changed; the functions of the sensorium very much disturbed, and the strength greatly diminished.

The species are,

I. Typhus (*petechialis.*) Typhus for the most part with petechiæ.

Varying in degree. 1. Mild Typhus. 2. Malignant Typhus.

II. Typhus (*icterodes.*) Typhus with a yellowness of the skin.

Genus VI. Synochus. A contagious disease. A fever composed of a synocha and typhus; in the beginning a synocha, but towards the end a typhus.

Order II. Phlegmasiæ. A synocha fever, with inflammation or topical pain, the internal function of the part being at the same time injured; the blood covered with size.

Genus VII. Phlogosis. Pyrexia; redness, heat, and painful tension, of some external part.

The species are,

I. Phlogosis *(phlegmone)* of a vivid red colour; a swelling well defined, for the most part elevated to a point, and frequently degenerating into an abscess, with a beating or throbbing pain.

The variations are, 1. In the form. 2. In the situation.

II. Phlogosis *(erythema)* of a reddish colour, vanishing by pressure; of an unequal and creeping circumference, with scarce any swelling; ending in the scaling off of the cuticle, in phlyctenæ, or blisters.

The variations are, 1. In the degree of violence. 2. In the remote cause. 3. In being complicated with other diseases.

The consequences of a phlogosis are, an imposthume, gangrene, sphacelus.

Genus VIII. Ophthalmia. A redness and pain of the eye, with an inability to bear the light; for the most part with an effusion of tears.

The species and varieties of the ophthalmia, are,

I. Idiopathic.

1. Ophthalmia *(membranarum)* in the tunica adnata, and the membranes lying under it, or the coats of the eye.

A. Varying in the degree of the external inflammation.

B. In the internal coats affected.

2. Ophthalmia *(tarsi)* of the eye-lids, with swelling, erosion, and glutinous exsudation.

II. Symptomatic.

1. From a disease of the eye itself.

2. From diseases of other parts, or of the whole body.

Genus IX. Phrenitis. Violent pyrexia; pain of the head; redness of the face and eyes; inability to endure the light or any noise; watchfulness; a fierce delirium, or typhomania.

I. Idiopathic.

II. Symptomatic.

Genus X. Cynanche. Pyrexia sometimes inclining to a typhus; difficulty of swallowing and breathing; with a sensation of narrowness in the fauces.

The species are,

I. Cynanche *(tonsillaris)* affecting the mucous membrane of the fauces, but especially the tonsils, with redness and swelling, accompanied with a synocha.

II. Cynanche *(maligna)* affecting the tonsils and mucous membrane of the fauces with swelling, redness, and mucous crusts of a whitish or ash-colour, creeping, and covering ulcers; with a typhous fever and exanthemata.

III. Cynanche *(trachealis)* attended with difficult respiration, noisy and hoarse inspiration, loud cough, without any apparent tumor in the fauces, somewhat difficult deglutition, and a synocha.

IV. Cynanche *(pharingæa)* attended with redness in the bottom of the fauces, very difficult and painful deglutition, respiration sufficiently free, and a synocha.

V. Cynanche *(parotidæa)* with great swelling of the parotids and maxillary glands appearing on the outside: the respiration and deglutition but little injured; a synocha, for the most part mild.

Diseases of this genus are symptomatic, either from external or internal causes.

Genus XI. Pneumonia. Pyrexia, with a pain in some part of the thorax, difficult respiration, and cough. The species are,

I. Peripneumony, with a pulse not always hard, but sometimes soft; an obtuse pain of the breast; the respiration always difficult; sometimes the patient cannot breathe unless in an upright posture; the face swelled, and of a livid colour; the cough for the most part moist, frequently bloody.

1. Simple idiopathic peripneumonies.

Varying in degree.

2. Idiopathic peripneumonies complicated with fever.

3. Symptomatic peripneumonies.

II. Pleurisy, with a hard pulse; for the most part attended with a pungent pain of one side, augmented chiefly during the time of inspiration; an uneasiness when lying on the side; a most painful cough, dry in the beginning of the disease, afterwards moist, and frequently bloody.

1. Simple idiopathic pleurisies.

2. Pleurisies, complicated (1.) With fever. (2.) With catarrh.

3. Symptomatic pleurisies.

4. False pleurisies.

The consequences of pleurisy are a vomica or empyema.

Genus XIII. Carditis. Pyrexia; pain about the heart; difficulty of breathing; cough; unequal pulse; palpitation of the heart, and fainting.

I. Idiopathic.

II. Symptomatic.

Genus XIV. Peritonitis. Pyrexia; pain of the belly, exasperated by an upright posture, without the proper signs of other abdominal phlegmasiæ. If the diagnostics of the following diseases are given, they may be reckoned as so many species of this genus.

I. Peritonitis *(propria)* situated in the peritonæum, properly so called, surrounding the inside of the abdomen.

II. Peritonitis *(omentalis)* in the peritonæum extended through the omentum.

III. Peritonitis *(mesenterica)* in the peritonæum spread through the mesentery.

Genus XV. Gastritis. Pyrexia inclining to a typhus; anxiety, pain, and heat of the epigastrium, augmented when any thing is taken into the stomach; an inclination to vomit, and an immediate rejection of every thing swallowed; an hiccough.

I. Idiopathic.

1. From internal causes.

A. Gastritis *(phlegmonodæa)* attended with acute pain and violent pyrexia.

2. From external causes.

B. Gastritis *(erysipelatosa)* with a less violent fever and pain; an erysipelatous redness appearing on the fauces.

II. Symptomatic.

Genus XVI. Enteritis. Pyrexia of a typhous nature; pungent pain of the belly, stretching and twisting round the navel; vomiting; the belly obstinately bound.

I. Idiopathic.

1. Enteritis *(phlegmonodæa)* with acute pain, violent fever, vomiting, and constipation of the belly.

2. Enteritis *(erysipelatosa)* with less acute fever and pain, without vomiting; but accompanied with a diarrhœa.

II. Symptomatic.

Genus XVII. Hepatitis. Pyrexia; tension and pain of the right hypochondrium; sometimes pungent like that of a pleurisy, but more frequently obtuse; a pain reaching to the clavicle and top of the right shoulder: a difficulty of lying on the left side; dyspnœa; dry cough, vomiting, and hiccough.

Genus XVIII. Splenitis. Pyrexia; tension, heat, and swelling of the left hypochondrium, the pain increasing by pressure; without the signs of nephritis.

Genus XIX. Nephritis. Pyrexia; pain in the region of the kidney, often following the course of the ureter; frequent making of water, either thin and colourless, or very red; vomiting; stupor of the thigh;

with a retraction or pain of the testicle of the same side. The species are,

I. Idiopathic. Spontaneous.

II. Symptomatic.

Genus XX. Cystitis. Pyrexia; pain and swelling of the hypogastrium; frequent and painful making of water, or ischuria; and tenesmus. The species are,

I. Those arising from internal causes.

II. Those from external causes.

Genus XXI. Hysteritis. Pyrexia; heat, tension, swelling, and pain of the hypogastrium; the os uteri painful when touched; vomiting.

Genus XXII. Rheumatismus. A disease arising from an external and frequently very evident cause; pyrexia; pain about the joints, frequently pursuing the course of the muscles; infesting the knees and other large joints rather than those of the feet or hands; increased by external heat.

The species are either idiopathic or symptomatic. The former varies in situation.

A. In the muscles of the loins.

B. In the muscles of the coxendix.

C. In the muscles of the breast.

Genus XXIII. Odontalgia; a rheumatism of the jaws from a caries of the teeth.

Genus XXIV. Podagra. An hereditary disease, arising without any evident external cause, but for the most part preceded by an unusual affection of the stomach; pyrexia; pain of a joint for the most part of the great toe of the foot, at least infesting chiefly the wrists and ankles; returning by intervals; and often alternated with affections of the stomach and other internal parts.

I. Podagra *(regularis)* with a pretty violent inflammation of the joints remaining for some days, and by degrees going off with swelling, itching, and desquamation of the affected part.

II. Podagra (*atonica*) with an atony of the stomach, or some other internal part; and either without the usual inflammation of the joints, or only with slight and wandering pains; and frequently alternated with dyspepsia, or other symptoms of atony.

III. Podagra *(retrograda)* with the inflammation of the joints suddenly receding, and an atony of the stomach and other parts immediately following.

IV. Podagra *(aberrans)* with the inflammation of an internal part either preceding or not, and suddenly receding; with an inflammation of the joints.

Genus XXV. Arthropuosis. Deep, obtuse, and long-continued pains of the joints or muscular parts, frequently following contusions; with either no swelling, or a moderate and diffused one; no phlogosis; pyrexia, at first gentle, afterwards hectic, and, at length, an impostume.

Order III. Exanthemata. Contagious diseases; affecting a person only once in their life; beginning with fever; after a certain time appear phlogoses, for the most part small and in considerable number, and dispersed over the skin.

Genus XXVI. Erysipelas. A synocha of two or three days, for the most part attended with drowsiness, often with a delirium. In some part of the skin, most frequently the face, appears a phlogosis *erythema.* (G. VII. Sp. 2.) The species are,

I. Erysipelas *(vesiculosum)* with erythema, redness creeping, occupying a large space, and in some parts ending in large blisters.

II. Erysipelas *(phlyctenodes)* with an erythema formed of a number of papulæ, chiefly occupying the trunk of the body, ending in phlyctenæ or small blisters.

The disease is also symptomatic.

Genus XXVII. Pestis. An exceedingly contagious typhus, with the highest debility. On an uncertain day of the disease buboes and carbuncles break forth. It is various in degree, but the species are uncertain.

Genus XXVIII. Variola. A contagious synocha, with vomiting, and pain on pressing the epigastrium. On the third day begins, and on the fifth is finished, the eruption of inflammatory pustules, which suppurate in the space of eight days, and at last go off in crusts; frequently leaving depressed cicatrices or pock-pits in the skin. The species are,

I. Variola *(discreta)* with few, distinct, turgid pustules, having circular bases; the fever ceasing immediately after the eruption.

II. Variola *(confluens)* with numerous, confluent, irregularly-shaped pustules, flaccid, and little elevated; the fever remaining after the eruption.

Genus XXIX. Varicella. Synocha; papulæ breaking out after a short fever, similar to those of the small pox, but hardly ever coming to suppuration; after a few days going off in small scales, but never leaving any mark.

Genus XXX. Rubeola. A contagious synocha, with sneezing, epiphora, and dry hoarse cough. On the fourth day, or a little later, break forth small, clustered, and scarce elevated papulæ; after three days going off in very small branny scales.

I. Rubeola *(vulgaris)* with very small confluent, corymbose papulæ, scarce rising above the skin.

Varying.

1. In the symptoms being more severe, and the course of the disease less regular.
2. In being accompanied with a quinsey.
3. With a putrid diathesis.

II. Rubeola *(variolodes)* with distinct papulæ, raised above the skin.

Genus XXXI. Miliaria. Synochus with anxiety, frequent sighing, fœtid sweat, and points on the skin. On an uncertain day of the disease, break out red, small, distinct papulæ, spread over the whole body, as well as the face; the apices of which, after one or two days, become very small white pustules, remaining for a short time.

Genus XXXII. Scarlatina. A contagious synocha. On the fourth day of the disease the face swells a little; at the same time an universal redness occupies the skin in large spots, at length running together; after three days going off in branny scales; frequently succeeded by an anasarca. The species are,

I. Scarlatina *(simplex)* not accompanied with cynanche.

II. Scarlatina *(cynanchia)* with an ulcerous cynanche.

Genus XXXIII. Urticaria. An amphemerina fever. On the second day of the disease, red spots resembling the stinging of nettles, almost vanishing during the day, but returning in the evening with fever, and after a few days going off altogether in very small scales.

Genus XXXIV. Pemphigus. A contagious typhus. On the first, second, or third day of the disease, blisters break out in several parts of the body, of the bigness of a bean, remaining for many days, and, at last, pouring out a thin ichor.

Genus XXXV. Aphtha. Synochus; the tongue somewhat swelled, and of a livid colour, as well as the fauces; eschars first appearing in the fauces, but, at length, occupying the whole internal part of the mouth, of a white colour, sometimes distinct, often running together; quickly growing again when taken off; and remaining for an uncertain time.

The species are, 1. Idiopathic. 2. Symptomatic.

Order IV. Hæmorrhagiæ. Pyrexia, with a profusion of blood, without any external violence: the blood drawn from a vein hath the same appearance as in phlegmasiæ.

Genus XXXVI. Epistaxis. Pain or weight of the head, redness of the face; a profusion of blood from the nose.

I. Idiopathic.

Varying according to the time of life.

1. Epistaxis of young people, with symptoms of an arterious plethora.

2. Epistaxis of old people, with symptoms of a venous plethora.

II. Symptomatic.

1. From internal causes.

2. From external causes.

Genus XXXVII. Hæmoptysis. Redness of the cheeks; a sensation of uneasiness, or pain, and sometimes of heat in the breast; difficulty of breathing; tickling of the fauces; either a severe or less violent cough, bringing up florid and frequently frothy blood.

The idiopathic species are,

1. Hæmoptysis *(plethorica)* without any external violence, and without being preceded by any cough, or suppression of any customary evacuation.

2. Hæmoptysis *(violenta)* from external violence applied.

3. Hæmoptysis *(phthisica)* after a long continued cough, with a leanness and debility.

4. Hæmoptysis *(calculosa)* in which some calculous molecules, for the most part of a calcareous nature, are thrown up.

5. Hæmoptysis *(vicaria)* after the suppression of a customary evacuation.

Besides these, there are a number of symptomatic species mentioned by different authors. The consequence of an hæmoptysis is, a

Phthisis. A wasting and debility of the body, with a cough, hectic fever, and, for the most part, a purulent expectoration. The species are,

I. An incipient phthisis, without any expectoration of pus.

II. A confirmed phthisis, with an expectoration of pus.

Both species vary. 1. As to their remote cause. 2. As to the origin of the purulent matter.

Genus XXXVIII. Hæmorrhois. Weight and pain of the head; vertigo; pain of the loins; pain of the anus; livid painful tubercles, from which, for the most part, blood flows out; which sometimes also drops out of the anus, without any apparent tumor. The species are,

1. Hæmorrhois *(externa)* from mariscæ.

Varying.

A. Bloody.

B. Mucous.

2. Hœmorrhois *(procidens)* external from a *procidentia ani.*

3. Hæmorrhois *(fluens)* internal, without any swelling, or *procidentia ani.*

4. Hæmorrhois *(cæca)* with pain and swelling of the anus, without any profusion of blood.

Genus XXXIX. Menorrhagia. Pains of the back, belly, and loins, like those of child-birth; an unusually copious flux of the menses or blood from the vagina. The species are,

1. Menorrhagia *(rubra)* bloody in women neither with child nor in child-birth.

2. Menorrhagia (*abortus*) bloody in women with child.

3. Menorrhagia (*lochialis*) bloody in women after delivery.

4. Menorrhagia (*vitiorum*) bloody from some local disease.

5. Menorrhagia (*alba*), serous, without any local disease, in women not with child.

6. Menorrhagia (*Nabothi*) serous in women with child.

Order V. Profluvia. Pyrexia, with an increased secretion, naturally not bloody.

Genus XL. Catarrhus. Pyrexia frequently contagious; an increased excretion of mucus, at least efforts to excrete it.

The species are for the most part symptomatic.

1. From cold.

2. From contagion.

Genus XLI. Dysenteria. Contagious pyrexia; frequent mucous or bloody stools, while the alvine fæces are, for the most part, retained; gripes; tenesmus.

Varying:

1. Accompanied with worms.

2. With the excretion of small fleshy or sebaceous bodies.

3. With an intermittent fever.

4. Without blood.

5. With miliary fever.

CLASS II. Neuroses. An injury of the sense and motion, without an idiopathic pyrexia or any local affection.

ORDER I. Comata. A diminution of voluntary motion, with sleep, or a deprivation of the senses.

Genus XLII. Apoplexia. Almost all voluntary motion diminished, with sleep more or less profound; the motion of the heart and arteries remaining.

The idiopathic species are,

1. Apoplexia (*sanguinea*) with symptoms of universal plethora, especially of the head.

2. Apoplexia (*serosa*) with a leucophlegmatia over the whole body, especially in old people.

3. Apoplexia (*hydrocephalica*) coming on by degrees; affecting infants, or those below the age of puberty, first with lassitude, a slight fever, and pain of the head; then with slowness of the pulse, dilatation of the pupil of the eye, and drowsiness.

4. Apoplexia (*atrabiliaria*) taking place in those of a melancholic constitution.

5. Apoplexia (*traumatica*) from some external injury mechanically applied to the head.

6. Apoplexia (*venenata*) from powerful sedatives taken internally, or applied externally.

7. Apoplexia (*mentalis*) from a passion of the mind.

8. Apoplexia (*cataleptica*), the muscles remaining contractile, by external motion of the limbs.

9. Apoplexia (*suffocata*) from some external suffocating power.

The apoplexia is frequently symptomatic,

1. Of an intermitting fever. 2. Continued fever. 3. Phlegmasia. 4. Exanthema. 5. Hysteria. 6. Epilepsy. 7. Podagra. 8. Worms. 9. Ischura. 10. Scurvy.

Genus XLIII. Paralysis. Only some of the voluntary motions diminished, frequently with sleep.

The idiopathic species are,

1. Paralysis (*partialis*) of some particular muscles only.

2. Paralysis (*hemiplegica*) of one side of the body.

Varying according to the constitution of the body.

a. Hemiplegia in a plethoric habit.

b. In a leucophlegmatic habit.

3. Paralysis (*paraplegica*) of one half of the body taken transversely.

4. Paralysis (*venenata*) from sedative powers applied either internally or externally.

A symptom either of an Asthenia or Palsy is,

Tremor; an alternate motion of a limb by frequent strokes and intervals.

The species are, 1. Asthenic. 2. Paralytic. 3. Convulsive.

ORDER II. Adynamiæ. A diminution of the involuntary motions, whether vital or natural.

Genus XLIV. Syncope; a diminution, or even a total stoppage of the motion of the heart for a while.

I. Idiopathic.

1. Syncope (*cardiaca*) returning frequently without any manifest cause, with violent palpitations of the heart during the intervals.—From a fault of the heart or neighbouring vessels.

2. Syncope (*occasionalis*) arising from some evident cause.—From an affection of the whole system.

II. Symptomatic; or symptoms of diseases either of the whole system, or of other parts besides the heart.

Genus XLV. Dyspepsia. Anorexia, nausea, vomiting, inflation, belching, rumination, cardialgia, gastrodynia, more or fewer of those symptoms at least concurring; for the most part with a constipation of the belly, and without any other disease either of the stomach itself or of other parts.

I. Idiopathic.

II. Symptomatic.

1. From a disease of the stomach itself.

2. From a disease of other parts, or of the whole body.

Genus XLVI. Hypochondriasis. Dyspepsia, with languor, sadness, and fear, without any adequate causes, in a melancholy temperament.

Genus XLVII. Chlorosis. Dyspepsia, or a desire of something not used as food; a pale or discoloured complexion; the veins not well filled; a soft tumor of the whole body; asthenia; palpitation; suppression of the menses.

ORDER III. Spasmi. Irregular motions of the muscles or muscular fibres.

Sect. I. *In the animal functions.*

Genus XLVIII. Tetanus. A spastic rigidity of almost the whole body.

Varying according to the remote cause, as it arises either from something internal, from cold, or from a wound. It varies likewise from whatever cause it may arise, according to the part of the body affected.

Genus XLIX. Trismus. A spastic rigidity of the lower jaw.—The species are,

1. Trismus (*nascentium*) seizing infants under two months old.

2. Trismus (*traumaticus*) seizing people of all ages, either from a wound or cold.

Genus L. Convulsio. An irregular clonic contraction of the muscles, without sleep.

I. Idiopathic.

II. Symptomatic.

Genus LI. Chorea, attacking those who have not yet arrived at puberty, most commonly within the tenth or fourteenth year, with convulsive motions, for the most part of one side, in attempting the voluntary motion of the hands and arms, resembling the gesticulations of mountebanks; in walking, rather dragging one of their feet after them than lifting it.

Genus LII. Raphania. A spastic contraction of the joints, with a convulsive agitation, and most violent periodical pain.

Genus LIII. Epilepsia. A convulsion of the muscles, with sleep.

The idiopathic species are,

1. Epilepsia (*cerebralis*) suddenly attacking without any manifest cause, without any sense of uneasiness preceding, excepting, perhaps, a slight vertigo or scotomia.

2. Epilepsia (*sympathica*) without any manifest cause, but preceded by the sensation of a kind of air rising from a certain part of the body towards the head.

3. Epilepsia (*occasionalis*) arising from a manifest irritation, and ceasing on the removal of that irritation.

Varying according to the difference of the irritating matter. And thus it may arise,

From injuries of the head; pain; worms; poison; from the repulsion of the itch; or an effusion of any other acrid humour; from crudities in the stomach; from passions of the mind; from an immoderate hemorrhagy; or from debility.

Sect. II. *In the vital functions.*

In the action of the heart.

Genus LIV. Palpitatio. A violent and irregular motion of the heart.

In the action of the lungs.

Genus LV. Asthma. A difficulty of breathing returning by intervals, with a sense of straitness in the breast, and a noisy respiration with hissing. In the beginning of the paroxysm there is either no cough at all, or coughing is difficult; but towards the end the cough becomes free, frequently with a copious spitting of mucus. The idiopathic species are,

1. Asthma (*spontaneum*) without any manifest cause or other concomitant disease.

2. Asthma (*exanthematicum*) from the repulsion of the itch or other acrid effusion.

3. Asthma (*plethoricum*) from the suppression of some customary sanguineous evacuation, or from a spontaneous plethora.

Genus LVI. Dyspnœa. A continual difficulty of breathing, without any sense of straitness, but rather of fulness and infarction in the breast; a frequent cough throughout the whole course of the disease.

The idiopathic species are,

1. Dyspnœa (*catarrhalis*) with a frequent cough, bringing up plenty of viscid mucus.

2. Dyspnœa (*sicca*) with a cough, for the most part dry.

3. Dyspnœa (*aërea*) increased by the least change of weather.

4. Dyspnœa (*terrea*) bringing up with the cough an earthy calculous matter.

5. Dyspnœa (*aquosa*) with scanty urine and œdematous feet; without any fluctuation in the breast, or other signs of an hydrothorax.

6. Dyspnœa (*pinguedinosa*) in very fat people.

7. Dyspnœa (*thoracica*) from an injury done to the parts surrounding the thorax, or from some bad conformation of them.

8. Dyspnœa (*extrinseca*) from evident external causes.

The symptomatic species of dyspnœa are, symptoms

1. Of diseases of the heart or large vessels.
2. Of a swelling in the abdomen.
3. Of various diseases.

Genus LVII. Pertussis. A contagious disease; convulsive strangulating cough reiterated with noisy inspiration; frequent vomiting.

Sect. III. *In the natural functions.*

Genus LVIII. Pyrosis. A burning pain in the epigastrium, with plenty of aqueous humour, for the most part insipid, but sometimes acrid, belched up.

Genus LIX. Colica. Pain of the belly, especially twisting round the navel; vomiting; a constipation.

The idiopathic species are,

1. Colica (*spasmodica*) with retraction of the navel, and spasms of the abdominal muscles.

Varying, by reason of some symptoms superadded. Hence,

a, Colica, with vomiting of excrements, or of matters injected by the anus.

b, Colica, with inflammation supervening.

2. Colica (*pictonum*) preceded by a sense of weight or uneasiness in the belly, especially about the navel; then comes on the colic pain, at first slight and interrupted, chiefly augmented after meals; at length more severe and almost continual, with pains of the arms and back, at last ending in a palsy.

Varying according to the nature of the remote cause; and hence,

a, From metallic poison.
b, From acids taken inwardly.
c, From cold.
d, From a contusion of the back.

3. Colica (*stercorea*) in people subject to costiveness.

4. Colica (*accidentalis*) from acrid matter taken inwardly.

5. Colica (*meconialis*) in new-born children, from a retention of the meconium.

6. Colica (*callosa*) with a sensation of stricture in some part of the intestines, and frequently of a collection of flatus, with some pain before the constricted part; which flatus, also passing through the part where the stricture is felt, gradually vanishes; the belly slow, and at last passing only a few liquid fæces.

7. Colica (*calculosa*) with a fixed hardness in some part of the abdomen, and calculi sometimes passing by the anus.

Genus LX. Cholera. A vomiting of bilious matter, and likewise a frequent excretion of the same by stool; anxiety; gripes; spasms in the calves of the legs.

I. Idiopathic.

1. Cholera (*spontanea*) arising in a warm season, without any manifest cause.

2. Cholera (*accidentalis*) from acrid matters taken inwardly.

II. Symptomatic.

Genus LXI. Diarrhœa. Frequent stools; the disease not infectious; no primary pyrexia.

I. Idiopathic.

1. Diarrhœa (*crapulosa*) in which the excrements are voided in greater quantity than naturally.

2. Diarrhœa (*biliosa*) in which yellow fæces are voided in great quantity.

3. Diarrhœa (*mucosa*) in which, either from acrid substances taken inwardly, or from cold, especially applied to the feet, a great quantity of mucus is voided.

4. Diarrhœa (*cœliaca*) in which a milky humour, of the nature of chyle, is passed.

5. Diarrhœa (*lienteria*) in which the aliments are discharged, with little alteration soon after eating.

6. Diarrhœa (*hepatirrhœa*) in which a bloody serous matter is discharged without pain.

II. Symptomatic.

Genus LXII. Diabetes. A chronical profusion of urine, for the most part preternatural, and in immoderate quantity.

I. Idiopathic.

1. Diabetes (*mellitus*) with urine, of the smell, colour, and taste of honey.

2. Diabetes (*insipidus*) with limpid, but not sweet urine.

II. Symptomatic.

Genus LXIII. Hysteria. Rumbling of the bowels; a sensation as of a globe turning itself in the belly, ascending to the stomach and fauces, and there threatening suffocation; sleep; convulsions; a great quantity of limpid urine; the mind involuntarily fickle and mutable.

The following are, by Sauvages, reckoned distinct idiopathic species; but, by Dr. Cullen, only varieties of the same species.

A, From a retention of the menses.

B, From a menorrhagia cruenta.

C, From a menorrhagia serosa, or fluor albus.

D, From an obstruction of the viscera.

E, From a fault of the stomach.

F. From too great salacity.

Genus LXIV. Hydrophobia. A dislike and horror at any kind of drink, as occasioning a convulsion of the pharynx; induced, for the most part, by the bite of a mad animal. The species are,

I. Hydrophobia (*rabiosa*) with a desire of biting the by-standers, occasioned by the bite of a mad animal.

II. Hydrophobia (*simplex*) without madness, or any desire of biting.

ORDER IV. Vesaniæ. Disorders of the judgment, without any pyrexia or coma.

Genus LXV. Amentia; an imbecility of judgment, by which people either do not perceive, or do not remember, the relations of things. The species are,

I. Amentia (*congenita*) continuing from a person's birth.

II. Amentia (*senilis*) from the diminution of the perceptions and memory, through extreme old age.

III. Amentia (*acquisita*) occurring in people formerly of a sound mind, from evident external causes.

Genus LXVI. Melancholia; a partial madness, without dyspepsia.

Varying according to the different subjects concerning which the person raves; and thus it is,

1. With an imagination in the patient concerning his body being in a dangerous condition, from slight causes; or that his affairs are in a desperate state.

2. With an imagination concerning a prosperous state of affairs.

3. With violent love, without satyriasis or nymphomania.

4. With a superstitious fear of a future state.

5. With an aversion from motion, and all the offices of life.

6. With restlessness, and an impatience of any situation whatever.

7. With a weariness of life.

8. With a deception concerning the nature of the patient's species.

Dr. Cullen thinks that there is no such disease as that called *dæmonomania*; and that the diseases mentioned by Sauvages under that title, are either,

1. Species of melancholy or mania; or

2. Of some disease by the spectators falsely ascribed to the influence of an evil spirit; or

3. Of a disease entirely feigned; or

4. Of a disease partly true and partly feigned.

Genus LXVII. Mania; universal madness.

1. Mania (*mentalis*) arising entirely from passions of the mind.

2. Mania (*corporea*) from an evident disease of the body.

Varying according to the different disease of the body.

3. Mania (*obscura*) without any passion of mind or evident disease of the body preceding.

The symptomatic species of mania are,

1. Paraphrosyne from poisons.

2. Paraphrosyne from passion.

3. Paraphrosyne febrilis.

Genus LXVIII. Oneirodynia. A violent and troublesome imagination in time of sleep.

1. Oneirodynia (*activa*) exciting to walking and various motions.

2. Oneirodynia (*gravans*) from a sense of some weight incumbent, and pressing on the breast especially.

CLASS III. CACHEXIÆ; a depraved habit of the whole or greatest part of the body, without primary pyrexia or neurosis.

ORDER I. Marcores. A wasting of the whole body.

Genus LXIX. Tabes. Leanness, asthenia, hectic pyrexia. The species are,

1. Tabes (*purulenta*) from an external or internal ulcer, or from a vomica.

Varying in its situation: hence,

2. Tabes (*scrophulosa*) in scrophulous constitutions.

3. Tabes (*venenata*) from poison taken inwardly.

Genus LXX. Atrophia. Leanness and asthenia, without hectic pyrexia. The species are,

1. Atrophia (*inanitorum*) from too great evacuation.

2. Atrophia (*famelicorum*) from a deficiency of nourishment.

3. Atrophia (*cacochymica*) from corrupted nourishment.

4. Atrophia (*debilium*) from the function of nutrition being depraved, without any extraordinary evacuation or cacochymia having preceded.

ORDER II. Intumescentiæ. An external tumor of the whole or greatest part of the body.

Sect. I. *Adiposæ*.

Genus LXXI. Polysarcia; a troublesome swelling of the body from fat.

Sect. II. *Flatuosæ.*

Genus LXXII. Pneumatosis. A tense elastic swelling of the body, crackling under the hand. The species are,

1. Pneumatosis (*spontanea*) without any manifest cause.

2. Pneumatosis (*traumatica*) from a wound in the breast.

3. Pneumatosis (*venenata*) from poison injected or applied.

4. Pneumatosis (*hysterica*) with hysteria.

Genus LXXIII. Tympanites. A tense, elastic, sonorous swelling of the abdomen; costiveness; a decay of the other parts. The species are,

1. Tympanites (*intestinalis*) with a tumor of the abdomen frequently unequal, and with a frequent evacuation of air relieving the tension and pain.

2. Tympanites (*abdominalis*) with a more evident noise, a more equable tumor, and a less frequent emission of flatus, which also gives less relief.

Genus LXXIV. Physometra. A slight elastic swelling in the epigastrium, having the figure and situation of the uterus.

Sect. III. *Aquosæ* or *Hydropes.*

Genus LXXV. Anasarca. A soft, inelastic swelling of the whole body, or some part of it. The species are,

1. Anasarca (*serosa*) from a retention of serum on account of the suppression of the usual evacuations, or from an increase of the serum on account of too great a quantity of water taken inwardly.

2. Anasarca (*oppilata*) from a compression of the veins.

3. Anasarca (*exanthematica*) arising after exanthemata, especially after the erysipelas.

4. Anasarca (*anæmia*) from the thinness of the blood produced by hemorrhagy.

5. Anasarca (*debilium*) in weak people after long diseases, or from other causes.

Genus LXXVI. Hydrocephalus. A soft inelastic swelling of the head, with the sutures of the cranium opened.

Genus LXXVII. Hydrorachitis. A soft, slender tumor above the vertebræ of the loins; the vertebræ gaping from each other.

Genus LXXVIII. Hydrothorax. Dyspnœa; paleness of the face; œdematous swelling of the feet; scanty urine; lying down difficult; a sudden and spontaneous waking out of sleep, with palpitation; water fluctuating in the breast.

Genus LXXIX. Ascites. A tense, scarce elastic, but fluctuating swelling of the abdomen. The species are,

1. Ascites (*abdominalis*) with an equal swelling of the whole abdomen, and with a fluctuation sufficiently evident.

Varying according to the cause.

A, From an obstruction of the viscera.

B, From debility.

C, From a thinness of the blood.

2. Ascites (*saccatus*) with a swelling of the abdomen, in the beginning, at least, partial, and with a less evident fluctuation.

Genus LXXX. Hydrometra. A swelling of the hypogastrium in women, gradually increasing, keeping the shape of the uterus, yielding to pressure, and fluctuating; without ischuria or pregnancy.

Genus LXXXI. Hydrocele. A swelling of the scrotum, not painful; increasing by degrees, soft, fluctuating, and pellucid.

Sect. IV. *Solidæ.*

Genus LXXXII. Physconia. A swelling chiefly occupying a certain part of the abdomen, gradually increasing, and neither sonorous nor fluctuating. The species are,

Physconia hepatica.
Physconia splenica.
Physconia renalis.
Physconia uterina.
Physconia ab ovario.
Physconia mesenterica.
Physconia intestinalis.
Physconia omentalis.
Physconia polysplachna.
Physconia visceralis.
Physconia externa lupialis.
Physconia externa scirrhodea.
Physconia externa hydatidosa.
Physconia ab adipe subcutaneo.
Physconia ab excrescentia.

Genus LXXXIII. Rachitis. A large head, swelling most in the fore part, the ribs depressed; abdomen swelled, with a decay of the other parts.

Varying,

1. Simple, without any other disease.

2. Joined with other diseases.

Order III. Impetigines. Cachexies chiefly deforming the skin and external parts of the body.

Genus LXXXIV. Scrophula. Swellings of the conglobate glands, especially in the neck; swelling of the upper lip and support of the nose; the face florid, skin thin, abdomen swelled. The species are,

1. Scrophula (*vulgaris*) simple, external, and permanent.

2. Scrophula (*mesenterica*) simple, internal, with paleness of the face, want of appetite, swelling of the abdomen, and unusual fetor of the excrements.

3. Scrophula (*fugax*) most simple, appearing only about the neck; for the most part proceeding from the resorption of the matter of ulcers in the head.

4. Scrophula (*Americana*) joined with the yaws.

Genus LXXXV. Syphilis. A contagious disease, after impure venery, and a disorder of the genitals; ulcers of the tonsils; of the skin, especially about the margin of the hair; corymbose papulæ, ending in crusts and crusty ulcers; pains of the bones; exostoses.

Genus LXXXVI. Scorbutus. In cold countries, attacking after putrescent diet, especially such as is salt and of the animal kind, where no supply of fresh vegetables is to be had; asthenia; stomacace; spots of different colours on the skin, for the most part livid, and appearing chiefly among the roots of the hair.

Varying in degree.

a, Scorbutus incipiens.

b, Scorbutus crescens.

c, Scorbutus inveteratus.

Varying also in symptoms.

d, Scorbutus lividus.

e, Scorbutus petechialis.

f, Scorbutus pallidus.

g, Scorbutus ruber.

h, Scorbutus calidus.

Genus LXXXVII. Elephantiasis. A contagious disease; thick, wrinkled, rough, unctuous skin, destitute of hairs, anesthesia in the extremities, the face deformed with pimples, the voice hoarse and nasal.

Genus LXXXVIII. Lepra. The skin rough, with white, branny, and chopped eschars, sometimes moist beneath. with itching.

Genus LXXXIX. Frambœsia. Swellings resembling fungi, or the fruit of the mulberry or raspberry, growing on various parts of the skin.

Genus XC. Trichoma. A contagious disease; the hairs thicker than usual, and twisted into inextricable knots and cords.

Genus XCI. Icterus. Yellowness of the skin and eyes; white fæces; urine of a dark red, tinging what is put into it of a clay-colour.

The idiopathic species are,

1. Icterus (*calculosus*) with acute pain in the epigastric region, increasing after meals; biliary concretions voided by stool.

2. Icterus (*spasmodicus*) without pain, after spasmodic diseases and passions of the mind.

3. Icterus (*hepaticus*) without pain, after diseases of the liver.

4. Icterus (*gravidarum*) arising during the time of pregnancy, and going off after delivery.

5. Icterus (*infantum*) coming on in infants a few days after birth.

CLASS IV. Locales. An affection of some part, but not of the whole body.

Order I. Dysæsthesiæ. The senses depraved or destroyed, from a disease of the external organs.

Genus XCII. Caligo. The sight impaired or totally destroyed, on account of some opaque substance interposed between the objects and the retina, inherent in the eye itself, or the eye-lids. The species are,

1. Caligo (*lentis*) occasioned by an opaque spot behind the pupil.

2. Caligo (*corneæ*) from an opacity of the cornea.

3. Caligo (*pupillæ*) from an obstruction of the pupil.

Varying according to the different causes from which it proceeds.

4. Caligo (*humorum*) from a disease or defect of the aqueous humour.

Varying according to the different state of the humour.

5. Caligo (*palpebrarum*) from a disease inherent in the eye-lids.

Varying according to the nature of the disease in the eye-lids.

Genus XCIII. Amaurosis. The sight diminished, or totally abolished, without any evident disease of the eye; the pupil for the most part remaining dilated and immoveable. The species are,

1. Amaurosis (*compressionis*) after the causes, and attended with the symptoms of congestion in the brain.

Varying according to the nature of the remote cause.

2. Amaurosis (*atonica*) after the causes, and accompanied with symptoms, of debility.

3. Amaurosis (*spasmodica*) after the causes and with the signs of spasm.

4. Amaurosis (*venenata*) from poison taken into the body, or applied outwardly to it.

Genus XCIV. Dysopia. A depravation of the sight, so that objects cannot be distinctly perceived, except at a certain distance, and in a certain situation. The species are,

1. Dysopia (*tenebrarum*) in which objects are not seen unless they be placed in a strong light.

2. Dysopia (*luminis*) in which objects are not distinctly seen unless by a weak light.

3. Dysopia (*dissitorum*) in which distant objects are not perceived.

4. Dysopia (*proximorum*) in which the nearest objects are not perceived.

5. Dysopia (*lateralis*) in which objects are not perceived unless placed in an oblique posture.

Genus XCV. Pseudoblepsis. When the sight is diseased in such a manner that the person imagines he sees things which really do not exist; or sees things which do exist after some other manner than they really are. The species are,

1. Pseudoblepsis (*imaginaria*) in which the person imagines he sees things which really do not exist.

Varying according to the nature of the imagination.

2. Pseudoblepsis (*mutans*) in which objects, really existing, appear somehow changed.

Varying according to the change perceived in the objects, and according to the remote cause.

Genus XCVI. Dysecœa. A diminution or total abolition of the sense of hearing. The species are,

1. Dysecœa (*organica*) from a disease in the organs, transmitting sounds to the internal ear.

Varying according to the nature of the disease, and of the part affected.

2. Dysecœa (*atonica*) without any evident disease of the organs transmitting the sounds.

Varying according to the nature of the cause.

Genus XCVII. Paracusis. A depravation of the hearing. The species are,

1. Paracusis (*imperfecta*) in which though sounds coming from external objects are heard, yet it is neither distinctly nor in the usual manner.

Varying,

a, With a dulness of hearing.

b, With a hearing too acute and sensible.

c, When a single external sound is doubled by some internal causes.

d, When the sounds which a person desires to hear are not perceived, unless some other violent sound is raised at the same time.

2. Paracusis (*imaginaria*) in which sounds not existing externally, are excited from internal causes.

Varying according to the nature of the sound perceived, and according to the nature of the remote cause.

Genus XCVIII. Anosmia. A diminution or abolition of the sense of smell. The species are,

1. Anosmia (*organica*) from a disease in the membrane lining the internal parts of the nostrils.

Varying according to the nature of the disease.

2. Anosmia (*atonica*) without any evident disease of the membrane of the nose.

Genus XCIX. Agheustia. A diminution or abolition of the sense of taste.

1. Agheustia (*organica*) from a disease in the membrane of the tongue, keeping off from the nerves those substances which ought to produce taste.

2. Agheustia *(atonica)* without any evident disease of the tongue.

Genus C. Anæsthesia. A diminution or abolition of the sense of feeling. The species from Sauvages, adopted by Dr. Cullen, are,

1. Anæsthesia a spina bifida.
2. Anæsthesia plethorica.
3. Anæsthesia nascentium.
4. Anæsthesia melancholica.

Order II. Dysorexia. Error or defect in appetite.

Sect. I. Appetitus erronei.

Genus CI. Bulimia. A desire for food in greater quantities than can be digested.

The idiopathic species are,

1. Bulimia (*helluonum*) an unusual appetite for food, without any disease of the stomach.

2. Bulimia (*syncopalis*) a frequent desire of meat, on account of a sensation of hunger threatening syncope.

3. Bulimia (*emetica*) an appetite for a great quantity of meat, which is thrown up immediately after it is taken.

Genus CII. Polydipsia. An appetite for an unusual quantity of drink.

The polydipsia is almost always symptomatic, and varies only according to the nature of the disease which accompanies it.

Genus CIII. Pica. A desire of swallowing substances not used as food.

Genus CIV. Satyriasis. An unbounded desire of venery in men. The species are,

1. Satyriasis (*juvenilis*) an unbounded desire of venery, the body at the same time being little disordered.

2. Satyriasis (*furens)* a vehement desire of venery, with a great disorder of the body at the same time.

Genus CV. Nymphomania. An unbounded desire of venery in women.

Varying in degree.

Genus CVI. Nostalgia. A violent desire in those who are absent from their country of re-visiting it.

1. Nostalgia (*simplex*) without any other disease.

2. Nostalgia (*complicata*) accompanied with other diseases.

Sect. II. Appetitus deficientes.

Genus CVII. Anorexia. Want of appetite for food. Always symptomatic.

1. Anorexia (*humoralis*) from some humour loading the stomach.

2. Anorexia (*atonica*) from the tone of the fibres of the stomach being lost.

Genus CVIII. Adipsia. A want of thirst. Always a symptom of some disease affecting the sensorium commune.

Genus CIX. Anaphrodisia. Want of desire for, or impotence to, venery.

The true species are,

1. Anaphrodisia paralytica.
2. Anaphrodisia gonorrhoica.

The false ones are,

1. Anaphrodisia a mariscis.
2. Anaphrodisia ab urethræ vitio.

Order III. Dyscinesiæ. An impediment, or depravation of motion from a disorder of the organs.

Genus CX. Aphonia. A total suppression of voice without coma or syncope. The species are,

1. Aphonia (*gutturalis*) from the fauces or glottis being swelled.

2. Aphonia (*trachealis*) from a compression of the trachea.

3. Aphonia (*atonica*) from the nerves of the larynx being cut.

Genus CXI. Mutitas. A want of power to pronounce words. The species are,

1. Mutitas (*organica*) from the tongue being cut or destroyed.

2. Mutitas (*atonica*) from the injuries done to the nerves of the tongue.

3. Mutitas (*surdorum*) from people being born deaf, or the hearing being destroyed during childhood.

Genus CXII. Paraphonia. A depraved sound of the voice. The species are,

1. Paraphonia *(puberum)* in which, about the time of puberty, the voice, from being acute and sweet, becomes more grave and harsh.

2. Paraphonia *(rauca)* in which, by reason of the dryness or flaccid tumor of the fauces, the voice becomes rough and hoarse.

3. Paraphonia (*resonans*) in which, by reason of an obstruction in the nostrils, the voice becomes hoarse, with a hissing sound through the nostrils.

4. Paraphonia (*palatina*) in which, on account of a defect or division of the uvula, for the most part with an hare-lip, the voice becomes obscure, hoarse, and unpleasant.

5. Paraphonia (*clangens*) in which the voice is changed to one acute, shrill, and small.

6. Paraphonia (*comatosa*) in which, from a relaxation of the velum palati and glottis, a sound is produced during inspiration.

Genus CXIII. Psellismus. A defect in the articulation of words. The species are,

1. Psellismus (*hæsitans*) in which the words, especially the first ones of a discourse, are not easily pronounced, and not without a frequent repetition of the first syllable.

2. Psellismus (*ringens*) in which the sound of the letter R is always aspirated, and, as it were, doubled.

3. Psellismus (*lallans*) in which the sound of the letter L becomes more liquid, or is pronounced instead of R.

4. Psellismus (*emolliens*) in which the hard letters are changed into the softer ones, and thus the letter S is much used.

5. Psellismus (*balbutiens*) in which, by reason of the tongue being large, or swelled, the labial letters are better heard, and often pronounced instead of others.

6. Psellismus (*acheilos*) in which the labial letters cannot be pronounced at all, or with difficulty.

7. Psellismus (*lagostomatum*) in which, on account of the division of the palate, the gutteral letters are less perfectly pronounced.

Genus CXIV. Strabismus. The optic axes of the eyes not converging. The species are,

1. Strabismus (*habitualis*) from a bad custom of using only one eye.

2. Strabismus (*commodus*) from the greater debility or mobility of one eye above the other; so that both eyes cannot be conveniently used.

3. Strabismus (*necessarius*) from a change in the situation or shape of the parts of the eye.

Genus CXV. Contractura. A long continued and rigid contraction of one or more limbs. The species are,

1. Contractura (*primaria*) from the muscles becoming contracted and rigid

a, From the muscles becoming rigid by inflammation.

b, From muscles becoming rigid by spasm.

c, From muscles contracted by reason of their antagonists having become paralytic.

d, From muscles contracted by an irritating acrimony.

2. Contractura (*articularis*) from stiff joints.

Order IV. Apocenoses. A flux either of blood or some other humour flowing more plentifully than usual, without pyrexia, or an increased impulse of fluids.

Genus CXVI. Profusio. A flux of blood.

Genus CXVII. Ephidrosis. A preternatural evacuation of sweat.

Symptomatic ephidroses vary according to the nature of the diseases which they accompany, the different nature of the sweat itself, and sometimes the different parts of the body which sweat most.

Genus CXVIII. Epiphora. A flux of the lachrymal humour.

Genus CXIX. Ptyalismus. A flux of saliva.

Genus CXX. Enuresis. An involuntary flux of urine without pain. The species are,

1. Enuresis (*atonica*) after diseases injuring the sphincter of the bladder.

2. Enuresis (*irritata*) from a compression or irritation of the bladder.

Genus CXXI. Gonorrhœa. A preternatural flux of humour from the urethra in men, with or without a desire of venery. The species are,

1. Gonorrhœa (*pura*) in which, without any impure venery having preceded, a humour resembling pus, without dysuria or propensity to venery, flows from the urethra.

2. Gonorrhœa (*impura*) in which, after impure venery, a humour like pus flows from the urethra with dysuria. The consequence of this is,

3. Gonorrhœa (*mucosa*) in which, after an impure gonorrhœa, a mucous humour flows from the urethra with little or no dysuria.

4. Gonorrhœa (*laxorum*) in which a humour for the most part pellucid, without any erection of the penis, but with a propensity to venery, flows from the urethra while the person is awake.

5. Gonorrhœa (*dormientium*) in which the seminal liquor is thrown out, with erection and desire of venery, in those who are asleep and have lascivious dreams.

Order V. Epischeses. Suppressions of evacuations.

Genus CXXII. Obstipatio. The stools either suppressed, or slower than usual. The species are,

1. Obstipatio (*debilium*) in lax, weak, and for the most part dyspeptic persons.

2. Obstipatio (*rigidorum*) in people whose fibres are rigid, and frequently of an hypochondriac disposition.

3. Obstipatio (*obstructorum*) with symptoms of the colica 1st, 2d, 4th, and 7th, abovementioned.

Genus CXXIII. Ischuria. An absolute suppression of urine. The species are,

1. Ischuria (*renalis*) coming after a disease of the kidneys, with pain, or troublesome sense of weight in the region of the kidneys, and without any swelling of the hypogastrium, or desire of making water.

2. Ischuria (*ureterica*) coming after a disease of the kidneys, with a sense of pain or uneasiness in some part of the ureter, and without any tumor of the hypogastrium, or desire of making water.

3. Ischuria (*vesicalis*) with a swelling of the hypogastrium, pain at the neck of the bladder, and a frequent stimulus to make water.

4. Ischuria (*urethralis*) with a swelling of the hypogastrium, frequent stimulus to make water, and pain in some part of the urethra.

All these species are subdivided into many varieties, according to their different causes.

Genus CXXIV. Dysuria. A painful, and somehow impeded emission of urine. The species are,

1. Dysuria (*ardens*) with heat of water, without any manifest disorder of the bladder.

2. Dysuria (*spasmodica*) from a spasm communicated from the other parts to the bladder.

3. Dysuria (*compressionis*) from the neighbouring parts pressing upon the bladder.

4. Dysuria (*phlogistica*) from an inflammation of the neighbouring parts.

5. Dysuria (*irritata*) with signs of a stone in the bladder.

6. Dysuria (*mucosa*) with a copious excretion of mucus.

Genus CXXV. Dyspermatismus. A slow, impeded, and insufficient emission of semen in the venereal act. The species are,

1. Dyspermatismus (*urethralis*) from diseases of the urethra.

2. Dyspermatismus (*nodosus*) from knots on the cavernous bodies.

3. Dyspermatismus (*præputialis*) from too narrow an orifice of the prepuce.

4. Dyspermatismus (*mucosus*) from mucus infarcting the urethra.

5. Dyspermatismus (*hypertonicus*) from too strong an erection of the penis.

6. Dyspermatismus (*epilepticus*) from a spasmodic epilepsy happening during the time of coition.

7. Dyspermatismus (*apractodes*) from an imbecility of the parts of generation.

8. Dyspermatismus (*refluus*) in which there is no emission of semen, because it returns from the urethra into the bladder.

Genus CXXVI. Amenorrhœa. The menses either flowing more sparingly than usual, or not at all, at their usual time, without pregnancy. The species are,

1. Amenorrhœa (*emansionis*) in those arrived at puberty, in whom, after the usual time, the menses have not yet made their appearance, and many different morbid affections have taken place.

2. Amenorrhœa, (*suppressionis*) in adults, in whom the menses which had already begun to flow are suppressed.

3. Amenorrhœa (*difficilis*) in which the menses flow sparingly, and with difficulty.

Order VI. Tumores. An increased magnitude of any part without phlogosis.

Genus CXXVII. Aneurisma. A soft tumor, with pulsation, above an artery.

Genus CXXVIII. Varix. A soft tumor, without pulsation, above a vein.

Genus CXXIX. Ecchymoma. A diffused, and scarce eminent, livid tumor.

Genus CXXX. Scirrhus. An hard tumor of some part, generally of a gland, without pain, and difficultly brought to suppuration.

Genus CXXXI. Cancer. A painful tumor of a scirrhous nature, and degenerating into an ill-conditioned ulcer.

Genus CXXXII. Bubo. A suppurating tumor of a conglobate gland.

Genus CXXXIII. Sarcoma. A soft swelling, without pain.

Genus CXXXIV. Verruca. A hard or scabrous swelling.

Genus CXXXV. Clavus. A hard, lamellated thickness of the skin.

Genus CXXXVI. Lupia. A moveable soft tumor below the skin. without pain.

Genus CXXXVII. Ganglion. An hard moveable swelling, adhering to a tendon.

Genus CXXXVIII. Hydatis. A cuticular vesicle filled with aqueous humour.

Genus CXXXIX. Hydarthrus. A most painful swelling of the joint, chiefly of the knee, at first scarce elevated, of the same colour with the skin, diminishing the mobility.

Genus CXL. Exostosis. A hard tumor adhering to a bone.

Order VII. Ectopiæ. Tumors occasioned by the removal of some part out of its proper situation.

Genus CXLI. Hernia. An ectopia of a soft part as yet covered with the skin and other integuments.

Genus CXLII. Prolapsus. A bare ectopia of some soft part.

Genus CXLIII. Luxatio. The removal of a bone from its place in the joints.

Order VIII. Dialyses. A solution of continuity, manifest to the sight or touch.

Genus CXLIV. Vulnus. A recent and bloody solution of the unity of some soft part by the motion of some hard body.

Genus CXLV. Ulcus. A purulent or ichorous solution of a soft part.

Genus CXLVI. Herpes. A great number of phlyctenæ or small ulcers, gathering in clusters, creeping, and obstinate.

Genus CXLVII. Tinea. Small ulcers among the roots of the hair of the head, pouring out a humour which changes to a white friable scurf.

Genus CXLVIII. Psora. Itchy pustules and little ulcers of an infectious nature, chiefly infesting the hands.

Genus CXLIX. Fractura. Bones broken into large fragments.

Genus CL. Caries. An exulceration of a bone.

While these affections are in number almost infinite, each in its progress is subjected to almost endless varieties from differences in climate, constitution, treatment, and many other particulars. Hence we may readily explain both the difficulty of distinguishing morbid affections from each other in actual practice, and the diversity of names which have been affixed to them in the writings of the ancient physicians. In this, as well as other objects, there has been a gradual improvement from the progressive labours of industrious and ingenious men; and although much yet remains to be done in the proper arrangement and distinction of diseases, or what has been called *methodical nosology*, yet there cannot be a doubt, that during the course of the last century this subject received very great improvements.

NOSTA'LGIA, (νοϛαλγια; from νοϛεω, *to return*, and αλγος, *pain*), a vehement desire of revisiting one's country. This is a genus of disease in the class *locales* and order *dysorexia* of Cullen, characterised by impatience when absent from one's native home, and a vehement desire to return, attended with gloom and melancholy, loss of appetite, and want of sleep. Dr. Cullen says, this is to be reckoned a species of melancholy; and unless it be indulged, it very commonly proves not only incurable but even fatal. Although it cannot be considered as altogether peculiar to any nation, yet it is observed to be much more frequent with some than with others; and it has been particularly remarked among Swiss soldiers in the service of foreign states.

NO'THÆ CO'STÆ, (from *νοθος*, *spurious*), the spurious ribs.

NO'THUS, (*νοθος*, *spurious*, *conterfeit*, or *bastard*). Thus peripneumonia *notha*, the *bastard* peripneumony, is a disease of the lungs in which either all the peripneumonic symptoms do not exist, or they are conjoined with others not belonging to a true inflammation of the substance of the lungs.

NUBE'CULA, a little cloud, a term sometimes used for a disease in the eye, wherein objects appear as through a cloud or mist. The nubecula arises either from an opacity in the cornea, or from something swimming in the aqueous humour, and thus intercepting the rays of light. The terms *Nubecula* and *Nubes*, are also used for what we otherwise call *albugo*. See Albugo. That matter in form of a cloud, which is suspended in the middle of the urine, is also called *nubecula*.

NU'CHA, the hinder part, or nape, of the neck. Blisters are commonly applied to this part, when their action is intended to take place on the system.

NUCE'STA. See Nux moschata.

NUCIFEROUS, (from *nux*, a nut, and *fero*, to bear), in botany, a term applied to those trees which bear nuts.

NU'CLEUS (*è nuce*, from the nut); a kernel, or fruit enclosed in a hard shell.

NU'CULÆ SAPONA'RIÆ, or *Baccæ Bermudenses*, soap berries, or Bermudas berries; a spherical fruit about the size of a cherry. Its cortical part is yellow, glossy, and so transparent as to show the spherical black nut which rattles within, and which includes a black kernel. It is the produce of the *Sapindus saponaria*, Linn. The cortical part has a bitter taste, and no smell. It raises a soapy lather or froth with water, and has similar effects with soap in washing. It is said to be a medicine of singular and specific virtue in chlorosis, but is seldom if ever employed in the present practice.

NUMMULA'RIÆ, (from *nummus*, money; so called because its leaves are round and of the size of the old silver two-pence), also called *Herundinaria*, moneywort, the *Lysimachia nummularia*, Linn. This plant is very common in ditches. It was formerly accounted vulnerary; at least it possesses antiscorbutic and restringent qualities, though in a slight degree.

NURSING, of children. See Lactatio. A child, when it comes into the world, should be laid (the first month) upon a thin mattress, rather longer than itself, which the nurse should keep upon her lap, that the child may always lie straight, and only sit up as the nurse slants the mattress. To set a child quite upright before the end of the first month, is hurtful. Afterwards the nurse may begin to set it up and dance it by degrees. The child must be kept as dry as possible. The cloathing should be very light, and not much longer than the child, that the legs may be got at with ease, in order to have them often rubbed in the day with a warm hand or flannel, and in particular the inside of them. Rubbing a child all over takes off scurf, and makes the blood circulate. Rubbing the ankle-bones and inside of the knees will strengthen those parts, and make the child stretch its knees and keep them flat.

A nurse ought to keep a child as little in her arms as possible, lest the legs should be cramped, and the toes turned inwards. Let her always keep the child's legs loose. The oftener the posture is changed, the better. Tossing a child about, and exercising it in the open air in fine weather, is of the greatest service. In cities, children are not to be kept in hot rooms, but to have as much air as possible. Want of exercise is the cause of rickets, large heads, weak joints, a contracted breast, and diseased lungs, besides a numerous train of other ills.

The child's flesh is to be kept perfectly clean, by constantly washing its limbs, and likewise its neck and ears; beginning with warm water, till by degrees it will not only bear, but like, to be washed with cold. Rising early in the morning is good for all children, provided they awake of themselves, which they generally do; but they are never to be waked out of their sleep, and as soon as possible to be brought to regular sleeps in the day. Children, till they are two or three years old, must never be suffered to walk long enough at a time to be weary. Girls might be trained to the proper management of children, if a premium were given in free-schools, work-houses, &c. to those that brought up the finest child to one year old.

If the mother cannot suckle the child, she should get a wholesome cheerful woman, with young milk, who has been used to tend young children. After the first six months, small broths, and innocent food of any kind, may do as well as living wholly on milk.

With regard to the child's dress in the day, let it be a shirt; a petticoat of fine flannel, two or three inches longer than the child's feet, with a dimity top (commonly called a *bodice-coat*), to tie behind. Over this put a robe, or frock, or whatever is liked best; provided it is fastened behind, and not much longer than the child's feet, that their motions may be strictly observed. Caps may be worn till the hair is sufficiently grown; but by no means till the child has got most of its teeth, as is the practice. The child's dress for the night may be a shirt, a blanket to tie on, and a thin gown to tie over the blanket.

The duties of a nurse are very important, and when honestly fulfilled, deserve ample remuneration from the child's parents; who, at the same time, should be on their guard against the deception which nurses practice upon them in too many instances.

NUT, in botany, a pericarpium of an extraordinary hardness, inclosing a kernel or seed.

NUT, COCOA; the fruit of the *Cocos nucifera*, Linn. Within the shell is a kernel, as pleasant to the taste as an almond, and within a large quantity of liquor resembling milk, which the Indians greedily drink before the fruit is ripe, it being then pleasant, but when the nut is matured, this liquor becomes sour or rancid. Full-grown nuts contain a pint or more of this milk, the frequent drinking of which seems to have no bad effects upon the Indians; yet Europeans should be cautious of making too free with it at first.

NUT, BARBADOES. See Ricinus major.

NUT, PISTACHIO. See Pistachio nut.

NUT, PURGING. See Ricinus major.

NUTMEG. See Nux moschata.

NUTRITIO, (from *nutrio*, to nourish), nutrition; or that process by which food is made subservient to the purposes of animal life. Under this title might be considered how the matter both of the fluids and solids of the body is supplied: but, for the particulars concerning digestion, chymification, and the formation of chyle, we refer the reader to the articles Chyle, Aliments, Digestion, Assimilation, &c. and confine ourselves here to consider in what manner the solid parts obtain their increase of matter and growth, or have their occasional waste repaired. There is no doubt, says Dr. Cullen, that the solids are formed of the fluid prepared from our aliment; but it is required now to say what portion of the fluids is employed in nourishing the solids, by what channels the nourishment is conveyed to them, and, being applied there, how from fluid it becomes solid. With regard to the first question, we have no hesitation in asserting, that in oviparous animals, it is the albumen ovi that is employed in nourishing the chick; and we presume that it is an analagous fluid which is employed in nourishing the bird during the whole time of its growth. We think the analogy may be safely applied with respect to all animals, the solid matter of which is of the same kind with that of the oviparous. This analagous fluid we take to be the gluten of the blood, properly diluted and freed from any adhering saline matter.

To determine in what manner this nutritious fluid is applied to the nourishment of the solids, it is necessary to consider what are the simple fundamental solids, of which all the others are formed. It seems to be the opinion of the greater part of modern anatomists, that the solid parts consist entirely of a cellular texture, of various density in the different parts; and, indeed, the structure of the greatest part of the solids is evidently of this kind. But at the same time it is also true, that a fibrous structure is to be observed almost every where in the body. It appears in the medullary substance of the brain and nerves, in the muscles and tendons, in the arteries, in the excretories of the glands, in the lymphatic vessels, in the alimentary canal, in the uterus and bladder of urine, in the ligaments, and in most membranes; and it is to be seen in those membranes which are afterwards changed into bones, especially whilst this change is going on.

From this view of the universality of a fibrous structure in animal bodies we are disposed to believe, that these fibres are the fundamental part of animal solids; that they are the primordial staminal part of animal bodies; and that the cellular texture is, for the most part, an accretion formed upon these fibres. The consideration of the structure and growth of vegetables seems to illustrate and confirm this opinion. At the same time, from the fibrous parts being evidently, in most instances, parts of the nervous system, and from the gradual formation of the fœtus in which the nervous system is first formed, we think it probable, that the whole of the fibres in the different parts of the body are a continuation of the nerves; and this again will lead to the conclusion, that the nourishment of the soft and homogeneous solid every where is conveyed to it by the nerves. This supposes also, what is otherwise probable, that the cortical part of the brain, or common origin of the nerves, is a secretory organ, in which the gluten of the blood, being freed from all saline matter before adhering to it, becomes fit for the nourishment of the solids, and being poured in a sufficiently diluted state upon the organ of the nerves, it is filtrated along the fibres of these, and is thus conveyed to every staminal fibre of the system.

Dr. Cullen supposes, at the same time, that the medullary, or what may be called the solid matter of the nerves, is in the living body constantly accompanied with a subtle elastic fluid, which fits them for being the organs of sense and motion, and which probably is also the means by which the nutritious fluid is carried on in the substance of the nerves, from their origin to their extremities. In what manner the nutritious fluid, thus carried to the several parts, is there applied, so as to increase the length of the nervous fibre itself, or to form a cellular texture upon its surface, and in what manner from fluid it becomes solid, Dr. Cullen says, we cannot explain; nor can these particulars be explained upon any other supposition that has been formed with respect to nutrition. It is probable, that for a certain time, at its first beginning, the growth of animal bodies proceeds in the same manner as that of vegetables: but it is evident, that at a certain period, in the growth of animals, a different economy takes place; and that afterwards, the growth seems to depend upon an extension of the arteries in length and wideness by the blood propelled into them by the circulation. It may be supposed, that this extension of the arteries is applied to every fibre of the body, and that by the extension of these it gives an opportunity to the application and accretion of nutritious matter; to the growth therefore of the fibre itself, and to the growth of cellular texture on its surface. Perhaps the same extension of the arterial system gives occasion to the secretion of fluids, which, poured into the cellular texture already formed, according to the disposition of these fluids to concrete more or less firmly, gives the different degrees of density and hardness which appears in different parts of the body. By this extension of the arterial system, the several parts of the body are gradually evolved, some of them sooner, others later, as by the constitution of the original stamina, or after occurrences, they are severally put into the conditions by which they are more or less exposed to the impetus of the blood, and fitted to receive a greater quantity of it.

But as the parts, by these causes first evolved, will increase the most in the density of their solid parts, they will therefore more and more resist their further growth; and by the same resistance, will determine the blood with more force, and in greater quantity, into the parts not then so far evolved. Hence the whole system will be at length evolved, and every part of the solids will, in respect of density and resistance, be in balance with every other, and with the forces to which they are severally exposed. The extension of the arteries depends upon the resistances which occur to the free transmission of blood through them; and further, from a resistance in the veins. For, as a considerable portion of the blood does not commonly pass into the smaller branches of the arteries, but must pass very entirely into the veins; so these, by their capacity constantly diminishing as they approach nearer to the heart, and by their coats being of a density and firmness sufficient to prevent further dilatation, considerably resist the free passage of the blood from the arteries into them.

While these resistances continue, the arteries, and with them almost every fibre of the body, must be extended at every systole of the heart; and with this extension, the growth of every part will proceed: but as every part by its receiving an addition of solid matter, becomes more dense and rigid; so it is less easily extended, and perhaps less readily receives an accretion of new matter, than before. Hence it is, that the more the body grows, it admits of any additional growth more slowly; and unless the extending powers increase in the same proportion with the increasing density of the solids, there must be a period at which these two powers will balance each other, and the growth will proceed no farther. But, as it is evident that the bulk and weight of the heart, and probably therefore its force, does not increase with the increasing bulk of the body, and that the action of the heart is the principal extending power in the system; it is also plain that the extending power does not increase in the same proportion with the increasing density of the solids; and therefore, that these two powers will, at a certain period, come to balance each other.

But not only is the force of the heart thus constantly diminishing, with respect to the resistance of the arteries; but the force of the heart, though it were still subsisting, has, from other causes, less effect in extending the arteries. The blood is more confined to the arteries, and extends them further in proportion to the resistance in the veins; and this resistance in the veins, and the extension of the arteries depending upon it, will be more or less, according to the respective density of these two sets of vessels. But it appears from the experiments of Sir Clifton Wintringham, that the density and firmness of the veins, with respect to their correspondent arteries, is much greater in young animals than in old; and thence it appears, that during the growth of animals, the arteries are acquiring an increase of density in a greater proportion than the veins are at the same time; and therefore, that the resistance in the veins with respect to the arteries, must be constantly diminishing; that the veins will therefore receive a greater proportion of blood; that in the same proportion the arteries will be less extended; and, *lastly*, that the diminished resistance in the veins, concurring with the diminished force of the heart, will the sooner bring the increasing rigidity of the arteries, and therefore of every fibre of the body, to be in balance with the extending powers; at least so far as to prevent their producing any further growth.

This account of the change of the resistances in the arteries and veins, with respect to one another, is agreeable to phenomena, which show that the arteries are larger, and contain more blood in proportion to the veins, in young animals, than in old; that arterial hœmorrhagies occur most frequently in young persons; and that congestions in the veins, with hœmorrhagies or hydropic effusions depending upon them, occur most frequently in old age. It is probable, that the resistance both of arteries and veins goes on increasing, while the force of the heart is not increasing at the same time: but it appears also, that from the diminished force of the heart and the compression which the smaller vessels are constantly exposed to from the distention of the larger, the action of the muscles and other causes, the number of small vessels, and therefore the capacity of the whole system, is constantly diminishing so much, that the heart may still for some time be sufficient for the circulation of the blood. But, while the resistances in the vessels are constantly increasing, the irritability of the moving fibres, and the energy of the brain, are at the same time constantly diminishing; and therefore the power of the heart must at length become unequal to its task, the circulation must cease, and death ensue. The unavoidable death of old persons is thus in part accounted for; but it is, however, still probable, that the same event proceeds chiefly from the decay and total extinction of the excitement or vital power of the nervous system, and that from causes very independent of the circulation of the blood, and arising in the nervous system itself, in consequence of the progress of life. This seems to be proved by the decay of sense, memory, intellect, and irritability, which constantly takes place, as we advance beyond a certain period of life.

NUTRI'TUM, the name of an ointment for which the London college substituted the *Ung. cerussæ acetatæ* in their latter editions. It is directed thus in the Pharm. Chir.

Take of litharge plaster, half a pound;
Olive oil, six ounces;
Vinegar, two ounces.
Melt the plaster and oil together, and when the mixture is somewhat cooled, stir in the vinegar.

This is certainly preferable to the ung. ceruss. acet. as the latter becomes rancid in a few hours after it is prepared. Nutritum is applied to cutaneous eruptions, and as an external dressing for wounds or ulcers.

NU'X AQUA'TICA. See TRIBULUS AQUATICUS.

NU'X BARBADE'NSIS. See RICINUS MAJOR.

NU'X BEEN. See BEN NUX.

NU'X CATHA'RTICA AMERICA'NA. See RICINUS MAJOR.

NU'X METELLÆ. See NUX VOMICA.

NU'X JUGLANS. See JUGLANS.

NU'X MOSCHA'TA, also named *Nucista*, and *Nux myristica*; the nutmeg. It is the seed or kernel of the *Myristica moschata*. *Myristica foliis lanceolatis, fructu glabro*, Thunb. Class, *Dioecia*. Order, *Syngenesia*. This spice is very well known, and has been long used both for culinary and medical purposes. Distilled with water, nutmegs yield a large quantity of essential oil, resembling in flavour the spice itself. After the distillation, an insipid sebaceous matter is found swimming on the water; the decoction inspissated, gives an extract of an unctuous, very lightly bitterish taste, and with little or no astringency. Rectified spirit extracts the whole virtue of nutmegs by infusion, and elevates very little of it in distillation; hence the spirituous extract possesses the flavour of the mace in an eminent degree.

Nutmegs, when heated, yield to the press a considerable quantity of limpid yellow oil, which on cooling concretes into a sebaceous consistence. In the shops we meet with three sorts of unctuous substances called *oil of mace*, though really expressed from the nutmeg. The best is brought from the East Indies in stone jars; this is of a thick consistence, of the colour of mace, and has an agreeable fragrant smell; the second sort, which is paler-coloured, and much inferior in quality, comes from Holland in solid masses, generally flat, and of a square figure: the third, which is the worst of all, and usually called *common oil of mace*, is an artificial composition of sevum, palm oil, and the like, flavoured with a little genuine oil of nutmeg.

Nutmegs preserved entire in sugar, are presented as desserts, and the people of India sometimes eat them when they drink tea. Some of them use nothing but the pulp; others likewise chew the mace; but they generally throw away the kernel, which is really the nutmeg. Many who perform sea-voyages to the north chew this fruit every morning. The medicinal qualities of nutmeg are said to be aromatic, anodyne, stomachic and restringent; and with a view to the last mentioned effects, it has been much used in diarrhœas and dysenteries. To many people the aromatic flavour of nutmeg is very agreeable; they however should be cautious not to use it in large quantities, as it is apt to affect the head, and even to manifest an hypnotic power in such a degree as to prove extremely dangerous. Bontius speaks of this as a frequent occurrence in India; and Dr. Cullen relates a remarkable instance of this soporific effect of the nutmeg, which fell under his own observation, and hence concludes, that in apoplectic and paralytic cases this spice may be very improper. He observes, that a person by mistake took two drachms or a little more of powdered nutmeg: he felt it warm in his stomach, without any uneasiness; but in about an hour after he had taken it he was seized with a drowsiness, which gradually increased to a complete stupor and insensibility; and not long after he was found fallen from his chair, lying on the floor of his chamber in the state mentioned. Being laid a-bed he fell asleep; but waking a little from time to time, he was quite delirious; and he thus continued alternately sleeping and delirious for several hours. By degrees, however, both these symptoms diminished: so that in about six hours from the time of taking the nutmeg he was pretty well recovered from both. Although he still complained of head-ach, and some drowsiness, he slept naturally and quietly the following night, and next day was quite in his ordinary health.

Neumann got from 1920 parts of nutmeg, 480 of an oily alcoholic extract, and 280 watery, with 320 fixed oil: these two last were both insipid: and inversely 600 watery extract, with 50 of fixed oil, which rose to the surface during the inspissation, and 10 of volatile oil which distilled over; and afterwards, 120 unctuous alcoholic extract, and 300 more of fixed oil. By expression 1920 gave 540 of oil, and afterwards 480 of watery extract, a pretty strongly tasted distilled water, and 80 unctuous alcoholic extract, with 60 of insipid fixed oil.

The officinal preparations are:—*Sp. nucis moschat.* Edin. Lond. Dubl. *Sp. ammon. comp.* Edin. Lond. Dubl. *Pulv. carb. calcis comp.* Edin. *Confectio aromat.* Dubl. Lond. *Elect. catechu*, Edin. Dubl. *Trochisci carb. calcis*, Edin. Of the oil of mace, *Emp. ladan. comp.* Lond.

NU′X MYRI′STICA. See Nux moschata.

NU′X PISTA′CIA. See Pistachio nut.

NU′X PURGANS. See Ricinus major.

NU′X VO′MICA, or *Nux metella.* The nux vomica, lignum colubrinum, and faba Sancti Ignatii, have been long known as narcotic poisons, brought from the East Indies, while the vegetables which produced them were not botanically ascertained, until Linnæus found the nux vomica to be the fruit of the tree, described, in the Hortus Malabaricus, under the name of *Caniram*, now called *Strychnos.* To this genus also, but upon evidence less conclusive, he justly referred the colubrinum. But the faba Sancti Ignatii he merely conjectured might belong to this family, as appears by the query, *an Strychni species?* which subsequent discoveries have enabled us to decide in the negative; for in the Supp. Plant. it constitutes the new genus *Ignatia*, which Loureiro has since confirmed, changing the specific name *amara* to that of *philippinica.* The strychnos and ignatia are however nearly allied, and both rank under the order *Solanaceæ.*

The seed of the fruit or berry of this tree, *Strychnos nux vomica*, is the officinal nux vomica; it is flat, round, about an inch broad, and near a quarter of an inch thick, with a prominence in the middle on both sides, of a grey colour, covered with a kind of woolly matter; and internally hard and tough like horn. To the taste it is extremely bitter, but has no remarkable smell. It consists chiefly of a gummy matter, which is moderately bitter: the resinous part is very inconsiderable in quantity, but intensely bitter; hence rectified spirit has been considered its best menstruum.

Nux vomica is reckoned amongst the most powerful poisons of the narcotic kind, especially to brute animals; nor are instances wanting of its deleterious effects upon the human species. It proves fatal to dogs in a very short time as appears by various authorities; and with some animals it produces its effects almost instantaneously. Others, after several hours, have laborious respiration, followed by torpor, tremblings, coma, and convulsions. These usually precede the fatal spasms or tetanus, with which this drug commonly extinguishes life.

From four cases related of its mortal effects, upon human subjects, we find the symptoms corresponded nearly with those which have been observed in brutes: and these, as well as the dissections of dogs killed by this poison, not showing any injury done to the stomach or intestines, prove that the nux vomica acts immediately upon the nervous system, and destroys life by the virulence of its narcotic influence. Of the four persons to whom we have alluded, one was a girl ten years of age, to whom fifteen grains were exhibited at twice for the cure of an ague. Loss, however, tells us, that he took one or two grains of it in substance without discovering any bad effect; and that a friend of his swallowed a whole seed without injury.

In Britain the nux vomica has been rarely if ever employed as a medicine. On the continent, however, and especially in Germany, several trials have been made. From the time of Gesner till that of a modern date the nux vomica has been recommended by a succession of authors as an antidote to the plague, as a febrifuge, as a vermifuge, and as a remedy in mania, hypochondriasis, hysteria, rheumatism, gout, and canine madness. In Sweden it has of late years been successfully used in dysentery; but Bergius, who tried its effects in this disease, says, that it suppressed the flux for twelve hours, but it afterwards returned again. A woman who took a scruple of this drug night and morning two successive days, is said to have been seized with convulsions and vertigo, notwithstanding which the dysenteric symptoms returned, and the disorder was cured by other medicines; but a pain in the stomach, the effect of the nux vomica, continued afterwards for a long time. Bergius therefore thinks it should only be administered in the character of a tonic and anodyne in small doses, (from five to ten grains), and not till after proper laxatives have been employed. Loureriro recommends it as a valuable internal medicine in fluor albus; for which purpose he roasts it till it becomes perfectly black and friable, which renders its medicinal use safe, without impairing its efficacy.

NYCTALO'PIA, (of the Gr. *νυκταλωπια*, from *νυξ*, *the night*, and *ωψ*, *an eye)*, a defect in vision in which the patient sees little or nothing in the day, but in the evening and night sees tolerably well. The species are: 1. Nyctalopia from a periodical amaurosis, or gutta serena, when the blind paroxysm begins in the morning, and terminates in the evening: 2. Nyctalopia from too great a sensibility of the retina, which cannot bear the meridian light. See Phobotomia. 3. Nyctalopia from an opaque spot in the middle of the crystalline lens. When the light of the sun in the meridian contracts the pupil, there is blindness; about evening, or in more obscure places, the pupil dilates, hence the rays of light pass through the limbus of the crystalline lens. 4. Nyctalopia, from a disuse of light; thus persons who are educated in obscure prisons see nothing immediately in open meridian light; but by degrees their eyes are accustomed to distinguish objects in day light. 5. Nyctalopia from an immoveable mydriasis; for in this instance the pupil admits too great a quantity of light, which the immobile pupil cannot moderate; hence the patient, in a strong light, sees little or nothing. 6. Nyctalopia from too great a contraction of the pupil. This admits a sufficiency of lucid rays in bright light, but towards night the pupil dilates more, and the patient sees better. 7. Nyctalopia endemica. A whole people have been nyctalops, as the Æthiopians, Africans, Americans, and Asiatics. A great flow of tears are excreted all the day from their eyes; at night they see objects. 8. Nyctalopia from a commotion of the eye; from which a man in the night, it is said, saw all objects distinctly.

NY'MPHÆ, (from *νυμφα*, a *water-nymph*; so called because situated in the water-course). The nymphæ, *Cristæ clitoridis*, or, as they may likewise be termed, *Alæ minores sive internæ*, are two prominent folds of the inner skin of the great or external alæ, reaching from the præputium of the clitoris to the two sides of the great orifice of the uterus. They begin very narrow, and, having increased in breadth in their course downward, they are again contracted at their lower extremity. The nymphæ are of a spongy substance, intermixed with glands, several of which may be perceived by the naked eye. Their situation is oblique, their upper extremities lying near each other, and the lower at a much greater distance. In married women they are more or less flaccid and shrivelled.

NYMPHÆ'A, (*νυμφαια*, from *νυμφα*, *a water-nymph*, because it grows in watery places); the water lilly.

NYMPHÆ'A ALBA, or *Leuconymphæa*; the white water lilly. This beautiful plant, *Nymphæa alba* of Linnæus, was formerly employed in medicine as a demulcent and slightly anodyne remedy, but it is now laid aside on account of its trivial virtues.

NYMPHÆ'A LU'TEA, the yellow water-lilly; *Nymphæa lutea*, Linn. This plant was employed formerly with the same intentions as the white, and, like it, is now fallen into neglect.

NYMPHÆ'A LOTUS, the Egyptian lotus; an aquatic plant, which is a native of both Indies. The root is conical, firm, about the size of a middle-sized pear, covered with a blackish bark, and set round with fibres. This root has a sweetish taste, and, when boiled or roasted, becomes as yellow within as the yoke of an egg. The lotus grows in abundance on the banks of the Nile, and is there much sought after by the poor to supply their families with food.

NYMPHOMA'NIA, (of the Gr. *νυμφομανια*, from *νυμφα*, *nympha*, and *μανια*, *madness)*, or *Furor uterinus*; a genus of disease in the class *locales*, and order *dysorexia*, of Cullen, characterised by an excessive desire for coition in woman. This is, in most instances, either a species of madness, or a high degree of hysterics. Its immediate cause is a preternatural irritability of the uterus and pudenda of women (to whom the disorder is proper), or an unusual acrimony of the fluids in these parts. Its presence is known by hysterical signs, and the wanton behaviour of the patient: she speaks and acts with unrestrained obscenity, and, as the disorder increases, she scolds, cries, and laughs, by turns. While reason is retained, she is silent, and seems melancholy, but her eyes discover an unusual wantonness. The symptoms are better and worse until the greatest degree of the disorder approaches, and then, by every word and action, her condition is too manifest. In the beginning a cure may be hoped for; but if it continue, it degenerates into mania. Blood-letting is generally had recourse to in proportion to the patient's strength. Camphor, in doses of fifteen or twenty grains, with nitre, and small doses of the tincture of opium, should be repeated at proper intervals. Some give asafœtida in doses of from five to ten grains. Besides bleeding, cooling purges should also be repeated in proportion to the violence of the symptoms, &c. What is useful in maniacal and hypochondriac disorders, is also useful here, regard being had to sanguine or phlegmatic habits, &c. When the delirium is at the height, we may give opiates to compose, and use the same method as in a phrenitis or mania. Injections of barley-water, with a small quantity of hemlock-juice, according to Riverius, may be frequently thrown up into the vagina; this he calls a *specific*, but matrimony, if possible, should be preferred. For although this cannot be represented as a cure for the disease when in an advanced state, yet there is reason to believe that it has not unfrequently prevented it where it would otherwise have taken place.

NYMPHOTO'MIA, (*νυμφοτομιά*, from *νυμφα*, *the nympha*, and *τεμνω*, *to cut)*; the operation of removing the nympha when too large, as sometimes is the case in women.

NYSTA'GMUS, (of the Gr. *νυσταγμος*, from *νυσταζω*, *to sleep)*, that twinkling of the eyes, which happens when a person is very sleepy. Ancient authors also define nystagmus to be an involuntary agitation of the eye-ball. It is known by the instability or involuntary and constant motions of the globe of the eye from one side to the other, or in some other directions. Sometimes it is accompanied with an hippus, or an alternate and repeated dilatation and constriction of the pupil. The species described are: 1. Nystagmus from fear. This agitation is observed under the operation for the cataract. 2. Nystagmus from sand or small gravel falling into the eye. 3. Nystagmus from a catarrh, which is accompanied with much inflammation. 4. Nystagmus from saburra in the primæ viæ, as is observed in infants afflicted with worms. 5. Nystagmus symptomaticus, which happens in hysteric and epileptic cases, and sometimes in pregnancy; and is a common symptom accompanying St. Vitus's dance. Many of these distinctions are trifling in the extreme.

O.

OAK. See Quercus.

OAK OF JERUSALEM. See Botrys vulgaris.

OAK, SEA. See Quercus marina.

OAK, WILLOW-LEAVED. See Quercus phellos.

OAT. See Avena.

OBLI'QUUS ASCENDENS ABDOMINIS. See Obliquus ascendens internus.

OBLI'QUUS ASCENDENS INTERNUS, a muscle of the belly, which arises from the spine of the ilium, the whole length between the posterior and superior anterior spinous process; from the os sacrum and the three undermost lumbar vertebræ, by a tendon common to it and to the serratus posticus inferior muscle; from Poupart's ligament, at the middle of which it sends off the beginning of the cremaster muscle; and the spermatic cord in the male, or round ligament of the womb in the female, passes under its thin edge, except a few detached fibres.

This muscle is inserted into the cartilago ensiformis, into the cartilages of the seventh, and those of all the false ribs; but, at the upper part, it is extremely thin, resembling a cellular membrane, and only becomes fleshy at the cartilage of the tenth rib. Here its tendon divides into two layers; the anterior layer, with a great portion of the inferior part of the posterior layer, joins the tendon of the external oblique, and runs over the rectus to be inserted into the whole length of the linea alba. The posterior layer joins the tendon of the transversalis muscle as low as half-way between the umbilicus and os pubis; but, below this place, only a few fibres of the posterior layer are seen, and the rest of it passes before the rectus muscle, and is inserted into the linea alba; so that the whole tendon of the external oblique muscle, with the anterior layer of the internal oblique, passes before the rectus muscle; and the whole posterior layer of the internal oblique, together with the whole tendon of the transversalis muscle, excepting at the inferior part, pass behind the rectus, and are inserted into the linea alba. At its undermost part it is inserted into the fore part of the os pubis. This muscle assists the obliquus descendens externus; but it bends the trunk in the reverse direction. It is the *Obliquus internus abdominis* of Albinus and Winslow, *Obliquus minor* of Haller, and *Obliquus ascendens* of Douglas.

OBLI'QUUS DESCENDENS ABDOMINIS. See Obliquus descendens externus.

OBLI'QUUS DESCENDENS EXTERNUS, a muscle of the belly, which arises, by eight heads, from the lower edges of an equal number of inferior ribs, at a little distance from their cartilages. It always intermixes, in a serrated manner, with portions of the serratus major anticus; and generally coheres to the pectoralis major, intercostals, and latissimus dorsi: which last covers the edge of a portion of it, extended from the last rib to the spine of the os ilium. From these origins the fibres run down obliquely forwards, and terminate in a thin broad tendon, whose fibres are continued in the same direction.

This muscle is inserted into the whole length of the *linea alba;* becomes thicker towards the lower part of the abdomen, and is perforated in the middle by the umbilicus. On the outside of the rectus muscle, the tendon of the external oblique appears whiter than elsewhere, by its being there connected with the tendons of the internal oblique and transverse muscles; so that this part has been called *linea semilunaris*, from its curved shape. The under part of the tendon divides into two columns, which leaves an oval space between them, named the *ring* of the external oblique muscle, for the passage of the spermatic cord in the male, or round ligament of the womb. The anterior superior column passes over the cartilage between the ossa pubis, and is fixed to the opposite os pubis; the other is fixed to the os pubis of the same side. It is also inserted, tendinous and fleshy, into the middle of the spine of the ilium.

From that part, which is named its *anterior superior spinous process*, it is stretched tendinous to the os pubis, and is named *Poupart's* or *Fallopius's ligament.* From this ligament it sends a tendinous layer, which is lost in the membranous fascia of the thigh.

The use of the obliquus descendens externus is to support and compress the peritonæum and abdomen; by which it assists the evacuation of fæces and urine, and likewise helps in the exclusion of the fœtus in women. It thrusts the diaphragm upwards, and draws down the ribs in expiration; bends the body obliquely when the ribs are fixed, and raises the pelvis obliquely.

This muscle is named *Obliquus externus abdominis*, by Albinus, and *Obliquus descendens*, by Douglas.

OBLI'QUUS EXTERNUS ABDOMINIS. See Obliquus descendens externus.

OBLI'QUUS INFERIOR CAPITIS. This muscle is larger than the obliquus superior capitis, and is very obliquely situated between the two first vertebræ of the neck. It arises, tendinous and fleshy, from the middle and outer side of the spinous process of the second vertebra of the neck, and is inserted, tendinous and fleshy, into the lower and posterior part of the transverse process of the first vertebra. The use of this muscle is to turn the first vertebra upon the second, as upon a pivot, and to draw the face towards the shoulder.

OBLI'QUUS INFERIOR OCULI, the *Obliquus minor oculi* of Winslow; an oblique muscle of the eye, that draws it forwards, inwards, and downwards. It arises by a narrow beginning from the outer edge of the orbitar process of the superior maxillary bone, near its junction with the lachrymal bone, and running obliquely outwards, is inserted into the tunica sclerotica.

OBLI'QUUS INTERNUS ABDOMINIS. See Obliquus ascendens internus.

OBLI'QUUS MAJOR ABDOMINIS. See Obliquus descendens externus.

OBLI'QUUS MAJOR CAPITIS. See Obliquus inferior capitis.

OBLI'QUUS MAJOR OCULI. See Obliquus superior oculi.

OBLI'QUUS MINOR ABDOMINIS. See Obliquus ascendens internus.

OBLI'QUUS MINOR CAPITIS. See Obliquus superior capitis.

OBLI'QUUS MINOR OCULI. See Obliquus inferior oculi.

OBLI'QUUS SUPERIOR CAPITIS, the *Obliquus major* of Winslow, and *Obliquus superior* of Douglas. It was, however, Riolanus who first gave particular names to the oblique muscles of the head. He called this muscle *obliquus minor*, to distinguish it from the inferior, which, on account of its being much larger, he named *obliquus major.* Spilegius afterwards distinguished the two, from their situation with respect to each other, into *superior* and *inferior;* as did afterwards Cowper and Douglas. This little muscle, which is nearly of the same shape as the *recti capitis*, is situated laterally between the occiput and the first vertebra of the neck, and is covered by the complexus and the upper part of the splenius. It arises, by a short thick tendon, from the upper and posterior part of the transverse process of the first vertebra of the neck, and, ascending obliquely inwards and backwards, becomes broader, and is inserted, by a broad flat tendon and some few fleshy fibres, into the os occipitis, behind the back part of the mastoid process, under the insertion of the complexus and splenius, and a little above that of the rectus major. The use of this muscle is to draw the head backwards, and seemingly to assist in its rotatory motion.

OBLI'QUUS SUPERIOR OCULI, vel *Trochlearis*, the *Obliquus major* of Winslow; an oblique muscle of the eye, which rolls the eye-ball, and turns the pupil downwards and outwards. It arises like the straight muscle of the eye from the edge of the foramen opticum at the bottom of the orbit, between the rectus superior and rectus internus, from thence runs straight along the papyraceous portion of the ethmoid bone, to the upper part of the orbit, where a cartilaginous trochlea is fixed to the inside of the internal angular process of the os frontis, through which its tendon passes, and runs a little downwards and outwards, inclosed in a loose membranaceous sheath, to be inserted into the sclerotic coat.

OBSTE'TRICUS (from *obstetrix*, a nurse), obstetric, or belonging to midwifery.

OBSTIPA'TIO, (from *obstipo*, to stop up), obstipation or costiveness; a genus of disease in the class *locales*, and order *epischeses* of Cullen. It comprehends three species: 1. *Obstipatio debilium*, occurring in weak and commonly dyspeptic persons. 2. *Obstipatio rigidorum*, in persons of rigid fibres and a melancholy temperament. 3. *Obstipatio obstructorum*, from obstructions.

Costiveness is sometimes occasioned by debility in dyspeptic persons, sometimes it is the effect of rigidity, and sometimes it is symptomatic of the colic. It may proceed from an excessive heat of the blood; drinking rough red wines, or other astringent liquors; too much exercise, especially on horseback: it may likewise proceed from a long use of cold insipid food, which does not sufficiently stimulate the intestines. Sometimes it is owing to the bile not descending to the intestines, as in the jaundice; and at other times it proceeds from diseases of the intestines themselves, as a palsy, spasm, tumors, a cold dry state of the intestines, &c. Excessive costiveness is apt to occasion pains in the head, vomiting, colics, and other complaints of the bowels. It is peculiarly hurtful to hypochondriac and hysteric persons, as it generates wind and other distressing symptoms.

Persons who are generally costive should live upon a moistening and laxative diet; as roasted or boiled apples, pears, stewed prunes, raisins, gruel with currants, butter, honey, sugar, and such like. Broths with spinage, leeks, and other pot-herbs, are likewise proper. Rye-bread, or that which is made of a mixture of wheat and rye together, ought to be eaten. No person troubled with costiveness should eat white bread alone, especially that which is made of fine flour. The best bread for keeping the belly soluble is what in some parts of Europe they call *meslin:* it is made of a mixture of wheat and rye, and is very agreeable to those who are accustomed to it. The drink should be of an opening quality. All ardent spirits, austere and astringent wines, as port, claret, &c. ought to be avoided. Malt liquor that is fine, and of a moderate strength, is very proper. Butter-milk, whey, and other watery liquors, are likewise proper, and may be drank in turns, as the patient's inclination directs.

Those who are troubled with costiveness ought, if possible, to remedy it by diet, as the constant use of medicines for that purpose is attended with many inconveniences, and often with bad consequences. In time the custom becomes necessary, and generally ends in a total relaxation of the bowels, indigestion, loss of appetite, wasting of the strength, and death.

Costiveness is increased by keeping the body too warm, and by every thing that promotes the perspiration; as lying too long a-bed in a morning, &c. Intense thought, and a sedentary life, are likewise hurtful. All the secretions and excretions are promoted by moderate exercise without doors, and by a gay, cheerful, sprightly, temper of mind. The learned Dr. Arbuthnot advises those who are troubled with costiveness to use animal oils, as fresh butter, cream, marrow, fat broths, &c. He likewise recommends the expressed oils of mild vegetables, as olives, almonds, pistaches, and the fruits themselves; all oily and mild fruits, as figs; decoctions of mealy vegetables, which lubricate the intestines; some saponaceous substances which stimulate gently, as honey, hydromel, or boiled honey and water, unrefined sugar, &c.

The doctor observes, that such lenitive substances are proper for persons of dry attrabiliarian constitutions, who are subject to astriction of the belly, and the piles, and will operate when stronger medicinal substances are sometimes ineffectual; but that such lenitive diet hurts those whose bowels are weak and lax. He likewise observes, that all watery substances are lenitive; and that even common water, whey, sour-milk, and butter-milk, have that effect:—that new milk, especially asses milk, stimulates still more when it sours on the stomach; and that whey, turned sour, will purge strongly:—that most part of fruits are likewise laxative; and that some of them, as grapes, will throw such as take them immoderately, into a cholera morbus, or incurable diarrhœa.

When the body cannot be kept open without medicine, a grain of aloes at bed-time, or a gentle dose of rhubarb, may be taken twice or thrice a-week. This is not near so injurious to the stomach as jalap, or the other drastic purgatives so much in use. Infusions of senna and manna may likewise be taken, or half an ounce of tartarised kali dissolved in water-gruel. About the size of a nutmeg of the senna electuary taken at the time of going to bed generally answers the purpose very well.

A very interesting account of the case of a man who had no evacuation from the bowels for nearly fifteen weeks before his death, is given by Dr. Baillie, of London, in the Transactions of the Society for medical and chirurgical improvement.

OBSTRUCTION, in medicine, signifies the blocking up of any vessel or canal in an animal body, so as to prevent the flowing of any fluid through it; either on account of the increased bulk of that fluid, in proportion to the diameter of the vessel, or because of a contraction of the canal itself. Obstruction, which is, no doubt, the cause of many diseases, was long supposed to be the cause of inflammation. But this error is exposed by Dr. Cullen, as may be seen under the article INFLAMMATION.

OBTURATOR EXTERNUS, a small flat muscle, situated obliquely at the upper and anterior part of the thigh, between the pectinalis and the fore part of the foramen thyroideum, and covered by the adductor brevis femoris. It arises, tendinous, and fleshy, from the lower fore part of the os pubis, and fore part of the inner crus of the ischium; surrounds the foramen thyroideum. A number of its fibres, arising from the membrane which fills up that foramen, are collected like rays towards a centre, and pass outwards around the root of the back part of the cervix of the os femoris. It is inserted, by a strong tendon, into the cavity at the inner and back part of the root of the trochanter major, adhering in its course to the capsular ligament of the thigh-bone. The use of this muscle is to roll the thigh-bone obliquely outwards, and to prevent the capsular ligament from being pinched.

OBTURATOR INTERNUS, the *Marsupialis*, seu *obturator internus* of Douglas; a considerable muscle, a great part of which is situated within the pelvis. It arises from more than one-half of the internal circumference of the foramen thyroideum, formed by the os pubis and ischium. Its inside is covered by a portion of the levator ani; and it appears to be divided into a number of fasciculi, which unite and form a roundish tendon, that passes out of the pelvis, between the posterior sacro-ischiatic ligament and tuberosity of the os ischium. Where it passes over the capsular ligament of the thigh-bone, it is inclosed as in a sheath, by the gemini muscles. The obturator internus is inserted, by a round tendon, into the large pit at the root of the trochanter major. Its use is to roll the os femoris obliquely outwards.

OBTURATOR NERVE; a nerve of the thigh, that is spread upon its inner muscles.

OCCI′PITIS OS, or *Os basilare*, the occipital bone. This bone forms the posterior and inferior part of the skull. It is of an irregular figure, convex on the outside, and concave internally. Its external surface serves for the attachment of several muscles. It affords several inequalities, which sometimes form two semicircular hollows separated by a scabrous ridge. The inferior portion of the bone is stretched forwards in form of a wedge, and hence is called the *cuneiform* process. At the base of this process, situated obliquely on each side of the foramen magnum, are two flat, oblong protuberances, named *condyles*. They are covered with cartilage, and serve for the articulation of the head with the first vertebra of the neck. In the inferior portion of this bone, at the basis of the cranium, and immediately behind the cuneiform process, we observe a considerable hole, through which the medulla oblongata passes into the spine. The nervi accessorii, the vertebral arteries, and sometimes the vertebral veins likewise, pass through it. Besides this hole, there are four other smaller foramina, viz. two before, and two behind the condyles. The former serve for the transmission of the ninth pair of nerves, and the two latter for the veins which pass from the external parts of the head to the lateral sinuses. On looking over the internal surface of the os occipitis, we perceive the appearance of a cross, formed by a very prominent ridge, which rises upwards from near the foramen magnum, and by two transverse sinuosities, one on each side of the ridge. This cross occasions the formation of four fossæ, two above and two below the sinuosities. In the latter are placed the lobes of the cerebellum, and in the former the posterior lobes of the brain. The two sinuosities serve to receive the lateral sinuses. In the upper part of this bone is seen a continuation of the sinuosity of the longitudinal sinus; and at the basis of the cranium we observe the inner surface of the cuneiform process made concave for the reception of the medulla oblongata.

The os occipitis is thicker and stronger than any of the other bones of the head, except the petrous part of the ossa temporum; but it is very unequal in thickness. At its lateral and inferior parts, where it is thinnest, it is covered by a great number of muscles. The reason for so much thickness and strength in this bone seems to be, to defend the cerebellum, which is, by its situation, more liable to be fractured by falls than any other bone of the cranium. Nature, therefore, has wisely constructed this bone so as to be capable of the greatest strength at its upper part, where it is the most exposed to injury.

The occipital bone is joined, by means of the cuneiform process, to the sphenoid bone, with which it often ossifies, and makes but one bone in those who are advanced in life. It is connected to the parietal bones by the lambdoidal suture, and to the temporal bones by the additamentum of the temporal suture. The head is likewise united to the trunk by means of this bone. The two condyles of the occipital bone are received into the superior oblique processes of the atlas, or first vertebra of the neck, and it is by means of this articulation that a certain degree of motion of the head, backwards and forwards, is performed. But it allows only very little motion to either side; and still less of a circular motion, which the head obtains principally by the circumvolution of the atlas on the second vertebra, as is described more particularly in the account of the vertebræ given, in books.

In the fœtus, the os occipitis is divided, by an unossified cartilaginous substance, into four parts. One of these, which is the largest, constitutes all that portion of the bone that is above the foramen magnum; two others, which are much smaller, compose the sides of the foramen magnum, and include the condyloid processes; and the fourth is the cuneiform process. This last is sometimes not completely united with the rest, so as to form one bone, before the child is six or seven years old.

OCCIPITA′LIS. See Occipito-frontalis.

OCCIPITO-FRONTA′LIS, or *Digastricus cranii;* the *Epicranius* of Albinus, and *Frontalis et occipitalis* of Winslow. This is a single broad digastric muscle, that covers the cranium, pulls the skin of the head backwards, raises the eye-brows upwards, and, at the same time, draws up and wrinkles the skin of the forehead. It arises from the posterior part of the occiput, goes over the upper part of the os parietale and os frontis, and is lost in the eye-brows.

O′CCIPUT; the hinder part of the head. See Cranium.

O′CHRA, (*ωχρα*, from *ωχρος*, *pale*; so named because it is often of a pale colour), ochre; an argillaceous earth impregnated with iron, which gives it a red or yellow colour. The Armenian bole, and other medicinal earths, are often adulterated with this substance.

OCHRE. See Ochra.

O′CIMUM, (of the Gr. *ωκυμον*, from *ωκυς*, *swift;* so called from its sudden growth). See Basilicum.

O′CIMUM BASI′LICUM; the systematic name of the common or citron basil. See Basilicum.

O′CIMUM CARYOPHYLLA′TUM, the small or bush-basil. Of this plant, which is said to be mildly balsamic, infusions are drank as tea in catarrhous and uterine disorders, and the dried leaves are made into cephalic and sternutatory powders. They are, when fresh, very juicy, of a weak aromatic and very mucilaginous taste, and of a strong and agreeable smell, which improves by drying. It is little used in the present practice.

O′CRA, a viscous vegetable substance, well known in the West Indies, where it is used to thicken soup, and for other alimentary purposes.

OCTA'NDRIA, (from οκτω, *eight*, and ανηρ, *a husband*), in the Linnæan system of botany, a class of plants, the eighth in order, comprehending such plants as have hermaphrodite flowers, and eight stamina or male parts in each. See Botany.

OCULA'RIA, (from *oculus*, the eye, so called from its uses in disorders of the eye.) See Euphrasia.

O'CULI ADDUCTOR. See Rectus internus oculi.

O'CULI ATTOLLENS. See Rectus superior oculi.

O'CULI CANCRORUM. See Cancer.

O'CULI DEPRESSOR. See Rectus inferior oculi.

O'CULI ELEVATOR. See Rectus superior oculi.

O'CULI LEVATOR. See Rectus superior oculi.

O'CULI OBLIQUUS INFERIOR. See Obliquus inferior oculi.

O'CULI OBLIQUUS MAJOR. See Obliquus superior oculi.

O'CULI OBLIQUUS MINOR. See Obliquus inferior oculi.

OCULIST, a popular appellation for one who professes solely to cure diseases of the eyes.

O'CULUS BOVIS. See Bellis major.

ODONTA'LGIA, (οδονταλγια, from οδȣς, *a tooth*, and αλγος, *pain*); the tooth-ach. The causes producing this may be exposure of the nerve of a tooth, by breaking or wasting of the enamel, inflammation in or about the tooth, or from sympathy when distant parts are affected, as the eye, the ear, the stomach, or the uterus, as in time of gestation. After tooth-ach has once been produced and removed, it is apt to return by exposure to cold, by taking hot liquids, by hard bodies pressed against the nerve in the time of chewing, by the use of a pick-tooth, &c.

With respect to the *cure* of this disease, no rule can be laid down which will answer with certainty upon all occasions. No remedy has yet been discovered which will at all times even moderate the pain; relief, however, is frequently obtained from acrid substances applied to the tooth, so as to destroy the irritability of the nerve, such as opium, spirit of wine, camphire, and essential aromatic oils. When these fail, blisters behind the ear, or destroying the nerve by the cautious use of strong acids, as half a drop of the nitric conveyed into the hollow of the tooth by the help of a small camel's-hair pencil, will be found useful. A red-hot wire applied to the part, which is attended with only momentary pain, is generally a radical cure, and often successfully practised by empirics.

When a black or decayed spot appears on a tooth, if it be quite superficial, it may be removed; but if it go through the thickness of the enamel, it will be more advisable to let it remain. Some dentists, however, cut out these black spots, shewing only the first signs of caries, and thus preserve what remains of the tooth. When a small hole breaks out in a tooth, particular attention should be paid to prevent the admission of air. Tin, lead, or gold leaf, commonly employed for this purpose, sometimes give relief for many months, or even years, if the shape of the cavity be favourable; but in other cases these are of little advantage, and in some instances create great pain. When stuffing is to be employed, it ought to be done in the intervals of the fits of tooth-ach, otherwise it will give great uneasiness. When it is to be used, the whole cavity of the tooth should be filled; and this is to be done with a proper instrument.

In the Medical and Physical Journal is inserted an account of a singular remedy for the tooth-ach. It is the well-known insect, called a *lady-cow (coccinella septem punctata*, Linn.), which is to be bruised between the finger and thumb, and applied to the affected tooth; rubbing it also on the gum. It is even said that a tincture made from these insects will be attended with the same beneficial effects, but we are inclined to rank this remedy with the *metallic tractors*, and such other remedies as work only on the patient's imagination.

When the remedies made use of for the removal of tooth-ach have failed in their effect, and it is found that the complaint still continues, it will be necessary to *extract the tooth*. In doing this, it may be observed, that all the teeth may be pulled to either side, excepting the dentes sapientiæ of the lower jaw, which ought to be pulled outwards, otherwise the jaw may be splintered. As soon as the socket is cleared of blood, if the tooth be not much spoiled, it may be boiled and replaced, when it will become nearly as useful as before. It is difficult, however, to replace the large grinders, on account of their diverging roots. The more perpendicularly the teeth are pulled, the less contusion and injury will be done to the jaws and alveoli. But as no instrument has been invented capable of effecting this properly, surgeons are obliged to be contented with an instrument which acts in a lateral direction. The most usual is that well-known instrument in form of a key, with a claw and fulcrum. See pl. IX. fig. 1, 2, 3, &c. and article Instruments. Previous to the operation, this should be covered with a linen rag, to prevent the gum from suffering. After dividing the gum, or separating it from the tooth, the claw is to be fixed as deep between the teeth and gum as possible. Then the fulcrum is to be applied on the opposite side. The surgeon may now, with one turn of the handle of the instrument, pull the tooth out. However, the turn should not be effected by a sudden jerk, but in the most cautious and slow manner. When it happens to be one of the great molares, whose roots diverge very much, and when they are firmly fixed, after only loosing it with the first pull, the claw of the instrument is to be applied to the other side of the tooth, and the turn given in a contrary direction to the first. After it has been sufficiently loosened in this manner, it is to be laid hold of by a common teeth forceps (fig. 9), and extracted in the easiest manner. Upon extraction of the tooth, any detached splinters occurring are to be immediatele removed. Should any considerable hemorrhage take place, the patient may take some cold water, vinegar, or spirit of wine, into his mouth; or dossils of lint may be introduced over the socket. Should all these fail, recourse must be had to the actual cautery.

When stumps occur from caries, or when the teeth have broken in the time of extracting, the common key will sometimes remove them; if that fail, the punch (fig. 8), is to be used. The operator, having this instrument in one hand, is to place the fore-finger of the other, with a piece of cloth wrapped round it, upon the inside of the jaw opposite to the stump, to protect the neighbouring parts.

ODONTA'LGICA, (*οδονταλγικα*, from *οδονταλγια*, *the tooth-ach)*, medicines which relieve the tooth-ach.

ODONTOI'DES PROCESSUS *(odontoides*, from *οδȣς*, *a tooth*, and *ειδος*, *form*, because it is shaped like a tooth); a process of the second vertebra of the neck. See Dentatus.

ODORIFEROUS GLANDS. These are situated around the corona glandis of the penis in man, and under the skin of the labia majora and nymphæ of females. They secrete a sebaceous matter, which emits a peculiar odour, from whence their name.

ŒCONOMY, ANIMAL (*œconomia*, of the Gr. *οικονομια*, from *οικος*, *a house*, and *νομος*, *a law)*; a term signifying the conduct of nature in preserving animal bodies. It comprehends the various operations of nature in the generation, nutrition, and preservation of animals. See Generation, Nutrition, &c. The doctrine of the animal œconomy is nearly connected with physiology, which explains the several parts of the human body, their structure, use, &c.

ŒDE'MA, a sort of tumor of the soft parts without pain. As it arises from an accumulation of serum in the cellular membrane. It is attended with paleness and coldness of the skin, which yields little resistance, and retains the print of the finger when pressed with it, and accompanied with little or no pain. It obtains no certain situation in any particular part of the body, since the head, eye-lids, hands, and sometimes part, sometimes the whole body, are affected with it. When the last is the case, the patient is said to have a cachexy, leucophlegmasia, or dropsy. But if any particular part is more subject to this disorder than another, it is the feet, as being the most depending parts in an upright position of the body. See Anasarca.

OENA'NTHE, (of the Gr. *ιναvθη*, from *οινος*, *wine*, and *ανθος*, *a flower*, so called because its flowers smell like the vine); hemlock dropwort, the *Œnanthe crocata*, Linn. This umbilliferous plant is an active poison, and has too often proved fatal, by being eaten in mistake instead of water-parsnep and other esculent roots. The juice, nevertheless, cautiously exhibited, promises to be an efficacious remedy in inveterate scorbutic eruptions. The root of this plant is not unpleasant to the taste, though esteemed one of the most deleterious of the vegetables which this country produces. The late Dr. Houlston, of Liverpool, in his essay on poisons, has given the cases of some children who had eaten this root for the ground, or pig-nut; and more recently Mr. Howel, surgeon at Haverfordwest, has related the cases of eleven French prisoners near the town of Pembroke, who dug up a large quantity of this plant, which they took to be wild celery, and which they eat with their bread and butter for dinner. After washing it, three of them ate of the roots, and as these were entering the town, without any previous notice of sickness at the stomach, or disorder in the head, one of them was seized with convulsions, and died presently. Ignorant, however, of the cause of their comrade's death, and their own danger, they gave of these roots to the other eight prisoners, who ate some of them with their dinner. A few minutes afterwards, the remaining two who gathered the plants, were seized in the same manner as the first, of which one died; the other was bled, and a vomit with great difficulty forced down, on account of his jaws being as it were locked together. This operated, and he recovered, but was some time affected with dizziness in the head, though not sick, or the least disordered in the stomach. The others being bled and vomited immediately, were soon well. At Clonmel, in Ireland, eight boys, mistaking this plant for water-parsnep, ate plentifully of its roots, and there are many other cases of the kind on record.

It appears, also, from various authorities, that some brute animals are not less affected by this poison than man. Mr. Lightfoot informs us, that a spoonful of the juice of this plant, given to a dog, rendered him sick and stupid; yet a goat was observed to eat the plant with impunity. The great virulence of this plant has not, however, prevented it from being taken medicinally. In a letter from Dr. Poulteney to Sir William Watson we are told, that a severe and inveterate cutaneous disorder was cured by the juice of the root, though not without exciting the most alarming symptoms. Taken in the dose of a spoonful, in two hours afterwards the head was affected in a very extraordinary manner, followed with violent sickness and vomiting, cold sweats, and rigors, but this did not deter the patient from continuing the medicine, in somewhat less doses, till it effected a cure.

OENA'NTHE CROCA'TA; the systematic name of the hemlock-dropwort. See Oenanthe.

ŒSO'PHAGUS, (of the Gr. *οισοφαγος*, from *οιω*, *to carry*, and *φαγω*, *to eat*, because it carries the food into the stomach); the membranous and muscular tube that descends in the neck from the pharynx to the stomach. This important canal is composed of three membranes, viz. a common, a muscular, and a mucous membrane. Its arteries are branches of the œsophageal, which arises from the aorta. The veins empty themselves into the vena azygos. Its nerves are produced from the eighth pair and great intercostal; and it is every where, under the internal or mucous membrane, supplied with glands that separate the mucous of the œsophagus, in order that the masticated bole may pass the easier. See Dysphagia.

Œ'STRUM VENE'REUM, *(œstrum*, from *œstrus*, a gad-bee, because by its bite or sting it agitates cattle), a name for the venereal orgasm, or that pleasant sensation which is experienced during the crisis of coition.

OFFICINAL, in pharmacy, an appellation given to such medicines, whether simple or compound, as are required to be constantly kept in the apothecaries' shops. The *officinal simples* are appointed, among us, by the college of physicians; and the manner of making the compositions is directed in their dispensatories. See Pharmacy.

OLEFIANT GAS, or *heavy carbonated hydrogen gas.* This gas was first brought into notice by a society of Dutch chemists, consisting of Deiman, Troostwyk, Bond, and Laurenburgh. They observed in this gas the particular property, that when it was combined with oxygenated muriatic acid gas in a certain proportion, the elastic form of both fluids became destroyed, and *oil was produced.* It was for this reason they called it *Olefiant* or oil-making gas. Mr. Accum describes the properties of this gas in the following way: Heavy carbonated hydrogen gas, he says, is not absorbed or altered by water; its weight compared with common air is as 909 to 1000; it has a disagreeable fetid odour, different from that of light carbonated hydrogen gas; it burns with a strong compact flame, similar to that of a resinous oil. When mixed with oxygenated muriatic acid gas, its bulk is diminished, and an oil is formed. When the mixture of these two gases is fired, a quantity of charcoal is immediately deposited in the form of fine soot. Sulphuric, sulphureous, nitric, nitrous, and muriatic acids do not act upon it; neither does nitrous gas, nor any of the fixed alkalies. Ammonia adds to its volume without occasioning any other change. Phosphorus, heated in it even to fusion, does not affect it. When made to pass through an ignited glass tube it does not diminish in volume, but loses the property of forming oil with oxygenated muriatic acid gas. Electric shocks passed through it, dilate, and likewise deprive it of this property. When passed through an ignited porcelain tube, it affords hydrogen gas, mingled with carbonic acid, and carbon is deposited. When passed through a tube with sulphur in fusion, sulphurated hydrogen gas is obtained, and charcoal deposited. When burnt with oxygen gas, or when passed through a red-hot tube filled with oxid of manganese, carbonic acid gas is formed.

Heavy carbonated hydrogen gas may be obtained by decomposing alcohol by sulphuric acid, at high temperatures. It is also obtained in abundance when alcohol or ether is passed through a red-hot earthen tube. Sulphuric ether mixed with sulphuric acid, and subjected to heat, also affords it, but in a less pure state. To obtain this gas the following method may be resorted to.

Let four parts of concentrated sulphuric acid, and one of highly rectified ardent spirit be mingled together gradually in a glass retort: heat will be developed, the mixture will become brown, and heavy carbonated hydrogen gas will be extricated without the application of external heat. When a moderate heat is applied, the action is very violent, and the gas is liberated very copiously, and may be received over water. The gas obtained is always mixed with a considerable quantity of sulphureous acid gas, from which it may be freed by agitating it in contact with lime-water, or a solution of potash.

In this operation the heat ought to be regulated with great care, and the retort holding the mixture ought to be very capacious, otherwise the matter will be forced over into the receiver. The heat of a candle or lamp is sufficient.

Numerous experiments, by different chemists, have proved, that this species of carbonated hydrogen gas contains a larger quantity of carbon in solution than the former. This becomes obvious from the gas losing the property of forming oil by being made to pass through an ignited tube, for it then deposits charcoal, and becomes converted into light carbonated hydrogen gas.

The Dutch philosophers suppose, that the disposition to form oil depends on the proximity of the constituent moleculæ of the gas; and the loss of this property they suppose to be owing to the separation of these moleculæ, by the introduction of a greater quantity of caloric. Mr. Accum, however, gives some satisfactory reasons why this opinion is inadmissible.

OIL. See Oleum.

OIL, ALMOND. See Amygdala.

OIL, CASTOR. See Ricinus.

OIL, COD-LIVER. See Liver oil.

OIL OF MACE. See Mace.

OIL, OLIVE. See Oliva.

OIL, PALM. See Palm oil.

OIL, ROCK. See Petroleum.

O'LEA EUROPEA; the systematic name of the plant from which the olive-oil is obtained. See Oliva.

OLE'CRANON, (of the Gr. *ωλεκρανον*, from *ωλενη*, *the ulna*, and *κρανον*, *the head*); the elbow or head of the ulna, upon which we lean. See Ulna.

O'LENE, (of the Gr. *ωλενη*); the cubit or ulna. See Ulna.

O'LEUM, (*ελαιον*, from *olea*, the olive, this name being at first confined to the oil expressed from the olive), oil. Oils are defined, by modern chemists, to be proper juices of a fat or unctuous nature, either solid or fluid, indissoluble in water, combustible with flame, and volatile in different degrees. They are never formed but by organic bodies; and all substances in the mineral kingdom, which present oily characters, have originated from the action of vegetable or animal life. See Olefiant gas.

Oils are distinguished into fixed or fat, and essential oils: 1. *Fixed Oil* is an immediate principle in many vegetables. It is somewhat thick, mild, inodorous, or slightly odorous. It is inflammable when very hot, or reduced into vapours. It absorbs oxygen from the air, and thickens or becomes concrete. It is insoluble in water, and forms soaps with alkalies. Fixed oil exists rarely except in nutritive seeds or kernels: it is extracted by mechanical pressure, or by trituration in water. The oils of olives, almonds, rape, linseed, &c. belong to this class. 2. *Volatile Oil* is a fluid of a strong aromatic odour, and acrid taste. It is very inflammable, and not easily saponifiable by alkalies. It is volatilized at 212°. It is soluble in alcohol. It dissolves resin and camphor, and is easily inflammable by the affusion of nitrous acid. It is usually obtained by subjecting vegetables to distillation with water; part of it becomes dissolved by that fluid, but the greatest part floats on the surface. The oils of cloves, cinnamon, lavender, rosemary, &c. are volatile oils obtained in that manner.

The use of fixed oils in medicine is very considerable. They are prescribed as relaxing, softening, and laxative remedies; they enter into many medical compounds, such as balsams, unguents, plasters, &c. and they are often used as food on account of the mucilage they contain. See Oliva. Essential oils are employed as cordial, stimulant, and antispasmodic remedies internally, and externally, as topical stimulants, in rheumatism, &c.

For an account of the different oils used medicinally, see the proper name of the substance from which each is respectively procured.

O'LEUM ABIE'TINUM, a name for the resinous juice which exudes spontaneously from the silver and red firs. It is supposed to be superior to that obtained by wounding the tree, but this is a mistake.

O'LEUM ANIMA'LE, the name of an empyreumatic oil obtained by distillation from animal substances. It is sometimes exhibited as an antispasmodic and diaphoretic, in the dose of from ten to forty drops, and with good effect. See Animal oil.

O'LEUM CA'MPHORÆ, oil of camphor; a native substance produced by several trees in the East Indies. This Dr. Cullen supposes to be no other than camphor in a liquid form. The person first possessed of it recommended its external use, to all his acquaintance, as an infallible remedy for gout and rheumatism; and a gentleman who had often laboured under the gout, and then felt the pains of it unusually severe, was persuaded to apply it. Dr. Cullen says, he had then the gout exceedingly painful in the ball of the great toe and instep of one foot. On this part he rubbed a quantity of the oil of camphor; and in about half an hour or a little more he was entirely freed from the pain. In less, however, than an hour after, he had a pain and inflammation come upon the same part of the other foot. As the pain here became pretty severe, he employed the oil of camphor to this, and with the same effect of soon relieving the pain entirely. The consequence, however, was the same; for in less than an hour the pain and inflammation returned to the foot that had been first affected: and here again the patient, obstinate in the trial of this remedy, again applied the oil, and he had the same success as before in relieving the part affected, and with the same effect also of occasioning a translation. But here the translation being made to the knee, the patient abstained from any farther application of the oil, and suffered the pain of the knee to remain for a day or two, and till it went off by some swelling and desquamation in the usual manner. See farther the article Camphora.

O'LEUM CAMPHORA'TUM, camphorated oil; a solution of camphor in some of the fixed or essential oils. The proportion is usually a drachm to an ounce. With palm oil, or olive oil, this is exceedingly proper to forward the suppuration of abscesses. Dissolved in the essential oil of turpentine, it forms the advertised nostrum *Essence of Mustard*, useful as a liniment for rheumatic and paralytic affections.

O'LEUM CARPA'THICUM, the name of a fine essential oil, distilled from the fresh cones of the tree which affords the common turpentine. See Terebinthina vulgaris.

O'LEUM CORNU CERVI. See Animal oil. This is applied externally as a stimulant to paralytic limbs, and taken also as an antispasmodic.

O'LEUM GABIANUM. See Petroleum rubrum.

O'LEUM JE'CORIS ASELLI. See Liver oil.

O'LEUM LUCII PISCIS. See Esox lucius.

O'LEUM MACIS, vel *Oleum myristicæ expressum*, the oil of mace; a fragrant sebaceous substance, expressed in the East Indies from the nutmeg. See Mace.

O'LEUM MALABATHRI; an oil similar in flavour to that of cloves, brought from the East Indies, where it is said to be procured from the leaves of the cinnamon-tree.

O'LEUM NE'ROLI, or *Essentia neroli;* the essential oil obtained from the flowers of the Seville orange tree. It is brought to us from Italy, Spain, and France.

O'LEUM ORI'GANI ESSENTIALE, a very hot and stimulating essential oil, often employed for alleviating the pain arising from caries of the teeth. For making the simple water of marjoram this oil is sometimes introduced on lump-sugar.

O'LEUM PALMÆ. See Palm oil.

O'LEUM PETRÆ. See Petroleum.

O'LEUM SINA'PEOS. This is an emollient oil of mustard, the acrid principle remaining in the seed. Its introduction therefore into the compound advertised by the name of *Essence of mustard*, is useless. See Oleum camphoratum.

O'LEUM SULPHURATUM, a solution of sulphur in olive oil, which was formerly called *Simple balsam of sulphur*. It is much used by some in the cure of chronic coughs and other phthisical complaints.

O'LEUM SY'RIÆ; a fragrant essential oil, obtained by distillation from the balm of gilead plant. See Moldavica.

O'LEUM TEMPLINUM, or *Oleum templinum verum;* a terebinthinate oil which is obtained from the fresh cones of the *Pinus abies*, Linn.

O'LEUM TERRÆ. See Petroleum.

O'LEUM VINI, the oil of wine. See Æther. It is stimulant and anodyne in the dose of from one to four drops.

O'LEUM VITRI'OLI. See Sulphureous acid.

OLFACTO'RII NERVI, *(olfactorii;* from *olfactus*, the sense of smelling), the olfactory nerves. The first pair of nerves are so termed, because they are the organs of smelling. They arise from the corpora striata, perforate the ethmoid bone, and are distributed very numerously on the pituitary membrane of the nose. See Nerves.

OLI'BANUM, (from the Gr. λιϐανον; from *lebona*, Chald.), a gum-resin; the juice of the *Juniperus lycia. Juniperus foliis ternis undique imbricatis ovatis obtusis.* Class, *Dioecia.* Order, *Monadelphia.* It is principally collected in Arabia, and brought from

Mecca to Cairo, from whence it is imported into Europe. It consists of transparent brittle grains of different sizes, not larger than a chesnut, of a red or yellow colour, having little taste, and a peculiar aromatic smell. Neumann got from 480 grains, 346 alcoholic, and 125 watery extract, and inversely 200 watery, and 273 alcoholic. The distilled spirit and oil both smelled of olibanum, but no oil separated. It forms a transparent solution with alcohol, and a milky fluid when triturated with water: it is not fusible, but inflammable, and burns with an agreeable smell. It is the frankincense of the ancients; and the diffusion of its vapour around the altar still forms part of the ceremonies of the Greek and Roman Catholic churches. As a medicine it is esteemed as an astringent, and though not in general use, is by many considered as a valuable remedy in fluor albus, and debilities of the stomach and intestines. Applied externally in the form of a plaster, it is said to be corroborant, &c.

OLI'VA, the olive; the fruit of the *Olea Europea*, Linn. *Olea foliis lanceolatis integerrimis, racemis axillaribus coarctatis.* Hort. Kew. Class, *Monandria.* Order, *Monogynia.* This tree grows in the southern parts of France, in Spain, Italy, and other warm countries: with us it is usually preserved in the greenhouses of the curious, though it will bear our ordinary winters in the open air, and produce very good olives.

The utility of this fruit is very extensive. Pickled olives, which are of two kinds, Spanish and French, are extremely grateful to many stomachs, and said to excite appetite and promote digestion. These are prepared from the green and unripe fruit, which is repeatedly steeped in water, to which some quick-lime or alkaline salt is added, in order to shorten the operation: after this they are washed and preserved in a pickle of common salt and water. The principal consumption, however, of this fruit is in the preparation of the common sallad oil, or *Oleum olivæ* of the pharmacopœias, which is obtained by grinding and pressing them when thoroughly ripe. The purest oil issues first by gentle pressure, and the inferior sorts are obtained by heating what is left, and pressing it more strongly. Pure olive oil is of a bright pale amber colour, bland to the taste, and without any smell. It becomes rancid by age, and the sooner if kept in a warm situation. Oil, in some shape, forms a considerable part of our food, both animal and vegetable, and affords much nourishment. With some, however, oily substances do not unite with the contents of the stomach, and are frequently brought up by eructation; this happens more especially to those whose stomachs abound with acid. Oil, as a medicine, has been recommended internally, to obviate the effects of various stimuli, which produce irritation, and consequent inflammation: on this ground it has been generally prescribed in coughs, catarrhal affections, and erosions, as a demulcent. See Demulcentia. The oil of olives is used in Switzerland against the *tænia osculis superficialibus*, and it is in very high estimation in this and other countries against nephritic pains, spasms, colic, constipation of the bowels, &c. Externally it has been found a useful application to bites and stings of various poisonous animals, &c. also to burns, tumors, and other affections, both by itself or mixed in liniments or poultices. Oil rubbed over the body is convenient in dropsies, particularly ascites, to soften and relax the skin. Olive oil enters several officinal compositions, and when united with water, by the intervention of alkali, is usually given in coughs and hoarsenesses as an emulsion.

OLI'VARIA CORPORA; a name for two protuberances in the under part of the brain, placed on each side the corpora pyramidalia, towards the lower end, having their name from their figure, which is that of an olive. See Cerebrum.

OLIVES. See Oliva.

OLIVE, SPURGE. See Mezereum.

OMENTI'TIS, (from *omentum*, the caul), an inflammation of the omentum. It is a species of peritonitis. See Peritonitis.

OME'NTUM, (from *omen*, a guess; so called because the soothsayers prophesied from an inspection of this part), called also *Epiploon*; the caul: a large, thin membranous bag, surrounded on all sides by numerous portions of fat, which accompany and even invest the same number of arteries and veins adhering closely to each other. The greatest part of it resembles a kind of flat purse, or a sportsman's empty pouch; and is spread more or less on all the small intestines from the stomach to the lower part of the regio umbilicalis. Sometimes it goes down to the lower part of the hypogastrium, and sometimes does not reach beyond the regio epigastrica. It is commonly plaited or folded in several places, especially between the bands of fat.

It is divided into a superior and inferior, an anterior and posterior, and a right and left portion. The superior portion is in a manner divided into two borders, one of which is fixed along the great curvature or convex side of the arch of the colon, and the other along the great curvature of the stomach. The commissure or union of these two borders on the right side, is fixed to the common ligament or adhesion of the duodenum and colon, and to the contiguous parts of these two intestines. That on the left side is fixed to the longitudinal scissure of the spleen, to the extremity of the pancreas, and to the convex side of the great extremity of the stomach. It is likewise fixed to the membranous ligament which sustains the ductus cholidochus, and connects it to the vena portæ ventralis.

Below these adhesions, the other portions, that is, the anterior, posterior, two lateral and inferior portions, which last is the bottom of the sacculus epiploicus, have commonly no fixed connexions, but lie loose between the fore side of the cavity of the abdomen and the intestines. The anterior and posterior portions are generally called the *laminæ* of the omentum; but as that term is ordinarily employed to express the duplicature of some compound membrane, Dr. Monro says it would be more convenient to call them *folia*, *alæ*, or some such name.

The *structure of the omentum* is next to be noticed. The omentum is, through its whole extent, made up of two very thin laminæ joined by a cellular substance; the quantity of which is most considerable along the blood-vessels, which it every where accompanies in broad bands proportioned to the branches and ramification of these vessels. These cellular bands are more or less filled with fat, according to the corpulency of the subject; and for that reason Dr. Monro calls them *bands* or *portions of fat*.

Besides this large membranous bag, or *greater omentum*, there is another much smaller, which differs from the large one, not only in size, but also in figure, situation, and connection; called the *little omentum*. This small bag is fixed by its whole circumference, partly to the small curvature of the stomach, and partly to the concave side of the liver before the sinus of the vena portæ, so as to surround and contain the prominent portion of the lobulus. The little omentum is thinner and more transparent than the other, and its cavity diminishes gradually from the circumference to the bottom, which in some subjects terminates in several small cavities or fossulæ more or less pointed. Its structure, however, is pretty much the same with that of the great omentum.

The membranous laminæ of the little omentum are continuous partly with the external membrane of the liver, partly with that of the stomach, and a little with the membrane that lines the neighbouring portion of the diaphragm. Those of the great omentum are continued partly with the same coat of the stomach, and partly with the external covering of the colon, and consequently with the mesocolon; and they likewise communicate with the covering of the spleen.

We may satisfy ourselves concerning these continuations, by making a small hole in one of the laminæ of the omentum near the stomach, colon, &c. and by blowing into that hole, through a pipe well fitted to it; for the air will gradually insinuate itself under the common coats of these viscera: but if the parts be dry, they must be moistened a little before the experiment is made.

The fatty appendices of the colon and rectum are considered by Winslow as a kind of small omenta or *appendices epiploicæ*. They are situated at different distances along these intestines, being particular elongations of their common or external coat. They are of the same structure with the great omenta; and there is a cellular substance contained in their duplicature, more or less filled with fat, according as the subject is fat or lean. Next the intestine, each of them forms a broad, thin basis; and they terminate by irregular papillæ, thicker than their bases. These bases are at first disposed longitudinally, then obliquely, and at last, more or less transversely, especially near the rectum, and upon that intestine.

These appendices are for the most part separated from each other; but some of them, which have longitudinal bases, communicate together, the vestiges of these communications being very narrow, and not very prominent. By blowing through a small hole made in one of these appendices, it is inflated like a small irregular bladder, and the air passes under the external coat of the colon or rectum.

The blood vessels of the omentum are branches of the gastricæ, and for that reason go by the name of *gastro-epiploicæ dextræ* and *sinistræ*. The arteries on the right side answer to the hepatic artery, and those on the left side to the splenic; and both communicate with the arteria ventriculi coronaria, and respectively with the arteriæ mesentericæ. The gastro-epiploic veins answer in the same manner of distribution to the vena portæ. The vessels of the little omentum come chiefly from the coronariæ ventriculi, and those of the appendices and strata are ramifications from the reticular texture of the arteries and veins of the colon and rectum.

The omentum often forms a part of the contents of a hernial tumor; and it is frequently attacked with inflammation, as in the puerperal fever, &c.

O'MO, (from *ωμος*, *the shoulder*). Names compounded with this word belong to muscles which are attached to the scapula; as in the following:

OMO-HYOIDE'US, the *Coraco-hyoideus* of Albinus and Douglas; a muscle which is situated between the os hyoides and shoulder, and whose office is to pull the os hyoides obliquely downwards. It arises broad, thin, and fleshy, from the superior costa of the scapula, near the semilunar notch, and from the ligament that runs across it: thence ascending obliquely, it becomes tendinous below the sternocleido-mastoideus, and growing fleshy again, is inserted into the base of the os hyoides.

OMOPLA'TA, (*ωμοπλατα*; from *ωμος*, *the shoulder*, and *ϖλατυς*, *broad*). See SCAPULA.

OMPHALOCE'LE, (*ομφαλοκηλη*; from *ομφαλος*, *the navel*, and *κηλη*; *a tumor*), an umbilical hernia. See HERNIA.

ONANISM, or ONANIA, terms of modern invention, denoting the crime of self-pollution, mentioned in scripture to have been committed by *Onan*, and punished, in him, with death. This practice, however common, has among all nations been reckoned a very great crime. Of all the causes by which diseases of debility are brought on, none is more common than too copious evacuations; and of all evacuations, that of the semen is the most pernicious when carried to excess. It is also to be observed, that though excess in natural venery is productive of very dangerous disorders, yet an equal evacuation by self-pollution, which is an unnatural way, is productive of others still more to be dreaded.

The consequences enumerated by Dr. Tissot are as follow: 1. All the intellectual faculties are weakened; the memory fails; the ideas are confused, and the patient sometimes even falls into a slight degree of insanity. They are continually under a kind of inward restlessness, and feel a constant anguish. They are subject to giddiness; all the senses, especially those of seeing and hearing, grow weaker and weaker, and they are subject to frightful dreams. 2. The strength entirely fails, and the growth in young persons is considerably checked. Some are afflicted with almost continual watching, and others dose almost perpetually. Almost all of them become hypochondriac or hysteric, and are afflicted with all the evils which attend these disorders. Some have been known to spit calcareous matter; and others are afflicted with coughs, slow fevers, and consumptions. 3. The patients are affected with the most acute pains in different parts of the body, as the head, breast, stomach, and intestines; while some complain of an obtuse sensation of pain all over the body on the slightest impression. 4. There are not only to be seen pimples on the face, which are one of the most common symptoms; but even blotches, or suppurative pustules, appear on the face, nose, breast, and thighs; and sometimes fleshy excrescences arise on the forehead. 5. The organs of generation are also affected; and the semen is evacuated on the slightest irritation, even that of going to stool. Numbers are afflicted with an habitual gonorrhœa, which entirely destroys the vigour of the constitution, and the matter of it resembles a fetid sanies. Others are affected with painful priapisms, dysuries, stranguries, and heat of urine, with painful tumors in the testicles, penis, bladder, and spermatic cord; and impotence in a greater or less degree is the never-failing consequence of this detestable vice. 6. The functions of the intestines are sometimes totally destroyed: and some patients complain of costiveness, others of diarrhœa, piles, and the running of a fetid matter from the fundament.

With regard to the cure, the first step is to leave off those practices which have occasioned the disease; which our author asserts is no easy matter; as, according to him, the soul itself becomes polluted, and can dwell on no other idea; or if she does, the irritability of the parts of generation themselves quickly recalls ideas of the same kind. This irritability is no doubt much more to be dreaded than any pollution the soul can have received; and by removing it, there will be no occasion for exhortations to discontinue the practice. The principal means for diminishing this irritability are, in the first place, to avoid all stimulating, acrid, and spiced meats. A low diet, however, is improper, because it would further reduce the body, already too much emaciated. The food should therefore be nutritive, but plain, and should consist of flesh, rather roasted than boiled, rich broths, &c. It is certain, however, that as these foods contribute to restore the strength of the body, the stimulus on the organs of generation will be proportionably increased by the semen which is constantly secreted, and which will now be in larger quantity than even in healthy persons, owing to the great evacuations of it which have preceded. Some part of the semen is gradually absorbed by the lymphatics; in consequence of which, the remainder becomes thick, acrid, and very stimulating. To remedy this, exercise is to be used, and that not only for pleasure, but till it is attended with an inconsiderable degree of fatigue. The sleep also must be no more than is barely sufficient to repair the fatigues occasioned by the exercise, or other employment; for an excess in sleep is as bad as idleness or stimulating foods. Excess in wine or intoxicating liquors is also to be avoided; or rather such liquors ought never to be tasted, unless as a medicine to restore the exhausted spirits; and to all this ought to be joined the Peruvian bark, which has this admirable property, that, with little or no stimulus, it restores the tone of the system, and invigorates the body in an extraordinary manner. If these directions are followed, the patient may perhaps expect a recovery, provided any degree of vital strength remains; and those who desire a life of celibacy on a moral account, will find them much more effectual than all the vows of chastity they can make.

ONEIRODY'NIA, (ονειροδυνια; from ονειρον, *a dream*, and οδυνη, *anxiety)*; a disturbed imagination during sleep. This is a genus of disease in the class *neuroses*, and order *vesaniæ* of Cullen, containing two species: 1. *Oneirodynia activa*, walking in the sleep. See SOMNAMBULI. 2. *Oneirodynia gravans*, the incubus or night-mare. See NIGHT-MARE.

ONION. See CEPA.

ONION, SEA. See SCILLA.

ONI'SCUS, (of the Gr. ονιςκος; from ονος, *an ass*; so called because, like the ass, it requires much beating before it is useful); the stock-fish. The slow worm is also named oniscus.

ONI'SCUS ASE'LLUS; the systematic name of the wood-louse. See MILLEPEDES.

ONO'NIS, (ονωνις; from ονος, *an ass*, because it interrupts the ass when at plough), called also *Resta bovis*, *Arresta bovis*, and *Remoka aratri*; rest-harrow. It is the *Ononis spinosa, vel arvensis* of Linnæus. The roots have a faint unpleasant smell, and a sweetish, bitterish, somewhat nauseous taste. Their active matter is confined to the cortical part, which has been given in powder, and in other forms, as an aperient and diuretic remedy.

ONO'NIS ARVENSIS; the systematic name of the rest-harrow. See ONONIS.

ONO'NIS SPINOSA; the systematic name of a species of the rest-harrow. See ONONIS.

ONO'SMA ECHIOI'DES, the systematic name of a plant whose root is called *anchusa lutea* in some pharmacopæias. It is supposed to possess emmenagogue virtues, but it is not to be relied on.

ONOPO'RDUM ACA'NTHIUM, *(Onopordium*, of the Gr. ονοπορδον; from ονος, *an ass*, and περδω, *to break wind*; so named from its being much desired by asses, and from the noise it makes upon pressure; and *acanthium*, from ακανθιος, *thorny)*; the systematic name of the cotton-thistle. See CARDUUS TOMENTOSUS.

O'NYX, (of the Gr. ονυξ), or, as it is sometimes called, *Unguis*; an abscess, or collection of pus between the lamellæ of the cornea. It is so called from its resemblance to the gem called onyx. The diagnostic signs are, a white spot or speck, prominent, soft, and fluctuating. The species are: 1. *Abscessus superficialis*, not dangerous, for it vanishes when the inflammation is resolved by the use of astringent collyria. 2. *Abscessus profundus*, deeper seated, between the lamellæ of the cornea, sometimes breaking internally, and forming an hypopium. When it opens externally it leaves a fistula upon the cornea; and whenever the pus is exsiccated, there remains a leucoma.

OPACITY, a quality of bodies which renders them impervious to the rays of light. This term is applied frequently to that state of the cornea in which the rays of light can no longer be transmitted to the retina. When partial or circumscribed it is called a speck or offuscation. See ALBUGO.

OPERATION, a term differing in signification as it is applied severally to the processes in pharmacy, the manual parts of surgery, or the working or efficacy of medicines administered to the sick. See PHARMACY, and SURGERY.

OPERATOR, one who performs an operation. The operations employed in the cure of diseases belong exclusively to the surgeon and accoucheur. The requisites necessary to attain excellence in this highly important branch of our art, are enumerated under the article SURGEON.

OPHIORRAI'ZA MU'NGOS; the systematic name of the plant which furnishes the root called radix serpentum in the pharmacopœias. See MUNGOS RADIX.

OPHIO'XYLUM SERPENTI'NUM; the systematic name of the tree whose wood bears the name of lignum serpentinum in the pharmacopœias. See SERPENTINUM LIGNUM.

OPHTHA'LMIA, (*οφθαλμια*; from *οφθαλμος*, *the eye)*, an inflammation of the membranes or of the whole bulb of the eye; distinguishable by a high degree of redness, heat, pain, and tension of the parts, accompanied with intolerance of light, and effusion of tears. It is a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ* of Cullen; and comprehends two species: 1. *Ophthalamia membranarum*, inflammation of the coats of the eye. 2. *Ophthalmia tarsi*, in which small ulcers are seen on the sabaceous glands of the tarsus, discharging a glutinous matter. To these may be added some other species which will be noticed hereafter. In reality, a long list of distinctions might be enumerated which authors have invented in the ophthalmia; but it is evident, that by far the greatest part of them are symptomatic, or merely the consequence of other disorders present in the habit. Hence it is obvious that the remedies must be directed towards the removal of these primary disorders; and when they are gone the ophthalmia will be removed of course. Dr. Cullen observes, that the inflammation of the eye may be considered as of two kinds; according as it is seated in the membranes of the ball of the eye, when it is named *ophthalmia membranarum*: or as it is seated in the sebaceous glands placed in the tarsus, or edges of the eye-lids, in which case it may be termed *ophthalmia tarsi*. These two kinds are very frequently connected together, as the one may excite the other; but they are still to be distinguished according as the one or the other may happen to be the primary affection.

1. The *inflammation of the membranes of the eye* affects especially, and most frequently, the adnata, and appears in a turgescence of its vessels; so that the red vessels which are naturally there, become not only increased in size, but many more appear than in a natural state. This turgescence of the vessels is attended with pain, especially upon the motion of the ball of the eye; and this irritation, like every other applied to the surface of the eye, produces an effusion of tears from the lachrymal gland.

The inflammation commonly, and chiefly, affects the adnata spread on the anterior part of the bulb of the eye; but usually spreads also along the continuation of the adnata on the inside of the palpebræ: and as that is extended on the tarsus palpebrarum, the excretories of the sebaceous glands opening there are also frequently affected. When the affection of the adnata is considerable, it may be communicated to the subjacent membranes of the eye, and even to the retina itself; which thereby acquires so great sensibility, that every impression of light becomes painful. The inflammation of the membranes of the eye is in different degrees, according as the adnata is more or less affected, or according as the inflammation is of either the adnata alone, or of the subjacent membranes also; and upon these differences, different species have been established; but they seem all to differ only in degree, and are to be cured by the same remedies more or less employed.

The proximate cause of ophthalmia is not different from that of inflammation in general; and the different circumstances of ophthalmia may be explained by the difference of its remote causes, and by the different parts of the eye which it happens to affect; as may be understood from what has been already said. We shall therefore proceed to give an account of the method of cure.

The great objects to be aimed at in the treatment of ophthalmia, are, in the first place, the resolution of the inflammation which has already taken place; and, secondly, the removal of those consequences which frequently arise from the inflammation, especially if it have been of long standing. But besides these, while it has appeared from former observation, that there is a peculiar disposition to the disease, practices may often be successfully employed to combat this disposition, and thus prevent the return of the affection.

The ophthalmia membranarum requires the remedies proper for inflammation in general; and when the deeper seated membranes are affected, and especially when a pyrexia is present, large general bleedings may be necessary. But this last is seldom the case; and, for the most part, the ophthalmia is an affection merely local, accompanied with little or no pyrexia. General bleedings therefore have little effect upon it, and the cure is chiefly to be obtained by topical bleedings, that is, blood drawn from the vessels near the inflamed part. For this purpose Mr. Ware has adopted the practice of opening the angular vein lying contiguous to the inner canthus; but opening the jugular vein, or the temporal artery, may be considered as a proper measure of this kind. Indeed it is commonly sufficient to apply a number of leeches near the eye; but it is perhaps still better to draw blood by cupping and scarifying upon the temples. In many cases, the most effectual remedy is to scarify the internal surface of the inferior eye-lid, and to cut the turgid vessels upon the adnata itself; which Mr. Ware also recommends.

Besides blood-letting, purging, as a remedy suited to inflammation in general, has been considered as peculiarly adapted to inflammation in any part of the head, and therefore to ophthalmia; and it is sometimes useful: but, for the reasons given before with respect to general bleeding, purging in the case of ophthalmia does not prove useful in any proportion to the evacuation excited. For relaxing the spasm in the part, and taking off the determination of the fluids to it, blistering near the part has commonly been found useful. When the inflammation does not yield to the application of blisters after topical bleeding, great benefit is often obtained by supporting a discharge from the blistered part, under the form of an issue, by which means a more permanent determination of blood from the part is obtained.

It is probably also on the same principle that the good effects obtained from the use of errhine medicines in obstinate cases of ophthalmia are to be accounted for. By those errhines, in particular, which occasion and support for some time a great discharge from the nose, much benefit has often been obtained. The powder of asarabacca, or the infusion of hippocastanum, snuffed up the nose at bed-time, in proper doses, are often productive of the best effects, when many other remedies have been tried in vain. Mr. Ware has found the following of use in common cases, and in the gutta serena.

℞ Hydrargyri vitriolati gran. j.
Pulveris glycyrrhizæ gran. viij. Misce.

He directs one fourth of this quantity to be snuffed up the nostrils once or twice a day.

Ophthalmia, as an external inflammation, admits of topical applications. All those, however, which increase the heat and relax the vessels of the part, prove hurtful; and the admission of cool air to the eye, and the application of cooling and astringent medicines, which at the same time do not produce irritation, prove useful. In the cure of this disease, indeed, all irritation must be carefully avoided, particularly that of light; and the only certain means of doing this is by keeping the patient in a darkened chamber; or at least directing him to wear a shade of green silk over the eyebrows.

The following collyria, the formulæ employed in some of the public hospitals, and inserted in the Pharm. Chirug. afford a sufficient variety for the choice of the practitioner in the treatment of this disease.

℞ Aquæ ammoniæ acetatæ
Aquæ rosæ sing. unc. ij. Misce.

This is a most useful application to inflamed eyes, where there is a high degree of irritation and pain, and will often succeed when other collyria have been ineffectually tried. In this, as in the application of all fluid remedies to the eye, it is of importance to bring them into *contact* with the part, and even to suffer them to pass between the eye-lids. They are therefore most effectually applied with the assistance of that useful vessel called an *eye-cup;* or, where the more permanent application of the remedy is requisite, single bits of fine linen rag may be dipped into the liquid and laid one over another; the outer pieces being occasionally taken off and dipped a fresh as the fluid evaporates. In some cases, the aqua ammoniæ acetatæ may be used undiluted.

℞ Aquæ distillatæ unc. iv.
Aquæ lithargyri acetati gutt. v. Misce.

℞ Spiritus camphorati gutt. x.
Aquæ lithargyri acetati gutt. v.
Aquæ distillatæ unc. iv. Misce.

It is necessary to remark, that these ingredients are to be put together in the order here set down, otherwise the camphor will be separated.

℞ Zinci vitriolati gran. v. ad x.
Aquæ distillatæ unc. iv. Misce.

℞ Zinci vitriolati drach. ss.
Camphoræ gran. x.
Aquæ ferventis unc. vj.

The vitriolated zinc being rubbed with the camphor and the boiling water poured on, the clear liquor is to be separated by filtration. There are few better collyria than those in which vitriolated zinc form an ingredient.

℞ Hydrargyri muriati gr. j.
Aquæ distillatæ unc. iv. Misce.

This resembles the aqua cupri ammoniati in its qualities, and may be weakened or strengthened at pleasure, by varying the proportion of muriated mercury.

℞ Aq. ammoniæ acetatæ;
Aq. rosæ, sing. unc. ij.
Tincturæ opii gutt. xl. Misce.

This is most suitable in an inflamed state of the eye, when the pain is considerable.

℞ Opii in pulverem triti gr. j.
Camphoræ gr. ij.
Aquæ ferventis unc. iv.

The opium and camphor are to be rubbed together, the hot water then added, and the liquor lastly strained through a fine cloth. This has very soothing properties, and is suited to those cases of ophthalmia in which there is a peculiar degree of irritability.

There are few external applications more strikingly useful in certain stages of ophthalmia than the vinous tincture of opium *(Tinct. Thebaic.* of the old Disp.) so highly recommended by Mr. Ware; but it affords also an example of a remedy which may be easily abused. When prudently used, it not only procures great relief from pain, but greatly assists in dissipating the inflammation itself. The method of using it is, to drop into the eye a single drop of it once or twice a-day. This causes at first a sharp pain, and copious flow of tears. But a remarkable degree of ease commonly succeeds; the inflammation abates, and is often entirely removed after a few applications of the tincture.

The thebaic tincture is used with the greatest effect in the second stage of ophthalmia, after the necessary evacuations have been premised. Used earlier, it is less beneficial, and, in some cases, rather hurtful, especially where the eyes appear shining and glossy, and feel exquisite pain from the rays of light. Even in such cases, however, Mr. Ware says, the application is sometimes found to succeed; "and whether it will or not, can only be determined by making the trial, which is attended with no other inconvenience than the momentary pain it gives. Whenever it is found to produce no good effect, the use of it must be suspended, until evacuations, and other proper means, have diminished the excessive irritation; after which it may be again applied, and bids equally fair for success as in those instances in which it never disagreed."

2. In the *ophthalmia tarsi*, the same medicines may be necessary as have been already recommended for the ophthalmia membranarum. However, as the ophthalmia tarsi may often depend upon an acrimony or irritation of the sebaceous glands of the part, so it may require various internal remedies according to the variety of the acrimony in fault: for this we must refer to the consideration of scrophula, syphilis, or other diseases with which the ophthalmia may be connected; and where these shall not be evident, certain remedies more generally adapted to the correction of acrimony, such as mercury, may be employed. In the ophthalmia tarsi, it almost constantly happens that some ulcerations are formed on the tarsus. These require the application of ung. hydrarg. nitrat. which alone may sometimes cure the whole affection; and the same may be useful even when the disease depends upon a fault of the whole system.

Both in the ophthalmia membranarum, and in the ophthalmia tarsi, it is necessary to obviate that glueing together of the eye-lids which commonly happens in sleep; and which may be done by insinuating a little lard or any mild unctuous liniment between the eye-lids before the patient goes to sleep.

The slighter kinds of inflammation from the dust or the sun, may be removed by fomenting with warm milk and water, adding a small portion of brandy; and by anointing the borders of the eye-lids with *unguentum tutiæ*, or the like, at night, especially when those parts are excoriated and sore. But in bad cases, after the inflammation has yielded a little to bleeding, opiate fomentations, and evacuations, the *Cataplasma aluminis* of the London Pharmacopœia spread on lint, and applied at bed-time, has been found the best external remedy. Before the use of the latter, a strong solution of vitriolated zinc is prescribed with advantage, or the following.

℞ Zinci vitriolati scrup. j.
Adipis suillæ preparatæ unc. ss.

The vitriolated zinc being very finely powdered, is afterwards to be well incorporated with the lard.

℞ Zinci usti, drach. j.
Unguenti ceræ albæ, drach. vj. Misce.

This is the Edinburgh ointment of zinc. At St. Thomas's hospital a similar remedy is employed, under the name of *Unguentum ophthalmicum*. When the patient suffers violent pain it is of service to foment frequently with a strong decoction of white poppy heads.

3. In the *Intermittent Ophthalmia*, where, with no very great appearance of inflammation, the pain both of the head and eye continues violent, and is subject to remit, and sometimes wholly to intermit, Mr. Ware has found the internal use of the muriate of mercury very useful, and he now recommends it in preference to all other remedies, even to the Peruvian bark. It has often succeeded with him in cases where the cinchona had failed. He has also found the internal use of the muriate of mercury singularly useful in several cases where the ophthalmy followed putrid and nervous fevers. "The inflammation in these cases, though small in appearance, is generally attended with a deep-seated pain in the orbit, which is much increased during the night, with a peculiar dulness in the transparent parts of the eye, and with considerable general debility."

4. The *Endemic Ophthalmia* is a disease with which we have been but lately made acquainted. Dr. Antonio Savaresi, one of the physicians to the French army in Egypt, who has written on the cure and prevention of this disease, divides it into the sthenic and asthenic species; the one depending on an excess, the other on a defect of tone. The former, he says, affects the bulb of the eye; the latter, sometimes the *tarsus*, sometimes the *tunica conjunctiva*. Purging with magnes. vitriol. was resorted to in the beginning, in all the three species.

"The sthenic opthalmia," says the Doctor, "requires very close and strict attention, inasmuch as the cure depends on the efficiency of the first remedies. In this case, a blister to the nape of the neck, and local bleeding from the temporal or jugular vein, are of great utility, and ought not to be omitted. An hour after the letting of blood, a sensible change in the complaint is perceived, and next day the violent pain of the part, and the severe head-ach diminish, or at least cease to torture the patient. This effect is often retarded, and the complaint advances, accompanied with a slight feverishness. In order to stop this, it is necessary to repeat the bleeding and the purges." A low diet is prescribed, a decoction of barley with cream of tartar, and an anodyne collyrium, composed of tincture of opium properly diluted.

"This method of cure should be continued till the swelling of the eyes is diminished, and the eye-lids begin to be turned up with a degree of swelling, an appearance which always proceeds from the weakening and relaxation of the vessels. In consequence of this change a saponaceous collyrium is ordered, which consists of a solution of soap in spirit of wine, by the use of which the eye-lids resume their natural situation, and easily open, so that the cornea, being now visible, is found sometimes red or covered with spots. In the first case, cold water with vinegar is employed with good success; and in the second, recourse is had to a dry collyrium, composed of sugar-candy, alum, and nitre, which destroys the spots in a few days. By means of these topical and internal remedies, a complete cure is effected in the space of a month or two. If the complaint should not be removed in that time, there will be too much reason to despair of a cure."

With respect to the cure of the second species of ophthalmia, Dr. Savaresi applied only a tonic collyrium of vitriolated zinc, dissolved in vinegar, water, and proof spirit. This remedy afforded the utmost relief, and has cured the complaint radically in twenty days or a month. A collyrium made of common salt dissolved in vinegar and water, served to cure a third species of opthalmic inflammation, which is more simple, but obstinate like the preceding. In the maritime countries of Italy, Dr. Savaresi says, he has seen this indisposition cured with baths of sea water.

"Many," says he, "praise the application of emollient and resolving cataplasms in all the three species of Egyptian ophthalmia; but observation teaches us, that this remedy is noxious, since it relaxes the part, increases the pain, and produces other evils. Of a thousand, or thereabouts, who were affected with this disorder, only two entirely lost their sight, though several lost the sight of one eye."

The *preventive means* cannot be practised by soldiers, as their necessary duties do not admit of it; but they may be of assistance to those who have the proper convenience for availing themselves of them.—"First, exposure to the rays of the sun with the head uncovered, should be avoided, and to the humidity of the night, without some precaution to shelter one's self from it. In the second place, it is necessary to bathe the eyes twice or thrice a-day with fair water, mixed with vinegar or lemon juice, especially when the organ has been irritated by dust, smoke, or any external substance; and when it has been weakened by too much sunshine or humidity, it ought to be sprinkled with spirituous or other tonic liquors. Finally, it will be advisable to abstain from salted food, and at the same time to maintain suitable perspiration; to preserve the hair of the head a little long, to avoid exposure to cold after being heated, and to attend to the intestinal evacuations." Dr. Savaresi adds, that the success of these simple preservatives has been confirmed by observation and experience: for, when seasonably practised, they prevent the disorder, and preserve the sight.

5. In another variety of ophthalmia, which is accompanied with sneezing and coughing, and in *peculiarly irritable eyes*, very small doses of opium, or of cicuta, given once or twice a-day, have been found useful by Mr. Ware.

A topical application, of great efficacy in cases of chronic ophthalmy, is the *Ung. hydr. nitrati*, mentioned above, or an ointment prepared with the red nitrate of mercury, in the proportion of one-eighth part. This ointment is peculiarly useful where the edges of the tarsi are ulcerated, and the inflammation is kept up by the irritation of the secretion from these parts; in most cases where, from the long continuance of inflammation, the vessels of the eye have become relaxed and weakened, and where specks are beginning to form on the cornea. The application may also be used with excellent effect in more recent cases, after scarification of the conjunctiva of the eye-lids, especially in the ophthalmy of scrofulous children, and in that which is a sequela of eruptive disorders.

"It is a question of no small moment," says Mr. Ware, "and perhaps has not been sufficiently attended to by surgeons, whether a *lotion* should be applied to the eye warm or cold. It has been a usually received opinion, that warm applications relax and weaken those parts to which they are applied; and, on the contrary, that cold applications have a tendency to brace and strengthen them. But though this observation be sometimes just, it is by no means universally true. Weakness is not unfrequently the result of pain; and whatever removes pain in the same proportion contributes to give strength. Weakness, again, is sometimes occasioned by too great fulness, not merely in those vessels which convey red blood, but likewise in the lymphatic vessels, and often, also, in the glands that are connected with the surface of the body, and the ducts that carry off the secretion of these glands; and whatever tends to diminish the fulness of these parts, or to carry off the substances that are morbidly lodged in them, contributes in the same proportion to increase their strength. In some of these ways, I presume, it is that the application of hot water to the eye is frequently useful, not only when it is in a state of inflammation and pain, but when the ciliary glands are enlarged, and when they secrete an acrimonious or glutinous humour; which humour adhering to the orifices of the ducts, as it passes through them, forms more or less of gum on the edges of the eye-lids, and causes them to stick together when they have been long in contact. Weakness, again, is sometimes the result of too great tightness or stiffness in those elastic parts which are formed for a greater or less degree of contractile action; and whatever tends to restore the power of contraction of these parts, contributes to increase their strength, and promote their usefulness. In this way, I account for the utility of the application of hot water when the eye feels morbidly dry, and also when it begins to lose its power of accommodating itself to the view of near objects; a change which takes place in most eyes that are not naturally short-sighted, as persons advance in life, and which, it is probable, in some degree depends on the too great tension of the cornea, and its inability to acquire that increased convexity which it is necessary it should have, in order to enable it duly to refract the rays of light when they come from near objects. Useful, however, as hot applications undoubtedly often are, it should not be forgotten, on the contrary, that in those cases when the weakness of the eye is accompanied with a morbid secretion of tears, without much inflammation, and sometimes in those also where the lachrymal secretion is accompanied with an increased acrimonious discharge from the ciliary glands, which discharge excoriates the edges of the eye-lids, and makes them adhere together when they have been long in contact, as during the time of sleeping, cold applications, and those which possess a degree of astringency, such as the zincum vitriolatum, cerussa acetata, lapis tutiæ, and lapis calaminaris, (and particularly five or six grains of the zinc. vitr. mixed with an equal quantity of the cerussa acetat. and four ounces of the aq. flor. sambuci) have often afforded very essential assistance. But in the composition of all remedies for the eye, where insoluble bodies are employed, whether they be in the form of ointments, or in that of lotions, it is of great importance always to remember, that they should be reduced to an impalpable powder; and, in general, it is desirable that aqueous mixtures should be passed through filtering paper, before they are sent to be used by the patient."

The applications recommended by Mr. Ware, for specks or opacities of the cornea, which admit of any remedy, are the diluted solution of the muriate of mercury, the ung. hydr. nitrati, the ointment prepared with the red nitrate, and a powder composed of one-eighth part of alum mixed with sugar; also a division of the blood-vessels, with a curved pair of scissars, where they are observed to feed the speck. Some of these preparations will be found detailed under the article Albugo.

After a violent ophthalmia, vision is sometimes obscured by a deposition of matter in the anterior chamber of the aqueous humour of the eye. Not unfrequently this matter is gradually again absorbed, as the inflammation is dissipated, or this absorption may be afterwards promoted by stimulating applications to the eye. If, however, the collection of matter is not soon made to disappear, and especially if it rather appears to increase, Mr. Ware strongly urges the propriety of discharging it by an incision of the cornea, and even of repeating the operation, if necessary. He cautions us against delaying the operation, as such delay, if continued for any considerable time, may end in the destruction of the cornea, and, of consequence, the irrecoverable loss of sight.

OPHTHALMIC GANGLION, or *Lenticular ganglion;* a ganglion formed in the orbit, by the union of a branch of the third or fourth pair, with the first branch of the fifth pair, of nerves.

OPHTHALMIC NERVE, or *Orbital nerve;* the first branch of the ganglion or expansion of the fifth pair of nerves. It is from this nerve that a branch proceeds to form, with a branch of the sixth, the great intercostal nerve.

OPHTHALMODY'NIA, (*οφθαλμοδυνια*, from *οφθαλμος*, *an eye*, and *οδυνη*, *pain)*, a violent pain in the eye, without, or at least with very little, redness. The pain is very various, as itching, burning, or as if gravel were between the globe and lids of the eye. The species enumerated by authors are: 1. *Ophthalmodynia rheumatica*, which is a pain in the muscular expansions of the globe of the eye, without redness in the albuginea. The rheumatic inflammation is serous, and rarely produces redness. 2. *Ophthalmodynia periodica;* a periodical pain in the eye, without redness. 3. *Ophthalmodynia spasmodica.* This is a pressing pain in the bulb of the eye, arising from spasmodic contractions of the muscles of the eye. It occurs in nervous, hysteric, and hypochondriac persons, and is observed to terminate by a flow of tears. 4. *Ophthalmodynia* from *internal inflammation.* In this disorder, there is pain and a peculiar sensation, as if the globe were pressed out of the orbit. 5. *Ophthalmodynia hydropthalmica.* After a great pain in the inferior part of the os frontis, the sight is obscured, the pupil dilated, and the bulb of the eye appears larger, pressing on the lid. This species is likewise perceived from an incipient hydrophthalmia of the vitreous humour. 6. *Ophthalmodynia arenosa*, an itching, and a sensation of pain in the eye, as if sand or gravel were lodged between the globe and lid. 7. *Ophthalmodynia symptomatica*, which is a symptom of some other disease of the eye, and is, of course, only to be cured by removing the exciting cause. 8. *Ophthalmodynia cancrosa*, or that which arises from cancerous acrimony deposited in the eye; a disease that is incurable.

OPHTHALMO'PTOSIS, (of the Gr. *οφθαλμοπτωσις*, from *οφθαλμος*, *an eye*, and *πτοσις*, *a fall);* a falling down of the globe of the eye on the cheek, or canthus, or displacement upwards, the globe itself remaining unaltered in size. The cause is a relaxation of the muscles, and ligamentous expansions of the globe of the eye. The species are: 1. *Ophthalmoptosis violenta;* generated by a violent blow, or contusion, as happens sometimes in boxing. The eye falls out of the socket on the cheek or canthus of the eye, and from the elongation and extension of the optic nerve occasions immediate blindness. 2. *Ophthalmoptosis*, caused by a tumor growing within the orbit. An exostosis, tophus, abscess, or an encysted tumor, as an atheroma, hygroma, or scirrhus, forming within the orbit, may throw the bulb of the eye out of the socket, in various directions. 3. *Ophthalmoptosis paralytica*, a paralytic ophthalmoptosis. This arises from a palsy of the recti muscles, from whence there is stronger power in the oblique muscles of the bulb. 4. *Ophthalmoptosis staphylomatica;* when the staphyloma depresses the inferior eye-lid, and extends it on the cheek. The remedies in these affections must, of course, be adapted to the respective circumstances under which they occur.

OPIATES. This name has, by some authors, been given to all medicines that have opium in their composition; but it is more properly given to such medicines as have no other intention but to procure sleep. See Narcotica, and Opium.

OPISTHO'TONOS, (*οπιςθοτονος*, from *οπιςθεν*, *backwards*, and *τεινω*, *to draw);* a clonic spasm of several muscles, so as to keep the body in a fixed position, and rigidly bowed or bent backwards. Dr. Cullen considers it as a variety of tetanus. See Tetanus.

O'PIUM, (of the Gr. *οπιον*, from *οπος*, *juice*, or rather from opi, Arab.), an inspissated gummy juice, which is obtained, by incisions, from the head of the *papaver somniferum*, Linn. *Papaver calycibus capsulisque glabris, foliis amplexicaulibus incisis.* Class, *Polyandria.* Order, *Monogynia.* It is imported from Persia, Arabia, and other warm regions of Asia, in flat cakes, covered with leaves to prevent their sticking together. It has a reddish-brown colour, and a strong peculiar smell. Its taste, at first, is nauseous and bitter, but this soon becomes acrid, and produces a slight warmth in the mouth. The use of this celebrated medicine, though not known to Hippocrates, may be clearly traced back to Diagoras, who was nearly his cotemporary, and its importance has even since been gradually advanced by succeeding physicians of different nations. Its extensive practical utility, however, has not been long well understood; and in this country, perhaps, may be attributed to Sydenham. The leaves, stalks, and capsules, of the poppy, are known to abound with a milky juice, which may be collected in considerable quantity, by slightly wounding them when almost ripe: this juice, exposed for a few days to the air, thickens into a stiff tenacious mass, which, in fact, is opium. It is then worked up into masses, which, however, include a great proportion of extraneous matters. By decoction and expression this juice is partially extracted from the poppies, with a considerable quantity of mucilage. The liquor strongly pressed out, suffered to settle, clarified with whites of eggs, and evaporated to a due consistence, yields about one-fifth, or one-sixth the weight of the heads, of extract. This possesses the virtues of opium in a very inferior degree; but it does not come to this country unless when used to adulterate the genuine opium. A strong decoction of the dried heads, mixed with as much sugar as is sufficient to reduce it into the consistence of a syrup, becomes fit for keeping in a liquid form; and is the *Syr. papav. alb.* the only officinal preparation of the poppy directed by the Colleges. It is, however, a very unequal preparation, as the real quantity of opium it contains is very uncertain, and by no means equal to a syrup which may be made with a certain quantity of tincture of opium and common syrup.

The seeds of the poppy are simply emulsive, and contain none of the narcotic principle. They yield a considerable quantity of fixed oil by expression.

There are two kinds of opium known in commerce, namely, the Turkish and East Indian. 1. The *Turkey opium* is a solid compact substance, possessing a considerable degree of tenacity; when broken, having a shining fracture and uniform appearance; of a dark brown colour; when moistened, marking on paper a light brown uninterrupted streak, and becoming yellow when reduced to powder; scarcely colouring the saliva when chewed, exciting at first a nauseous bitter taste, which soon becomes acrid, with some degree of warmth; and having a peculiar heavy disagreeable smell. The best is in flat pieces, and besides the large leaves in which it is enveloped, is covered with the reddish capsules of a species of rumex, probably used in packing it. The round masses which have none of these capsules adhering to them, are evidently inferior in quality. It is bad if it be sost, friable, mixed with any impurities, have an intensely dark or blackish colour, a weak or empyreumatic smell, a sweetish taste, or draw upon paper a brown continuous streak. 2. *East-India opium* has much less consistence, being sometimes not much thicker than tar, and always ductile. Its colour is much darker; its taste more nauseous, and less bitter; and, its smell rather empyreumatic. It is considerably cheaper than Turkish opium, and supposed of only half the strength.

Opium, though not fusible, is softened even by the heat of the hands. It is highly inflammable, and partially soluble, both in alcohol and in water. Neumann got from 1920 parts of opium, 1520 alcoholic, and afterwards 80 of watery extract, 320 remaining undissolved; and inversely, 1280 of watery, and 200 of alcoholic extract, the residuum being 440. The solutions are transparent, and have a brown or vinous colour: the watery solution is not decomposed by alcohol. A small quantity of matter, which Dr. A. Duncan's experiments have shown to be neither fusible nor remarkably inflammable, is separated from the alcoholic solution by water. The solutions of opium, especially the watery, are also copiously precipitated by infusion of galls. This precipitate is found to resemble that produced by cinchonin, and to be different from that produced by gelatine.

Alcohol, or water, distilled from opium, are impregnated with its narcotic virtues; but these are diminished, or entirely dissipated, by long boiling, roasting, or great age. Upon the whole, it appears that the active constituent of opium, though not perfectly understood, is of a volatile nature, but somewhat fixed by its combination with the other constituents; that it is soluble both in water and in alcohol; that it is dissipated in the processes recommended for purifying opium by solution and evaporation; and that the attempts, made by some pharmaceutists, to obtain a preparation of opium, which should possess only its sedative, without its narcotic, effects, only succeeded in so far as they diminished its general activity.

The *action of opium* on the living system, has been the subject of much controversy. Some have asserted that it is a direct sedative, and that it produces no stimulant effects whatever, while others have asserted, as strongly, that it is a powerful, and highly diffusible, stimulus, and that the sedative effects, which it certainly produces, are merely the consequence of the previous excitement. For Dr. Cullen's opinion, it may be necessary to advert to the article SEDANTIA, in pursuing which subject, he says, that opium, like other narcotics, in its first operation, often irritates the sanguiferous system. Thus it excites the force of the circulation; and, however it is to be accounted for, does certainly, in a degree, give this medicine the powers of a cordial and exhilarant. He observes, that though the stimulant should not entirely prevent the sedative action, yet it often puts it off for some time, to give what may be called the intermediate state, namely, that of *ebriety;* which, according to the balance between the stimulant and sedative power, may appear more or less, or may subsist for a longer or shorter time, and may, therefore, more particularly explain the operation of opium in different persons and cases.

“The consideration of the stimulant power of opium,” says Dr. Cullen, “will particularly explain why, in persons in whom the stimulant power is considerable, the effects of a moderate dose of opium, instead of inducing sleep, may, by the increased action of the heart, appear to prevent it; and this, probably, may also be a frequent cause of opium's not inducing sleep. It will also be obvious, that in any case when the irritations already prevailing in the system, and preventing sleep, depend upon an increased action of the heart and arteries, the addition of the stimulus of opium, more ready to take place in such cases, must certainly prevent sleep, with all the bad consequences of the conflict above mentioned. In many cases, however, the sedative power does prevail, and, at length, induces sleep.

"If the sedative power of opium prevails not only over the general energy of the brain, but also over its exertion in increasing the action of the heart, the effects upon the whole may perhaps be salutary; but if the irritation of the heart either continues after the action of the opium has ceased, or be then, from that very action, more easily renewed, the effects may, on the other hand, be pernicious.

"It appears clearly, that the stimulant and sedative powers of opium operate at one and the same time; and in no instance more remarkably, than in that of opium proving powerfully *sudorific.* The increased action of the heart, however excited, has a tendency to produce sweating; but every body knows that it is difficult to produce sweating by the power of medicines purely stimulant, and at all times opium has been found to be the most effectual of all sudorifics. This, by some, may be ascribed entirely to its stimulant power; but it is highly probable that the sedative power, concurring at the same time, by relaxing the extreme vessels, renders the sweating a more certain effect, and more considerable in its degree. Are not the sweatings which often occur in natural sleep, and particularly the colliquative sweat in hectics, analogous to this, as depending upon an irritation and weakness of the extreme vessels concurring together?"

Dr. Cullen contends, in opposition to a prevailing opinion, that opium does not rarefy the blood; and he maintains that the symptoms which are supposed to be in proof of this, may be owing only, or entirely, to the increased action of the heart and arteries, which will often afford such an appearance without any actual change in the state of the blood. He imputes the more turgid state of the vessels to the slower motion of the blood in that case, produced by the weaker action of the extreme vessels giving occasion to the accumulation of it in the larger. With respect to the fluidity of the blood in consequence of the frequent use of opium and other narcotics, though he admits the fact, yet he supposes it to be in consequence of a particular state of the circulation, rather than the effect of mixture.

The truth appears to be, that opium is certainly capable of producing a certain degree of excitement, while the sedative effects which always succeed, are incomparably greater than could be produced by the preceding excitement. The stimulant effects are most apparent from the exhibition of small doses. These increase the energy of the mind, the frequency of the pulse, and the heat of the body, excite thirst, render the mouth dry and parched, and diminish all the secretions and excretions, except the cuticular discharge, which they increase. These effects are succeeded by languor and lassitude. In larger doses, the stimulant effects are not so apparent, but the power of all stimulating causes, of making impressions on either the body or mind, is remarkably diminished, pain and fear both ceasing to make any impression, a confusion of head, vertigo, and sleep, are produced. In excessive doses it proves a violent narcotic poison, producing head-ach, vertigo, delirium, and convulsions, accompanied with a very slow pulse, stertorous breathing, and a remarkable degree of insensibility or stupor, terminating by apoplectic death. The bad effects of an over-dose of opium are often prevented by vomiting, when it can be excited, and they are best counteracted by making the patient drink freely of acids and coffee, and not permitting him to yield to his desire of sleeping. By habit, the effects of opium on the body are remarkably diminished. There have been instances of four grains proving fatal to adults, while others have been known to consume as many drachms daily. The habitual use of opium produces the same effects with habitual dram-drinking, namely, tremors, paralysis, and stupidity, and like it can scarcely ever be relinquished.

If by a sedative medicine, we mean an article capable of allaying, assuaging, mitigating, and composing, no substance can have a better title to the appellation of sedative than opium, though we are by no means to overlook its stimulant effects in applying it, in certain cases, for the cure of diseases.

Dr. Cullen is averse from its use in active inflammation; but others have, nevertheless, had recourse to it in such cases, even at an early period, especially after blood-letting; and where such affections are attended not only with pain and spasm, but with watchfulness and cough, it is said to be often productive of the greatest benefit. Combined with calomel, it has, of late, been extensively employed in every form of active inflammation, and with extraordinary success. It is found also to be of very great service in allaying the pain and preventing the symptomatic fever liable to be induced by wounds, fractures, burns, or similar accidents. Dr. Cullen, indeed, acknowledges its usefulness in cases where the inflammatory state is superinduced by local irritation, as in the passage of biliary calculi, &c. where there is a spasmodic constriction of the ducts. And he allows that it is admissible in suppurations, and in some general affections of the system even, where it is so managed as to *procure sweating.*

The administration of this remedy in *Fevers*, is a subject of some importance; we shall therefore give Dr. Cullen's opinion respecting it in detail. He is disposed to think, that almost all our continued fevers arise from contagion, or from certain corruptions of human effluvia proving such; and, he says, it is highly probable, that those contagions, or matters similar to them, act as sedative powers, and, applied to the human body, produce a debility, which both induces the fever and subsists through the whole course of it, proving the circumstance from which the danger of the fever chiefly arises. In this view of the matter, opium, as a stimulant to the heart and arteries, may be considered as *a principal remedy in fevers;* although it is not to be supposed *universally such.*

In the beginning of many of the fevers which occur in this climate, there appears to be more or less of an inflammatory diathesis in the system; and during this state, the use of opium is extremely hurtful. It does not then either induce sleep or relieve pain, but aggravates the inflammatory symptoms, and often determines to particular inflammations, which prove afterwards fatal. In some few cases of fever, excited by the most powerful contagions, the inflammatory state indeed may appear very little, and these may very possibly admit the early use of opium: but in most of the cases in which cold so frequently concurs in the production of the fever, Dr. Cullen supposes the inflammatory state to have subsisted for the first week of the disease, within which time he considers opium, if not a dangerous, to be at least an ambiguous remedy. But as the disease advances, the inflammatory state generally disappears in the second week, and the symptoms of debility become more evident. In this condition opium may be employed, and more or less as the symptoms of debility and irritation are more distinctly apparent: yet even in this second stage, Dr. Cullen thinks it an ambiguous remedy; and if it increase delirium, and does not readily induce sleep, it may be very hurtful.

In the advanced state of fevers, there is an irritation on the brain, which is not of the inflammatory kind, but which produces convulsive motions of the limbs to a considerable degree: and to this irritation Dr. Cullen imputes the subsultus tendinum that so commonly occurs. The same irritation also frequently produces a delirium; which, as not of the phrenetic and inflammatory kind, Dr. Cullen names the *maniacal*. For the removal of these effects of irritation, opium is a sovereign remedy; and may not only be employed freely, but ought commonly to be given in large doses, and these repeated every eight hours, unless sleep, and a remission of the convulsive motions and delirium, shall allow of longer intervals. For some time, however, in the advanced stages of fever, though these symptoms, by the use of opium, may be much abated, they are liable to recur, unless they are obviated by its repetition.

In some fevers, indeed, arising from contagion, having little general inflammation accompanying them, but, on the contrary, attended with much debility, there occurs, from causes not easily assigned, some topical inflammation of the brain. These topical affections, and the delirium depending upon them, do not admit of opium, and all their symptoms are much aggravated by it. The existence, however, of such topical inflammation, is not always easily ascertained; and some suffusion of the eyes is not always a certain proof of it.

In the cure of *intermittent fevers*, opium, or some of those compositions of which it was the chief ingredient, were very much employed by the ancients: but since the use of Peruvian bark has been introduced, opium has been less employed, and only by persons who were prejudiced against the bark. To judge properly of its use, Dr. Cullen says, we must attend to the nature of the disease, which, he hopes, is better understood in consequence of his labours. It appears, that the recurrences of the paroxysms of intermittent fevers depend upon the recurrence of a state of debility, and that this is to be prevented either by the use of tonics or stimulants, which may excite the action of the heart and arteries, and support that excitement till the period of accession is over. For this purpose, various means of exciting fever and sweat have been employed; and there is, perhaps, no medicine that can be more effectually employed for that purpose than opium. Boerhaave's celebrated *sudoriferum antipyreticum rarefaliens* derived its chief virtue from the two grains of opium which it contained, and which determined it to act as a sudorific. Opium alone has been employed, by being given an hour or two before the time of accession, and has prevented the return of a fit without exciting sweat, and merely as a stimulus and antispasmodic; but the consequences of this have been sometimes bad: and it seems that the safe and more certain practice is, to direct opium so as to operate by sweating.

This medicine is also useful in correcting the purgative quality of the bark, or other tonics that may be employed; and even where no such purgative quality is to be apprehended, a certain quantity of opium, joined with the bark, makes it sit easier upon the stomach than with some it otherwise would; and a portion of it, joined with two or three doses of the bark, which are given immediately before the time of accession, enables it, in less quantity, to prevent the return of paroxysms. When given even in the hot stage, it has been observed to allay the heat, thirst, head-ach, and delirium, to induce sweat and sleep, to cure the disease with less bark, and without leaving abdominal obstructions or dropsy.

In the *small-pox*, when the convulsions before eruption are frequent and considerable, or when the accompanying fever is of the typhoid type, opium may be liberally used. It is likewise given from the fifth day onwards; and is found to allay the pain of suppuration, to promote the pytalism, and to be otherwise useful.

In the *measles*, which is purely, and often strongly, an inflammatory disease, with a strong tendency to pneumonic inflammation, before bleeding had been duly employed, Dr. Cullen found opium to be not only ineffectual, but manifestly hurtful. It is true, he says, that the measles are very constantly attended with a cough, for which the only certain remedy is opium: and as this symptom is not only severe, but may be supposed to aggravate the disease, practitioners have a strong temptation to employ opium; and Dr. Cullen here is of opinion that it may be employed more freely than the inflammatory nature of the disease might seem to admit of. He would, however, have practitioners be as reserved as possible in the use of opium in the measles, till the violence of the inflammatory state, at least, be taken off by bleeding and other antiphlogistic means.

In the year 1779, opium was introduced into practice as a specific against the lues venerea. It was employed in several of the military hospitals, where it acquired the reputation of a most efficacious remedy; and Dr. Michaelis, physician to the Hessian forces, published an account of a great number of successful experiments made with it, in the first volume of the Medical Communications in the year 1784. Opium was afterwards given as an anti-venereal remedy in some foreign hospitals. Many trials were also made of its virtues in several of the London hospitals, and in the Royal Infirmary at Edinburgh. Very favourable reports of its efficacy in removing venereal complaints, were published by different practitioners; but, at the same time, so many deductions were to be made, and so many exceptions admitted, that it required little sagacity to discover, that most of the advocates for this medicine reposed but a slender and fluctuating confidence in its anti-venereal powers. The experiments of Mr. Pearson, made at the Lock Hospital in the years 1784 and 1785, proved very unfavourable, if not absolutely fatal, to the credit of this supposed remedy; and we believe no surgeon in this country now relies on opium as a specific against the venereal virus.

In *dysentery*, after the use of gentle laxatives, or along with them, opium, independently of any effect it may have on the fever, is of consequence in allaying the tormina and tenesmus, and in obviating that laxity of bowels which so frequently remains after that disease. In *diarrhœa*, the disease itself generally carries off any acrimony that may be a cause, and then opium is used with great effect. Even in the worst symptomatic cases, it seldom fails to alleviate.

In *cholera* and *pyrosis*, opium is almost the only medicine trusted to. See those articles.

In *colic*, it is employed with laxatives; and often prevents ileus and inflammation, by relieving the spasm. See Colic. Even in *ileus* it is sometimes advantageously used to allay the vomiting, the spasms, and the pain.

Opium is given to allay the pain and favour the descent of calculi, and to give relief in jaundice and dysuria proceeding from spasm. It is of acknowledged use in the different species of tetanus; affords relief to the various spasmodic symptoms of dyspepsia, hysteria, hypochondriasis, asthma, rabies canina, &c. and has been found useful in some kinds of epilepsy. Opium is also found useful in certain cases of threatened abortion and lingering delivery, in convulsions during parturition, and in the after pains and excessive flooding.

The administration of opium to the unaccustomed, is sometimes very difficult. The requisite quantity of opium is wonderfully different in different persons, and in different states of the same person. A quarter of a grain will in one adult produce effects which ten times the quantity will not do in another; and a dose that might prove fatal in cholera or colic, would not be perceptible in many cases of tetanus or mania. When given in too small a dose, it is apt to produce disturbed sleep, and other disagreeable consequences; and with some constitutions it seems not to agree in any dose or form. Often, on the other hand, from a small dose, sound sleep, and alleviation of pain will be produced, while a larger one gives rise to vertigo and delirium. Its stimulant effects are most certainly produced by the repetition of small doses, its anodyne by the giving of a full dose at once. In some it seems not to have its proper effect till after a considerable time. The operation of a moderate dose is supposed to last in general about eight hours from the time of taking it. Externally, opium is used to diminish pain, and to remove spasmodic affections.

Opium may be exhibited in other substances, made up in the form of a pill, bolus, or electuary; which is its most efficient form in most cases. It is also given dissolved in diluted alcohol, or white wine, or in water or watery fluids, in which last form it is very perishable. It is dried and reduced to powder sometimes, for the greater convenience of mixture with other remedies in the same form. It is often given in combination with aromatics, astringents, emetics, bitters, camphor, soap, distilled waters, mucilage, syrups, acids, carbonate of ammonia, æther, acetate of lead, tartrate of antimony and potash, and unctuous substances. Some of these are certainly unchemical mixtures, for Dr. A. Duncan has found by experiment that the solutions of opium are copiously precipitated by astringents, the alkaline carbonates, and all the metallic salts.

The officinal preparations in which this most useful drug is included, are:—*Pil. opii*, Lond. Edin. *Opium purificat.* Lond. Dubl. *Extract. opii*, Edin. Lond. *Troch. glycyrr. cum opio.* Edin. Lond. *Elect.* sive *Confect. opiat.* Edin. Lond. *Elect. catechu.* Edin. Dubl. *Tinctura opii*, Edin. Lond. Dubl. *Tinct. opii camph.* Lond. Dubl. and many others of less note.

OPOBA'LSAMUM. See Balsamum Gileadense.

OPODE'LDOC, a term of no precise meaning, invented by Paracelsus. It formerly signified a plaster for all external injuries, but now is confined to a camphorated soap liniment, the composition of which is very well known to surgeons and apothecaries.

OPO'PANAX, (*οποπαναξ*, from *οπος*, *juice*, and *παναξ*, *the panacea)*, a gummi-resinous juice obtained from the *Pastinaca opopanax*, Linn. *Pastinaca foliis pinnatis, foliolis basi antica excisis.* Class, *Pentandria.* Order, *Digynia.* This substance is obtained by incisions made at the bottom of the stalk of the plant, from which it gradually exudes, and by undergoing spontaneous concretion, assumes the appearance under which we have it imported from Turkey and the East-Indies. Sometimes it is in little drops or tears, but more commonly in irregular lumps, of a reddish yellow colour on the outside, with specks of white: internally of a paler colour, and frequently variegated with large white pieces. Opopanax has a strong disagreeable smell, and a bitter, acrid, somewhat nauseous taste. It is seldom employed in the present practice, but when prescribed it is as an antispasmodic, in combination with other medicines. It was formerly, however, in high estimation as an attenuant, deobstruent, and aperient. Its antispasmodic virtues are less powerful than galbanum, and more so than ammoniacum. It has no place in the new Edinburgh Pharmacopœia, but is directed by the London College in the *Pil. galb. comp*

OPPO'NENS POLLICIS. See Flexor ossis metacarpi pollicis.

OPTIC NERVES, (*optici*, from *οπτομαι*, *to see*;

because they are the organs of sight); the second pair of nerves of the brain. They arise from the thalami nervorum opticorum, perforate the bulb of the eye, and in it form the retina. See Nerves.

OPU'NTIA, *(ab opunte*, from the city *Opus*, near which it flourished), the *Cactus opuntia*, Linn. The prickly leaves of this plant abound with a mucilaginous matter, which is esteemed in its native countries as an emolient, and used,in the form of poultice, in inflammations, &c.

ORACHE, STINKING. See Atriplex fœtida.

ORANGE, *Aurantium;* the common China or sweet orange: *Aurantium Chinensis*, vel *Aurantia dulcis*. This delicious fruit possesses all the virtues ascribed to the summer fruits. See Fructus recentes. It is of infinite utility in the cure of the scurvy. See Scorbutus.

ORBICULA'RE OS, (*orbicularia*, shaped like a ring, from *orbiculus*, a little ring) the name of a very small round bone, not larger perhaps than a pin's head, that belongs to the internal ear.

ORBICULA'RIS ORIS, (from *orbiculus*, a little ring; so called from its shape), the *Sphincter labiorum* of Douglas, *Semi-orbicularis* of Winslow, and *Constrictor oris* of Cowper; a muscle of the mouth, which is formed in a great measure by those of the lips. The fibres of the superior descending, those of the inferior ascending and decussating each other about the corner of the mouth, they run along the lip to join those of the opposite side, so that the fleshy fibres appear to surround the mouth like a sphincter. This muscle shuts the mouth, by contracting and drawing both the lips together.

ORBICULA'RIS PALPEBRA'RUM, a muscle common to both the eye-lids. It arises by a number of fleshy fibres from the outer edge of the orbitar process of the superior maxillary bone, and from a tendon near the inner angle of the eye; these run a little downwards and outwards, over the upper part of the cheek, below the orbit, covering the under eye-lid, and surround the external angle, being loosely connected only to the skin and fat: they then run over the superciliary ridge of the os frontis, towards the inner canthus, where they mix with the fibres of the occipito-frontalis and corrugator supercilii; then covering the upper eye-lid, they descend to the inner angle opposite to their inferior origin, and firmly adhere to the internal angular process of the os frontis, and to the short round tendon which serves to fix the palpebræ and muscular fibres arising from it. It is inserted into the nasal process of the superior maxillary bone by a short round tendon, covering the anterior and upper part of the lachrymal sac, which tendon can be easily felt at the inner canthus of the eye. The use of this muscle is to shut the eye, by drawing both lids together, the fibres contracting from the outer angle towards the inner, press the eye-ball, squeeze the lachrymal gland, and convey the tears towards the puncta lachrymalia.

ORBITS, a name given to the two conoid cavities under the forehead, in which the eyes are situated. The angles of the orbits are called *canthi*. Each orbit is composed of seven bones, viz. the frontal, maxillary, jugal, lachrymal, ethmoid, palatine, and sphænoid. The use of this bony socket is to contain and defend the organ of sight from external violence.

O'RCHIS, (of the Gr. ορχις, from ορεγομαι, *to desire)*, a testicle. Also a plant whose roots resemble the testicle. It is the *Orchis morio* from whose root the salep is made. See Salep.

ORCHI'TIS, (of the Gr. ορχιτις, from ορχις, *a testicle)*, *Inflammatio testis*, or *Hernia humoralis;* an inflammation of the testicle.

ORCHOTO'MIA (ορχοτομια, from ορχις, *a testicle*, and τεμνω, *to cut)*, orchotomy, or castration; the operation of removing a testicle.

OREOSELI'NUM, (of the Gr. ορεοςελινον; from ορος, *a mountain*, and σελινον, *parsley;* so named because it grows wild in mountainous situations), the black mountain-parsley. *Athaminta oreoselinum; foliolis divaricatis*, Linn. The root and seeds of this plant, as well as the whole herb, were formerly used in medicine, and in so high estimation as to obtain the epithet of *polychresta*. It is seldom used, however, in the practice of the present day. An extract and tincture were prepared from the root, which is said to be attenuant, aperient, deobstruent, and lithontriptic. The oil, obtained by distillation from the seed, was used to allay the tooth-ach.

ORES, metallic compounds dug out of the bowels of the earth. In these, metals are mineralized always by sulphur or arsenic, and most frequently by both together. Few of them are used in medicine in their natural state.

ORGAN, or *Organical*, that part of an animal or vegetable body which is designed for the performance of some particular action; in opposition to a part that is in-organical, and which cannot, of itself, perform an action. Thus the organ of sight is the eye, with all its parts; the *organ* of hearing, the ear, &c.

ORGASM, (of the Gr. οργαςμος), an impetus, or quick motion of the blood or nervous fluid, whereby the muscles are convulsed, or made to move with uncommon force, from what cause soever it proceeds. By οργαω, the ancients generally understood, an ungovernable desire of coition, when the seminal vessels were so turgid, as not to contain their contents from involuntary emission; and in the latter sense it is used at present, or rather for the natural venereal crisis.

ORIBASIUS, a celebrated physician; esteemed by the emperor Julian, in whose reign he flourished. At the request of the emperor, he abridged the works of Galen, and of all the most respectable writers on physic. He accompanied Julian into the east, but his skill proved ineffectual in attempting to cure the fatal wound which his benefactor had received. In his writings he speaks very fully of the effects of bleeding by way of scarification, a thing little taken notice of by former writers: from his own experience he assures us that he had found it successful in a suppression of the menses, defluxions of the eyes, head-ach, and straitness of breathing even when the person was extremely old. He tells his own case particularly, when the plague raged in Asia, and he himself was taken ill, that the second day he scarified his leg, and took away two pounds of blood; by which means he entirely recovered, as did several others who used it. In this author also we find the first description of a surprising and terrible distemper, which he termed λυκα θριωπα, a species of melaucholy and madness, which he describes thus. "The persons affected get out of their houses in the night-time, and in every thing imitate wolves, and wander among the sepulchres of the dead till day-break. You may know them by these symptoms: Their looks are pale; their eyes heavy, hollow, dry, without the least moisture of a tear; their tongue exceedingly parched and dry, no spittle in their mouth, extreme thirst; their legs, from the falls and the bruises they receive, full of incurable sores and ulcers." After the death of the emperor, Oribasius fell into the hands of the barbarians.

ORI'GANUM, (of the Gr. οριγανον; from ορος, *a mountain*, and γανοω, *to rejoice;* so called because it flourishes upon mountains), the wild marjoram; *Origanum vulgare*, Linn. *Origanum spicis subrotundis paniculatis conglomeratis, bracteis calyce longioribus ovatis.* Class, *Didynamia.* Order, *Gymnospermia.* This plant grows wild in many parts of Britain. It has an agreeable aromatic smell, approaching to that of garden marjoram, and a pungent taste, much resembling thyme, to which it is likewise thought to be more immediately allied in its medicinal qualities, which are those of an emmenagogue, tonic, stomachic, &c. The dried leaves are used in tea, by the common people. in complaints of the stomach. They are also employed in medicated baths and fomentations with other ingredients. See Dictamnus, Majorana, and Marum.

O'RIS CONSTRI'CTOR. See Orbicularis oris.

ORLEA'NA TERRA, Orleans earth, a substance so named from the place where it is produced. It is a ceraceous mass which is obtained from the seeds of the *Bixa Orleana*, Linn. In the West-Indies it is considered as a useful remedy in dysentery, possessing astringent and stomachic qualities.

ORNITHO'GALUM MARI'TIMUM, (*Ornithogalum*, of the Gr. ορνιθογαλον, from ορνις, *a bird*, and γαλα, *milk*), so called from the colour of its flowers; a kind of wild onion. See Scilla.

ORNITHOGLO'SSUM, (ορνιθογλωςςον, from ορνις, *a bird*, and γλωςςα, *a tongue*, so called from its shape); bird's-tongue. This name is also given to the seeds of the ash tree.

O'ROBUS, (οροϐος, from ερεπτω, *to eat*). See Ervum.

O'ROBUS TUBERO'SUS, the heath-pea. The roots of this plant are said to be very nutritious. The Scotch inhabitants of the Highlands hold them in great esteem, and chew them like tobacco.

ORPINE. See Faba crassa.

ORPIMENT. Native orpiment is found in yellow, brilliant, and, as it were, talcky masses, often mixed with realgar, and sometimes of a greenish colour. See Arsenic.

ORTHOPNŒ'A, (of the Gr. ορθοπνοια, from ορθρος, *erect*, and πνοη, *breathing*), a very quick and laborious breathing, during which the person is obliged to be in an erect posture. This happens very commonly in the asthma.

ORRIS, or *Orrice*. See Iris.

ORY'ZA, (ορυζα, from orez, Arab.), rice; the seeds of the *Oryza sativa*, Linn. There is but one species, which is the sativa or common rice. This plant is greatly cultivated in America and in most part of the eastern countries, where it is the chief support of the inhabitants. Great quantities of it are also brought into England and other European countries every year, where it is much esteemed for puddings, &c. Rice, according to Dr. Cullen, is preferable to all other kinds of grain, both for largeness of produce, quantity of nourishment, and goodness. This, he says, is plain from macerating the different grains in water; for, as the rice swells to the largest size, so its parts are more intimately divided. Rice is said to affect the eyes; but this is purely prejudice. It is even alleged that a whole people of Asia, who live on rice, are subject to blindness: but if the soil be sandy, and not much covered with herbage, and as these people are much employed in the field, this affection of their eyes may be owing to the strong reflection of the rays of light from this glaring soil; and our author is the more inclined to this opinion, because no such effect is observed in Carolina, where rice is very commonly used. Dr. Percival, however, says, that as a wholesome nourishment, rice is much inferior to salep. See Salep. From his experiments it appears, that rice, as an aliment, is slow of fermentation, and a very weak corrector of putrefaction. It is therefore an improper diet for hospital patients, but more particularly for sailors, in long voyages, because it is incapable of preventing, and will not contribute much to check the progress of, that fatal disease the sea-scurvy.

OS, a bone. See Bones.

OSCHEOCE'LE, (οςχιοκηλη, from οσχεοι, *the scrotum*, and κηλη, *a tumor*), a name, sometimes given to a tumor of the scrotum, arising from an accumulation of water (see Hydrocele); and sometimes to a scrotal hernia. See Hernia.

OSCILLA'TIO, oscillation; the swinging of a pendulum. Borelli, in his work *de Motu Animalium*, applies it to those motions in an animal body that have some resemblance to that of a pendulum. Boerhaave used this term in the same sense as irritability.

OSCITA'TIO, oscitation; that slight convulsive motion of the muscles, which is commonly called yawning, or stretching, as in the beginning of an ague-fit, or in consequence of mere drowsiness.

O'SCULUM, (dim. of *os*, a mouth); a little mouth or orifice.

OSMU'NDA REGA'LIS; the systematic name of the Osmund-royal. The root of this plant possesses astringent and styptic virtues, but is little known in the present practice.

OSMUND-ROYAL. See Osmunda regalis.

O'SSA SPONGIO'SA, the spongy bones. These are two in number, called *ossa spongiosa inferiora.* The ethmoid bone has two turbinated portions, which are sometimes called *ossa spongia superiora.* These bones, which from their shape are sometimes called *ossa turbinata*, have been described by some, as belonging to the ethmoid bone; and by others, as portions of the ossa palati. In young subjects, however, they are evidently distinct bones, consisting of a spongy lamella in each nostril. The convex surface of this lamella is turned towards the septum narium, and its concave part toward the maxillary bone, covering the opening of the lachrymal duct into the nose. From their upper edge arise two processes: the posterior of these, which is the broadest, hangs as it were upon the edge of the antrum Highmorianum; the anterior one joins the os unguis, and forms a part of the lachrymal duct. These bones are complete in the fœtus. They are lined with the pituitary membrane; and, besides their connexion with the ethmoid bone, are joined to the ossa maxillaria superiora, ossa palati, and ossa unguis. Besides these ossa spongiosa inferiora, there are sometimes two others, situated lower down, one in each nostril. These are very properly considered as a production of the sides of the maxillary sinus turned downwards. In many subjects, likewise, other smaller bones are found standing out into the nostrils. These, from their shape, might also deserve the name of *turbinata*, but they are uncertain in their size, situation, and number.

OSSI′CULA AUDITUS; the small bones of the internal ear. These are four in number, viz. the malleus, incus, stapes, and os orbiculare. These are situated in the cavity of the tympanum. See Malleus, Incus, Stapes, and Orbiculare os.

OSSIFICA′TIO, (from *os*, a bone, and *facio*, to make), in the animal economy, generally denotes the natural formation of the bones (see Bones), but more particularly the conversion of parts naturally soft to the hardness and consistency of bones. A deposit of bony matter in arteries and other soft parts is very often seen on dissection. It occurs frequently, in old people, in arteries distant from the source of the circulation, but sometimes in the vessels nearest the heart, producing sudden death. The cause of this is not known, nor the remedy; the only attempt that can rationally be made being that of avoiding those impulses, whether mental or bodily, which tend to hurry the circulation of the blood and quicken the heart's motion. Some have attempted to prove, that these preternatural ossifications do not deserve that name; and that these hard substances have scarce any other properties of bone except whiteness and hardness.

OSSIFRA′GA, (from *os*, a bone, and *frango*, to break), the name of a petrified root, called the bone-binder, from its fancied virtues in reuniting fractured bones. See Osteocolla.

OSSIFRA′GUS. See Osteocolla.

OSTRI′TES (οστριτης, from οστεον, *a bone)*, the bone-binder. See Osteocolla.

OSTEOCO′LLA, (οστεοκολλα, from οστεον, *a bone*, and κολλαω, *to glue)*, called also *Ossifragus*, *Osteites*, *Ammosteus*, *Osteolithos*, *Stelochites*, and *Bone-binder;* a particular carbonate of lime, found in some parts of Germany, particularly, in the Marché of Brandenburgh. It is met with in loose sandy grounds, spreading from near the surface to a considerable depth, into a number of ramifications, like the roots of a tree. It is of a whitish colour, soft whilst under the earth, friable when dry, rough on the surface, for the most part either hollow within, or filled with a solid wood, or with a powdery white matter. This substance was formerly celebrated, by superstitious and credulous persons, for promoting the reunion of fractured bones, and the formation of callus.

OSTEO′COPUS, (of the Gr. οστεοκοπος, from οστεον, *a bone*, and κοπος, *uneasiness)*, a very violent and fixed pain in any part of a bone.

OSTEOGE′NIA, (οστεογενεια, from οστεον, *a bone*, and γενεια, *generation)*, osteogeny, or the growth of bones. See Bones.

OSTEOGRA′PHIA, (οστεογραφια, from οστεον, *a bone*, and γραφω, *to describe);* osteography, or the description of the bones. See Bones.

OSTEOLI′THOS, (of the Gr. οστεολιθος, from οστεον, *a bone*, and λιθος, *a stone)*. See Osteocolla.

OSTEOLO′GIA, (οστεολογια, from οστεον, *a bone*, and λογος, *a discourse)*, osteology, or the doctrine of the bones. See Bones.

O′STREUM, (of the Gr. οστρεον, from ὀστρακον, *a shell);* the oyster. The calcined shell of this fish is occasionally used in medicine. Its virtues, however, are merely those of the carbonate of lime, or common chalk. See Creta.

OSTRU′THIUM, (Blanchard calls it a corruption from *laserpitium)*. See Imperatoria.

OTA′LGIA, (from ους, *an ear*, and αλγος, *pain)*, the ear-ach, or pain in the ear. This affects the concha, and the whole meatus auditorius, and is attended with inflammation, tumor, tension, pulsation, and a sense of weight. Dr. Cullen places it as a variety of phlogosis phlegmone, on account of its situation. The most frequent cause is cold; but extraneous bodies falling into the meatus auditorius, or whatever else will excite pain in other parts, may cause it here. If the pain be violent, it seldom fails to bring on a fever, attended with great restlessness, and a delirium, fainting, and often convulsions; for the membrane that lines the ear is exquisitely sensible, and fully stored with nerves; and, indeed, membranes which adhere to bones have a more than ordinary sensibility.

In the beginning, whilst the pain is not very considerable, a little warm olive-oil dropped into the ear, will often relieve. If exposure to cold be the cause, the patient should keep the head warm. If there be inflammation and tumor, which are known by the throbbing pain, a suppuration is taking place, and may be encouraged by camphorated oil and cataplasms applied warm on the outer ear, or by receiving the steam of warm water through the tube of an inverted funnel. But if the state of suppuration be not manifestly near, bleeding, purging, and discutients applied to the ear, may possibly remove the inflammation and pain in the first instance. When acrid defluxions are thought to be the cause, we may inject a warm decoction of poppy-heads. When living insects have crept into the ear, they may be destroyed by pouring in warm oil. Blisters behind the ears, bladders of warm water laid on the affected ear, and the pediluvium, are occasionally useful.

OTI′TIS, (ωτιτις, from ους, *the ear*), an inflammation of the internal ear; known by pyrexia, an excruciating and throbbing pain in the part. It is so violent sometimes as to be attended with delirium. See Otalgia.

OVA′RIUM, (dim. of *ovum*, an egg). The ovaria are two whitish, oval, flat, oblong bodies, situated on the sides of the fundus uteri, to which they are fixed by a kind of short round ligament, and inclosed, together with it, in the duplicature of the posterior pinion of the ligamenta lata. They are composed of a compact spongy substance, and of several little balls, or transparent vesiculæ, called *ova*. The spongy substance surrounds each of these vesiculæ very closely, and seems likewise to furnish them with distinct spongy coverings or calices.

The ligaments of the ovaria lie in the edges of the posterior pinions of the ligamenta lata, much in the same manner as the umbilical vein, in the anterior or umbilical ligaments of the liver. They are round ropes, of a filamentary texture, fixed by one extremity to the corner of the fundus uteri, a little above and behind the level of that fundus. They were formerly believed to be hollow, and considered as vasa deferentia.

To the ovaria, according to the idea of their structure entertained by different anatomists, various uses have been assigned, or the purpose they answer has been differently explained. Some have supposed that their texture was glandular, and that they secreted a fluid equivalent to, and similar to the male semen; but others, who have examined them with more care, assert that they are ovaria in the literal acceptation of the term, and include a number of vesicles, or ova, to the amount of twenty-two, of different sizes, joined to the internal surface of the ovaria by cellular threads or pedicles; and that they contain a fluid which has the appearance of thin lymph. These vesicles are, in fact, to be seen in the healthy ovaria of every young woman. They differ very much in their number in different ovaria, but are very seldom so numerous as has just been stated. All have agreed that the ovaria prepare whatever the female supplies towards the formation of the fœtus: and this is proved by the operation of spaying, which consists in the extirpation of the ovaria, after which the animal not only loses the power of conceiving, but desire is for ever extinguished. The outer coat of the ovaria, together with that of the uterus, is given by the peritonæum; and whenever an ovum is passed into the Fallopian tube, a fissure is observed at the part through which it is supposed to have been transferred. These fissures healing, leave small longitudinal cicatrices on the surface, which are said to enable us to determine, whenever the ovarium is examined, the number of times a woman has conceived.

The *corpura lutea* are oblong glandular bodies, of a yellowish colour, found in the ovaria of all animals when pregnant, and, according to some, when they are salacious. They are said to be calyces, from which the impregnated ovum has dropped; and their number is always in proportion to the number of conceptions found in the uterus. They are largest and most conspicuous in the early state of pregnancy, and remain for some time after delivery, when they gradually fade and wither till they disappear. The corpora lutea are extremely vascular, except at their centre, which is whitish; and in the middle of the white part is a small cavity, from which the impregnated ovum is thought to have immediately proceeded.

The ovaria are the seat of a particular kind of dropsy, which most commonly happens to women at the time of the final cessation of the menses, though not unfrequently at a more early period of life. It is of the encysted kind, the fluid being sometimes limpid and thin, and at others discoloured and gelatinous. Dropsies of the ovaria may be divided into those in which the cysts are single, or in which they are more in number, accompanied with hydatids more or less in quantity; and those where the parts are enlarged so as to form an inseparable mass of tumors. Those cases may be concluded proper for the operation, if no very considerable tumor or induration be found after the first tapping; and to render success more probable, it were to be wished that the first operation be performed before the enlargement is too great. It is desirable, also, that the second tapping, accompanied with the operation of dividing the cyst, should be performed in a state of moderate distention, in order that the sac, in the collapsed state which the operation will reduce it to, may be less inconvenient in proportion to its size.

The ovaria are also subject, especially a short time after delivery, to inflammation, terminating in suppuration, and to scirrhous and cancerous diseases, with considerable enlargement. In the former state, they generally adhere to some adjoining part, as the uterus, rectum, the bladder, or the external integuments, and the matter is discharged from the vagina by stool, by urine, or by an external abscess of the integuments of the abdomen.

OVIDUCT, (from *ovum*, an egg, and *ductus*, a canal); the ovi-duct, Fallopian tube, or canal, which runs from the ovary to the bottom of the uterus.

OVIPAROUS, (from *ovum*, an egg, and *pario*, to bring forth), an epithet applied to animals which exclude their young in the egg, to be afterwards hatched.

O'VUM, an egg. See Ovarium. and Egg.

OUNCE. See Measures and Weights.

OXALATES, or *Oxalats*, salts formed by the combination of the oxalic acid with different bases; thus, *oxalates of ammonia*, of *soda*, &c. The soluble salts, formed by the union of oxalic acid with different bases, are decomposed by lime-water, and the precipitate produced is soluble in the acetous acid. Most of the alkaline oxalates are capable of combining with an excess of acid. The terrene oxalates are in general nearly insoluble; they are, however, all decomposable by a red heat. Oxalate of *ammonia* may be obtained by carefully saturating oxalic acid, dissolved in water, with carbonate of ammonia, and suffering the fluid to crystallize as soon as a pellicle appears. Oxalate of *potash*, or *soda*, may be obtained in a similar manner. Oxalate of *lime* is produced by letting oxalic acid fall into lime-water; the salt instantly becomes precipitated. Oxalate of *strontia* is formed by mingling a solution of oxalate of potash with nitrate of strontia; the oxalate of strontia precipitates instantly. Oxalate of *barytes* may be produced by dissolving barytes in the oxalic acid to saturation.

OXALIC ACID, called also the *Salt of sorrel*, and *Acid of sugar*. This acid is always concrete: its crystals are quadrilateral prisms, having their sides alternately broad and narrow, and terminating in two-sided summits. It is particularly distinguished by its strong attraction for lime, which is superior to that of any other acid. It is not altered on exposure to air. It acts upon most of the metals. Exposed to heat it becomes decomposed into carbonic acid, and carbonated hydrogen gas. It contains more oxygen than any other vegetable acid. The oxalic acid is generally prepared by oxygenating sugar, in the following manner: Put one part of white sugar into a retort, and pour over it four parts of nitric acid, of about 1.567 specific gravity, adapt a receiver, and make the solution boil. When the fluid in the retort acquires a brown colour, add three parts of acid more, and continue the boiling till it again becomes brown, then add two parts more of acid, and continue the heat till the red fume almost disappears. Having done this, suffer the mixture to crystallize. After having removed the obtained crystallized acid, the residue may again be treated in a similar manner as before, until no more crystals are obtained. It may then be purified by dissolving it in water, and re-crystallizing it repeatedly. The oxalic acid united to alkalies, earths, &c. forms salts, called oxalates. See Oxalates.

OXA'LIS, (*οξαλις*, from *οξυς*, *sharp*, so called from the sharpness of its juice), the wood-sorrel. See Acetosa.

OXA'LIS ACETOCE'LLA, (*Acetosella*, dim. of *acetosa*); the systematic name of the wood-sorrel. See Acetosa.

OX-EYE-DAISY. See Bellis major.

OX-TONGUE. See Picris echioides.

OXYCA'NTHA GALE'NI, (*Oxycantha*, of the Gr. *οξυακανθα*, from *οξυς*, *sharp*, and *ακανθα*, *a thorn*), so called from the acidity of its fruit; the bar-berry. See Berberis.

OXYCO'CCOS, (*οξυκοκκος*, from *οξυς*, *acid*, and *κοκκος*, *a berry*, so named from its acidity), the cranberry. The berries of the *Vaccinium oxycoccos*, Linn. are so termed in some pharmacopœias. They are about the size of haws, and pleasantly acid, for which reason, in this country, they are preserved, and made into tarts. In Sweden they are used medicinally, as refrigerants.

OXYD, or Oxid, a term used in the new chemical nomenclature to express a very numerous class of bodies, formed by the union of certain bases with a smaller proportion of oxygen than what is necessary for their conversion into acids. (See Oxygen). The most remarkable of these bodies are what were formerly called metallic calces, and have for their base some metallic substance. It is in this state that metals are contained in their ores, from which they are extracted, and converted into the reguline or metallic form, by the process called *reduction*. Metals are converted into oxyds by combustion, and by solution in acids; and many of them assume this form from the action of the atmosphere alone, but more readily when this is assisted by moisture. During their conversion into oxyds, metals lose their splendour, and, acquiring a considerable increase of absolute weight, put on an earthy, pulverulent appearance. It has of late been supposed, that all earths are metallic oxids, and that all of them would be capable of reduction were we possessed of any body for which oxygen had a stronger elective attraction, than that by which it is kept in conjunction with the bases of these supposed oxyds. But this opinion, being perfectly unsupported by experiment, cannot be admitted in a science which, like the chemistry of the present day, aspires to demonstration.

The term oxyd, however, is not confined to the combinations of metals with oxygen, but expresses that first degree of oxygenation in all bodies which, without converting them into acids, causes them to approach to the nature of salts; and of these there is a prodigious variety; as the oxyd of phosphorus, which is the white concrete substance into which that body is converted by combustion; the oxyd of azote, or nitrous air of Dr. Priestley: and a great many others. Most of the oxyds from the vegetable and animal kingdoms, have bases compounded of different simple combustible bodies. Thus sugar, all the gums, mucus, and starch, are vegetable oxyds; the bases of which are hydrogen and carbon, combined in various proportions. We find, accordingly, that all these bodies are, by farther additions of oxygen, convertible into acids; and it is probable that these acids differ from each other only in the proportion of the hydrogen and carbon in their bases. The bases of the animal oxyds are still more complicated; all, or most of them, consisting of various combinations of azote, phosphorus, hydrogen, carbon, and sulphur. See the articles Calx, and Chemistry.

OXYDATION, a term employed by the chemists of the new school, to express that process by which bodies are converted into oxyds. The nature of this process has been much disputed; and the question on this subject involves in itself great part of the controversy between the followers of the immortal Stahl and the justly celebrated Lavoisier, the founders of the phlogistic and antiphlogistic theories, which have for some years divided the chemical world. A view of this question, sufficiently distinct, may be taken from the case of metals and their oxyds. Metallic calces (*oxyds* say the phlogistians) are simple bodies, which, when united with phlogiston, form metals. The process of *reduction* consists in exposing the ores of metals to an intense heat, in contact with some inflammable body, most commonly charcoal. During this operation, say they, the charcoal being inflamed, parts with its phlogiston, which is immediately absorbed by the calx, and a metal is formed. Lavoisier and his followers, on the contrary, contend that metals are simple bodies; but that, in the state of oxyds, that is, as they commonly exist in their ores, they are combined with oxygen. But as oxygen, at a high temperature, is more strongly attracted by charcoal than by most metals, during the process of reduction the oxyd is decompounded, and the oxygen unites with the charcoal to form carbonic acid, leaving the regulus or metal free. On this point hinges the great question, the decision of which must materially affect almost every part of chemical theory. Without presuming to decide between these two opinions, the former of which is still supported by one or two chemists of the first rank, we agree with Dr. Black in thinking that, though there still remain a few facts which have not been thoroughly explained on antiphlogistic principles, this theory is much more simple, and better supported by facts, than any that preceded it. It has this great advantage over the doctrine of Stahl, that it requires not the supposition of an arbitrary body, which does not affect our senses, and of the existence of which we have not even a shadow of proof. Perhaps we may farther venture to assert, that though it may be extremely difficult, or even impossible, to refute the phlogistic theory, influenced as we have all been by a strong prejudice in its favour; yet had it been brought forward for the first time, when our knowledge had arrived at the point which it now holds, it never would have been generally received. See Chemistry and Oxyd.

O′XYDUM, in pharmacy, a term recently applied to the substances formerly named *precipitates.* See Oxyd. In the Edinburgh New Dispensatory, this term is applied to many officinal preparations, as in the instances which follow.

O′XYDUM ARSENICI ALBUM, *Arsenicum calcinatum*, *Arsenicum album*, or *Calx arsenici;* a well-known and most powerful caustic and poison. Internally it has been given with advantage in elephantiasis and other obstinate diseases of the skin, in cancer, agues, dropsies, &c. but it cannot be too carefully administered, if its administration be allowable in any case. See Cancer. The antidotes against it, when taken as a poison, are, solutions of ammoniacal sulphuret, potash, or soda, the carbonate of potash or soda. Soap, milk, fixed oils, and mucilages, have been also given as auxiliaries in such cases. See Poisons.

O′XYDUM CU′PRI VI′RIDE ACETA′TUM. See Ærugo æris.

O′XYDUM FE′RRI LU′TEUM. See Rubigo ferri.

O′XYDUM FE′RRI RU′BRUM, also called *Colcothar vitrioli*, *Calx ferri rubra*, and *Crocus martis*, an oxid of iron, principally used as an external remedy to lax ulcers and condylomata. It has also been employed as a styptic.

O′XYDUM HYDRA′RGYRI NI′GRUM, called also *Æthiops per se*, *Pulvis mercurialis cinereus*, *Mercurius cinereus*, *Turpethum nigrum*, and *Mercurius præcipitatus niger.* Of this oxyd there are four preparations employed, viz. 1. The *oxydum hydrargyri gummosum*, made by rubbing mercury with mucilage of gum arabic, which forms the mercurial syrup of Plenck. 2. The *oxydum hydrargyri saccharatum*, made by triturating equal parts of sugar and mercury together. 3. The *oxydum hydrargyri mellitum*, composed of equal parts of honey and purified mercury. 4. The *oxydum hydrargyri unguinosum*, or *unguentum hydrargyri* of the shops. All these preparations are too well known to need a more particular description than is given under the article Hydrargyrus.

O′XYDUM HYDRA′RGYRI RUBRUM, the red oxyd of mercury. This may be obtained either by simple exposure to heat and air, or by the nitric acid. See Hydrargyrus calcinatus, and Hydrargyrus nitratus ruber.

O′XYDUM PLU′MBI A′LBUM. See Cerussa.

O′XYDUM PLU′MBI RU′BRUM, *Minium*, or *Calx plumbi rubra*; red lead. See Lead. Its use in the present day is to form plasters or ointments for the cure of ulcers, and diseases of the skin.

O′XYDUM PLUMBI SEMI′VI′TREUM, another name for litharge. See Lythargyrus.

O′XYDUM STI′BII ALBUM. See Antimonium calcinatum.

O′XYDUM STI′BII SEMIVI′TREUM, a name for the *Vitrum antimonii*, a preparation employed to make antimonial wine.

O′XYDUM STI′BII SULPHURA′TUM, formerly *Hepar antimonii*, *Crocus metallorum*, or *Crocus antimonii;* a preparation of antimony exhibited in the cure of some fevers, and atonic diseases of the lungs. Its principal use, at present, is in preparing other officinal remedies.

O′XYDUM ZI′NCI A′LBUM. See Tutia.

O′XYDUM ZI′NCI SUBLIMA′TUM. See Zincum calcinatum.

O′XYDUM ZI′NCI VITRI′OLUM. See Zincum vitriolatum.

O′XYGEN, (from οξυς, *acid*, and γινομαι, *to generate*), or *Oxygene*, a term adopted in the new chemical nomenclature, to express the acidifying principle. It is not found naturally in a separate state, but always combined or mixed with some other substance. In its aeriform or elastic state, it is called by the French chemists *oxygen gas*, and is the same as the *dephlogisticated air* of Priestley and Cavendish, the *empyreal air* of Scheele, the *vital air* and *pure air* of other modern chemists. It was called *dephlogisticated* by the followers of Stahl's doctrine, who imagined it to be air deprived of phlogiston; the epithet of *empyreal* was given to it by Mr. Scheele, who first discovered it to be the only constituent part of the atmosphere which contributes to support inflammation or combustion. He made many curious experiments on inflammation, and was the first who completely analyzed common air, showing it to consist of 27 parts of empyreal, 72 of foul, and one of fixed air. He found, that these 27 parts only were consumed by a burning body; and that these, during the act of combustion, were united and combined with the inflammable body burnt in them, so as to form a compound no longer combustible. Lavoisier extending these experiments, found that the body, thus produced by empyreal air, being combined with the matter of the inflammable body burnt in it, was, in many cases, an acid; in consequence of which property, he gave this air the name of *oxygen*, i. e. "the generator of acidity." He was, perhaps, too hasty in adopting this name; for the same air is found in combination with inflammable matter, forming compounds that are by no means acid, of which we shall content ourselves with producing only one example, namely *water*, which is the compound resulting from the combination of this air with inflammable air.

Common atmospheric air was found by Scheele to promote animal life in a manner somewhat similar to its promoting combustion. He extended his experiments to this subject also; and he concludes, that this empyreal air is the only part of the atmosphere which is capable of supporting animal life, and that no animal can exist a minute without it. In consequence of this property it has been called *vital air*. Since, however, it is absolutely necessary for the support both of combustion and of animal life, and since neither of these can exist without it, both the terms *empyreal* and *vital* are deficient, expressing only certain properties of this elastic fluid, which may be also said of the word *oxygen*.

OXYGENATED MURIATIC ACID. To prepare this acid, take one part of oxyd of manganese, and one of red oxyd of mercury, or red oxyd of lead. Put it into a glass retort, and add four parts of concentrated muriatic acid. This, on distillation, affords a quantity of yellow aeriform fluid, which is oxygenated muriatic acid gas, and by agitating it with water it combines and forms oxygenated muriatic acid. Oxygenated muriatic acid gas has a yellow transparent colour, and possesses a peculiar and suffocating smell. It extinguishes bodies inflamed, and is the most noxious to the lungs of all the gasses with which we are acquainted. This acid is not employed in medicine, but very extensively in the arts, particularly for bleaching.

OXYGEN GAS, an elastic invisible fluid like common air, which is capable of indefinite expansion and compression, and has neither taste nor odour, nor does it show any traces of an acid. Its specific gravity, according to Kirwan, is 0.00135, that of water being 1.0000; it is therefore 740 times lighter than the same bulk of water. Its weight is to atmospheric air as 1103 to 1000. 116 cubic inches of oxygen gas weigh 39.38 grains. It is not absorbed by water, but entirely absorbable by combustible bodies, which at the same time disengage its caloric and light, producing in consequence a strong heat and flame. It rekindles almost extinct combustible bodies. It is indispensible to respiration, and is the cause of animal heat. It hastens germination. It combines with every combustible body, with all the metals, and with the greater number of vegetable and animal substances. It is considered as the cause of acidity (see Acids); and from this last property is derived the name *oxygen*, a word denoting the origin of acidity.

The act of its combining with bodies is called *oxidation*, or *oxygenation*; and the bodies with which it is combined are called *oxyds*. Oxygen gas is the chief basis of the pneumatic doctrine of chemistry. See Pneumatic medicine.

There are a great number of bodies from which we may, by art, produce oxygen gas. It is most amply obtained from the oxyds of manganese, or mercury, (see Pneumatic medicine); from nitrate of potash; from the green leaves of vegetables, and from oxygenated muriate of potash, or soda. Besides these, there are a great many other substances from which oxygen gas may be procured.

OXYLA'PATHUM, (*οξυλαπαθον*, from *οξυς*, *acid*, and *λαπαθον*, *the dock*, so named from its acid properties), *Lapathum acutum*, sharp-pointed dock; the *Rumex acutus*, Linn. *Rumex floribus hermaphroditis; valvula dentatis graniferis, foliis cordato-oblongis acuminatis.* The decoction of the root of this plant is employed in Germany as a cure for the itch. It appears to have been used, in the time of Dioscorides, as a remedy in leprous and impetigenous affections, both alone and boiled with vinegar.

O'XYMEL, in pharmacy, a composition of vinegar and honey, boiled to the consistence of a syrup. This name has also been given to other compounds, in which vinegar and honey are included; as *Oxymel Scillæ*, *Oxymel Æruginis*, &c.

OXYO'PIA, (*οξυωπια*, from *οξυς*, *acute*, and *οψις*, *vision*); the faculty of seeing with more acuteness than is natural. Thus there have been instances known of persons who could see the stars in the day-time. The proximate cause is a morbid sensibility of the retina. It has been known to precede the gutta serena. Prisoners who have been long detained in darkness, have learned to read and write in darkened places, but this is hardly to be considered as morbid.

OXYPHOE'NICON. See Tamarindus.

O'XYS ALBA. See Ligula.

OYSTER. See Ostreum.

OYSTER-SHELL. See Ostreum.

OZÆ'NA, (*οζαινα*, from *οζη*, *a stench*), a malignant ulcer in the nostrils. By this term is understood an ulceration within the nose, which may be occasioned by external violence, by an exposure to cold, by irritating substances, or by whatever produces inflammation in the membrane lining the nostrils. Sometimes it arises from venereal infection; and in this case the discharge becomes so acrid as to corrode, and to produce caries in the bones of the nose. When the disease is local, and not depending upon any constitutional affection, astringent solutions are found to be the most useful, such as a decoction of bark, or that mixed with alum. Dossils of lint dipped in these are to be introduced into the nostrils three or four times a day; or some prefer the injection of such fluids by means of a syringe, as being more effectual. If stronger astringents be necessary, a solution of sublimate ought to be used. At bed-time, an ointment prepared with zinc or lapis calaminaris ought likewise to be applied, and a blister to the temple. A decoction of *water-dock root*, internally, has assisted very much in curing the disease. Instances, however, occur, where the discharge is occasioned by a collection of matter within the antrum maxillare; and then it is apt to resist every effort till a proper outlet be given to it. When the complaint is owing to venereal infection, the primary disease is to be attended to, and mercurial preparations are to be applied to the part; but when the bones are carious, till these are removed, we need neither expect that the discharge will cease, nor the disease be otherwise completely cured.

P.

P. a contraction of *pugillus*, a pugil; i. e. the eighth part of a handful.

P. Æ. a contraction of *partes equales;* used in prescription.

PA'BULUM (from *pasco*, to feed); food or aliment. The animal heat and animal spirits are called *pabulum vitæ*, the food of life. Some writers apply this term to that which, they suppose, feeds any existing disease.

PACHIONIAN GLANDS. See GLANDULÆ PACHIONIÆ.

PA'DUS; the wild cluster-cherry, or bird's-cherry: *Prunus padus* Linn. The bark and berries of this shrub are used as medicine. The former, when fresh taken, has a fragrant smell, and a bitter subastringent taste, somewhat similar to that of bitter almonds. Made into a decoction, it has cured intermittents, and has also been recommended in the cure of the several forms of syphilis. The berries are said to cure the dysentery. Superstitious people hang them as a necklace round the necks of children, to prevent fits.

PÆDARTHROCA'CÆ (from *ϖαις, a boy, αρθρον, a joint*, and *κακον, an evil)*; the joint-evil. Severinus calls the *spina ventosa* by this name, as also Dr. Cullen has formerly. By some writers this name is used to express a sort of anasarca.

PÆO'NIA (*παιονιη*, from *Pæon*, who first applied it to medicinal purposes), common, or male and female, peony; *pæonia officinalis; foliis oblongis* of Linn. This was reckoned a powerful medicine, till the late revision of the Pharmacopœia by the London College. It had a place in the catalogue of the materia medica; in which the two common varieties of this plant are indiscriminately directed for use. It is on the authority of Bauhin that this plant has been improperly distinguished into male and female.

The fresh roots and seeds of peony have a faint, unpleasant smell, somewhat of the narcotic kind; and a mucilaginous subacrid taste, with a slight degree of bitterness and astringency. When dried, they lose their smell, and part of their taste. Watery extracts made from them are almost insipid, as well as inodorous; but extracts made by rectified spirit are manifestly bitter, and very astringent. The flowers have rather more smell than any of the other parts of the plant, and a rough sweetish taste, which they impart, together with their colour, both to water and to alcohol.

The roots, flowers, and seeds, of this plant have been esteemed anodyne and corroborant, but more especially the roots; which, since the days of Galen, have been more or less employed as a remedy for the epilepsy. Formerly, with this view, it was usual to cut the root into thin slices, which were to be attached to a string, and suspended about the neck as an amulet. If this failed of success, the patient was to have recourse to the internal use of the root, which Willis directs to be given in the form of powder, and in the quantity of a drachm, two or three times a day, by which, as we are informed, both infants and adults were cured of this disease. Practitioners on the Continent recommend the expressed juice to be given in wine, and sweetened with sugar, as the most effectual way of administering this plant. Many writers, however, especially in modern times, from repeated trials of the peony in epileptic cases, have found it of no use whatever; though professor Home, who gave the *radix pæoniæ* to two epileptics at the Edinburgh infirmary, declares that one received a temporary advantage from its use. Dr. Cullen, however, had no success in the trial of this remedy. Of its good effects in other disorders we find no instances on record.

PÆO'NIA OFFICINA'LIS; the systematic name of the common peony.

PAGA'NICA, a ball used by the Latins for the purposes of exercise. It was so called because used only in villages.

PAIGIL. See PRIMULA VERIS.

PAIN; the name by which we distinguish any unpleasant sensation or irritation. As the brain is the seat of sensation, so it must be of pain. Boerhaave, and most other writers on this subject, suppose a stretching of the nerves to be the only immediate cause of pain; but as the nerves do not appear to consist of fibres, this reasoning does not seem to be well founded: nor indeed will it be easy to treat this subject clearly, but in proportion as the means of sensation are understood. Many kinds of pain are described by authors: such as, a gravitative or *bearing-down* pain; in which there is a sense of weight on the part affected, as in the liver, uterus, &c. A pulsative, or *throbbing*, pain; which always succeeds some remarkable inflammation in the part, and is observed to exist in abscesses whilst suppurating. A tensive pain, which is also called a *distending* pain; excited by the distension of some nervous, muscular, or membranous part, either from some fluid collection, or from flatulence. An *acute* pain is that which is attended with quick and lively sensations. A *dull* pain is, when a kind of numbness is as much complained of as the pain is.

The causes of pain, whether mediate or remote, are generally obvious; and when so, the cure will consist for the most part in removing them: for though, in many instances, the chief complaint is very distant from the seat of these causes, yet their removal is the proper method of relief, and this is the business of medicine. Perhaps all pains may be supposed to have spasm or inflammation for their source. When pain is owing to inflammation, the pulse is quicker than in a natural state; it is also generally full, hard, and tense; the pain is equal, throbbing, and unremitting. If a spasm is the cause, the pulse is rarely affected: at intervals the pain abates, and then returns with some degree of aggravation. Gentle motion sometimes abates, or even cures, in some instances: but in pain arising from inflammatory affections, this is not the case.

A method of *diminishing pain in surgical operations*, has been suggested by Mr. James Moore, a surgeon, in London. This gentleman supposes this desirable end may be attained in two different ways. The first is, by diminishing the natural sensibility of the system; for which purpose, *narcotics* of different kinds, and particularly opium, have been used: but these are apt to induce disagreeable symptoms, especially sickness and vomiting, which might be attended with bad consequences after some operations. They are therefore seldom employed before an operation. When, however, they are given immediately after it, and repeated as circumstances may require, they often afford the patient great relief.

The other method of diminishing pain is, by lessening the sensibility of a particular part of the body. It has long been known, that the sensibility of any part may not only be lessened, but entirely suspended, by *compressing the nerves* which supply it. From a knowledge of this circumstance, an instrument was invented by Mr. Moore, by which the principal nerves of a member might be so compressed as to render the parts below perfectly insensible (see Pl. III. fig. 5). A difficulty, however, arises here; for as the nerves must be compressed at least an hour previous to the operation, in order to render the parts quite insensible, and as it is extremely difficult to compress the nerves without at the same time affecting the veins, the latter are therefore in danger of being burst. To prevent this inconvenience, Mr. Moore proposes to open a vein; but this might be attended with bad consequences in weakly constitutions. Besides, it is said, that by compressing the nerves in this manner, although less pain may be felt in the time of the operation, it is proportionally greater after the compression is removed. In certain parts of the body, however, where sufficient compression can be made upon the nerves without acting much upon the veins, it would appear that this method may be practised with advantage; though it has not yet been done, except in a very few instances.

PALA'TI CIRCUMFLE'XUS. See Circumflexus.

PALA'TI LEVA'TOR. See Levator palati.

PALA'TI, OSSA; the bones which form the palate. These are commonly described as two small square bones, at the back part of the palate or roof of the mouth, though they are of much greater extent, being continued up the back part of the nostrils to the orbit. Each palate-bone may therefore be divided into four parts, the palate square-bone, the pterygoid process, nasal lamella, and orbitar process.

The *square-bone* is unequally concave, for enlarging both the mouth and cavity of the nose. The upper part of its internal edge rises in a spine, after the same manner as the palate-plate of the maxillary bone does, to be joined with the vomer. Its anterior edge is unequally ragged, for its firmer connection with the palate process of the os maxillare. The internal edge is thicker than the rest, and of an equal surface, for its conjunction with its fellow of the other side. Behind, this bone is somewhat in form of a crescent, and thick, for the firm connection of the velum pendulum palati; the internal point being produced backwards, to afford origin to the palato-staphylinus or azygos muscle. This square bone is well distinguished from the pterygoid process by a perpendicular fossa, which applied to such another in the maxillary bone, forms a passage for the palatine branch of the fifth pair of nerves; and by another small hole behind this, through which a twig of the same nerve passes.

The *pterygoid process* is somewhat triangular, having a broad base, and ending smaller above. The back part of this process has three fossæ formed in it; the two lateral receive the ends of the two plates of the sphenoid bone, that are commonly compared to a bat's wing; the middle fossa makes up a part of what is commonly called the *fossa pterygoidea;* the fore side of this palatine pterygoid process is an irregular concave, where it receives the back part of the great tuberosity of the maxillary bone. Frequently, several small holes may be observed in this triangular process, particularly one near the middle of its base, which a little above communicates with the common and proper holes of this bone already mentioned.

The *nasal lamella* of this bone is extremely thin and brittle, and rises upwards from the upper side of the external edge of the square bone, and from the narrow extremity of the pterygoid process; where it is so weak, and at the same time so firmly fixed to the maxillary bone, as to be very liable to be broken in separating the bones. From the part where the plate rises, it runs up broad on the inside of the tuberosity of the maxillary bone, to form a considerable share of the sides of the maxillary sinus, and to close up the space between the sphenoid and the great bulge of the maxillary bone, where there would otherwise be a large slit opening into the nostrils. From the middle internal side of this thin plate, a cross-ridge, placed on such another of the maxillary bone, is extended; on it the back part of the os spongiosum inferius rests. Along the outside of this plate, the perpendicular fossa made by the palate-nerve is observable.

At the upper part of this nasal plate, the palate bone divides into *two processes*, which Dr. Monro has named *orbitar;* between which and the body of the sphenoid bone, a hole is formed, which he mentions as the last of the holes common to the sphenoid bone. Sometimes this hole is wholly formed in the os palati, by a cross-plate going from the one orbitar process to the other. A nerve, artery, and vein, belonging to the nostrils, pass here. The anterior of the two orbitar processes is the largest, and has its fore part contiguous to the back part of the maxillary sinus, and its upper surface appears in the bottom of the orbit, behind the back part of the os maxillare and planum. It has cells behind, resembling those of the ethmoid bone, to which it is contiguous; it is placed on the aperture of the sinus sphenoidalis, so as to leave only a round hole at its upper fore part. The other part of the orbitar process is extended along the internal side of the upper back part of the maxillary tuberosity, the base of the sphenoid bone, between the root of the processus azygos and the pterygoid process.

The palate-bones are *joined* to the maxillary, by the fore edge of the palate square bone, by the transverse palate suture: by their thin nasal plates, and part of their orbitar processes, to the same bones, by the palato-maxillares sutures: by their pterygoid processes, and back part of the nasal plates, to the alæ vespertilionum, by the sphenoid suture: by the transverse ridges of the nasal palates, to the ossa spongiosa inferiora, by contact; hence there frequently is an intimate union of the substance of these bones in old skulls: by the orbitar processes, to the ossa plana and cellulæ ethmoideæ, by the ethmoid suture: to the body of the sphenoid bone, by the sphenoid suture: by the internal edge of the square bones, to each other by the longitudinal palate suture: and by their nasal spines, to the vomer, by the spinous suture.

The palate-bones form part of the palate, nostrils, orbits, and fossæ pterygoideæ; and they cover part of the sinus maxillares, sphenoidales, and ethmoidei. These bones are very complete in a new-born infant, the nasal plates being then thicker and stronger than in adults; but the orbitar processes have not the cells which appear in the bones of adults.

When we are acquainted with the history of these bones, the reason is evident, why the eyes are so much affected in ulcers of the palate, as to be often attended with blindness, which frequently happens in an ill-managed lues venerea; or why, on the other hand, the palate suffers from an ægylops. See ÆGYLOPS.

PALA'TI TENSOR. See CIRCUMFLEXUS.

PALATI'NÆ GLANDULÆ; palatine glands. So Steno calls those of the tonsils, and parts adjacent.

PALATI'NUS NERVUS; a branch of the upper maxillary portion of the fifth pair of nerves. It runs before the pterygoid apophyses of the os sphenoides in the canal formed by the os maxillare and os palati, and through the foramen palatinum posterius, it spreads in the glandular coat of the palate and parts adjacent.

PALATI'NUS DUCTUS, a name for the Eustachian tube.

PALA'TO-PHARYNGEUS, the *thyro-staphilinus* of Douglas, and *thyro-pharyngo-staphilinus* of Winslow; a muscle situated at the side of the entry of the fauces. It arises by a broad beginning from the middle of the velum pendulum palati at the root of the uvula posteriorly, and from the tendinous expansion of the circumflexus palati. The fibres are collected within the posterior arch behind the tonsils, and run backwards to the top and lateral part of the pharynx, where the fibres are scattered and mixed with those of the stylo-pharyngeus. It is inserted into the edge of the upper and back part of the thyroid cartilage. Its use is to draw the uvula and velum pendulum palati downwards and backwards, and at the same time to pull the thyroid cartilage and pharynx upwards, and shorten it. With the *constrictor superior pharyngis* and tongue, it assists in shutting the passage into the nostrils; and in swallowing, it thrusts the food from the fauces into the pharynx.

PALA'TO-STAPHILINUS. See STAPHILINUS.

PALA'TO-SALPINGÆUS, called also *musculus tubæ novus Valsalvæ*, and *pterygo-staphylinus externus;* a muscle arising broad and tendinous from the edge of the lunated part of the os palati, several of its fibres being spread upon the membrane that covers the foramen narium; then growing into a small thin tendon, it is reflected about the hook-like process of the inner wing of the processus pterygoidæus internus, and is inserted carnous into all the membranous, fleshy, and cartilaginous parts of the tube. Its office is to dilate and keep open this canal.

PALA'TUM (from *palo*, to hedge in, because it is staked in as it were by the teeth); the *palate*, or roof of the mouth.

PALA'TUM MOLLE, the soft palate. This lies behind the bony palate; and from the middle of it the uvula hangs down.

PA'LEA, in botany, chaff; a thin membrane springing from a common receptacle, which separates the florets from each other.

PALIMPI'SSA (*παλιμπισσα*, from *παλιν*, *repetition*, and *ϖισσα*, *pitch)*. Dioscorides says, that dry pitch is thus named, because it is prepared of pitch twice boiled.

PALINDRO'MIA (*ϖαλινδρομια*, from *παλινδρομεω*, *recurro*, *regurgito);* a term used by Hippocrates, to signify any regurgitation of humours to the more noble parts. He sometimes used it also to denote the return of a disease.

PALLIATION, the quieting of pain, and opposing the worst symptoms of a disease, when the cause of it is beyond our reach. We call the medicines used for this purpose *palliatives*.

PA'LMA, the palm, or inside of the hand.

PA'LMA CHRISTI. See RICINUS.

PA'LMÆ, palms; one of the seven families, or tribes, of the vegetable kingdom, according to Linnæus. These are perennial, and mostly of the shrub and tree kind. The stem is in height from two to a hundred feet and upwards; and the roots form a mass of fibres which are commonly simple and without any ramifications. This order includes the following genera: Areca, the *Faufel-nut;* Borassus, *Malabar-palm*, called *Ampana* and *Carim-pana;* Caryota, *Palm with doubly-winged leaves*, called *Schunda-pana;* Chamærops, *Lesser* or *Dwarf palm*, *palmetto*, *thatch;* Cocos, *Cocoa-nut tree;* Corypha, *Mountain-palm with largest leaves*, called *Codda-pana;* Cycas, *Todda-pana;* Elais; Elate, *wild Malabar-palm*, called *Katou-Indel;* Phœnix, *Date-tree;* Zamia; Hydrocharis, *Frog's-bit;* Stratiotes, *Water-soldier;* Vallisneria.

PALM OIL, *oleum palmæ;* an expressed oil, produced chiefly from the fruits of the *Cocos butyracea inermis*, *frondibus pennatis; foliolis simplicibus* of Linnæus. They are first slightly roasted and cleaned, and then ground to a paste, first in a mill, then on a levigating stone. This paste is gently heated, and mixed with three-sixteenths its weight of boiling water, put into a bag, and the oil expressed between two heated plates of iron. It yields seven or eight sixteenths of oil. If necessary, this oil may be purified by filtration when melted. This oil has the consistence of butter, a golden yellow colour, the smell of violets, and a sweetish taste. When well preserved, it keeps some years without becoming rancid. When spoiled, it loses its yellow colour and pleasant smell. It is said to be often imitated with hog's lard, coloured with turmeric, and scented with Florentine iris root. It is rarely used in medicine, except as an external emollient ointment, or as a vehicle for other remedies.

PALMA'RIS BREVIS (*palmaris*, from *palma*, the hand); a small, thin, cutaneous flexor muscle of the hand, situated on the fore-arm, between the wrist and the little-finger. Fallopius tells us, that it was discovered by Cananus. By Winslow it is called *palmaris cutaneus*. It arises from the ligamentum carpi annulare, and inner edge of the aponeurosis palmaris, and is inserted by small bundles of fleshy fibres into the os pisiforme, and into the skin and fat that cover the abductor minimi digiti. This muscle assists in contracting the palm of the hand.

PALMA'RIS CUTA'NEUS. See PALMARIS BREVIS.

PALMA'RIS LONGUS; the *Ulnaris gracilis* of Winslow: a flexor muscle of the arm, situated on the fore-arm, immediately under the integuments. It arises tendinous from the inner condyle of the os humeri, but soon becomes fleshy, and after continuing so about three inches, terminates in a long slender tendon, which, near the wrist, separates into two portions; one of them being inserted into the internal annular ligament, and the other losing itself in a tendinous membrane that extends over the palm of the hand, from the carpal ligament to the roots of the fingers, and is called *aponeurosis palmaris*. Some of the fibres of this expansion adhere strongly to the metacarpal bones, and separate the muscles and tendons of each finger. Some anatomical writers have described this aponeurosis as a production of the tendon of this muscle, but seemingly without reason, because the latter is sometimes wholly inserted into the carpal ligament, in which case it is perfectly distinct from the aponeurosis in question; and, in some subjects, the palmaris longus is not found, but the aponeurosis is always present. Rhodius indeed says, that the latter is now and then deficient, but there is good reason to think that he was mistaken. This muscle bends the hand, and may assist in its pronation: it likewise serves to stretch the aponeurosis palmaris.

PALMA'TA, a name of several species of *orchis*. See ORCHIS.

PA'LMUS (from *palma*, the palm of the hand); the fifth degree in the Linnæan scale for measuring the parts of plants: the breadth of the *palm* measuring from the thumb, or three Parisian inches.

PA'LPEBRÆ; the eyelids, distinguished into upper and under. The palpebræ are a kind of veils or curtains placed transversely above and below the anterior portion of the globe of the eye. The superior is the largest and most moveable in man. They both unite at each side of the globe, and the place of their union is termed the *canthus* or angle. The largest is that which is next the nose; the smaller is the external one, which is next the temples.

The palpebræ are made up of common and proper parts. The common parts are the skin, epidermis, and membrana adiposa. The proper parts are the muscles, the *tarsi*, the *puncta lachrymalia*, the *membrana conjunctiva* (see CONJUNCTIVA), the *glandulæ lachrymales*, and the particular ligaments which sustain the tarsi. The *tarsi* and their ligaments are in some measure the basis of all the other parts. These are thin cartilages, forming the principal part of the edge of each palpebra, and they are broader at the middle than at the extremities. Those of the superior palpebræ are a little more than a quarter of an inch in breadth; but in the lower palpebræ they are not above the sixth part of an inch, and their extremities next the temples are more slender than those next the nose.

These cartilages are suited to the borders and curvature of the eye-lids. The lower edge of the superior cartilage, and the upper edge of the inferior, terminate equally, and both may be termed the *ciliary edges*. The opposite edge of the upper tarsus is something semicircular between its two extremities; but that of the inferior tarsus is more uniform, and both are thinner than the ciliary edges. Their inner sides, or those next the globe, are grooved by several small transverse channels, of which hereafter; and the extremities of both cartilages are connected by a kind of small ligaments.

The broad ligaments of the tarsi are membranous elongations, formed by the union of the periosteum of the orbits and pericranium along both edges of each orbit. The superior ligament is broader than the inferior, and fixed to the superior edge of the upper cartilage, as the inferior is to the lower edge of the lower cartilage; so that these ligaments and the tarsi, taken alone, or without the other parts, represent palpebræ.

The borders of each palpebra, taken together, are formed by the edge of the tarsus, and by the union of the internal membrane with the skin and epidermis. This border is flat, and of some sensible breadth, from within about a quarter of an inch of the internal angle, all the way to the external angle, near which the breadth diminishes. This breadth is owing only to the thickness of the palpebræ, which at this place have their edges oblique or slanting, in such a manner as when the two palpebræ touch each other slightly, a triangular space or canal is formed between them and the globe of the eye.

The flat edge of each palpebra is fringed with a row of hairs called *cilia*, or the *eye-lashes* (see CILIA); and along the border, near the internal membrane, or toward the eye, we see a row of small holes, which are the orifices of small glands, situated on the inner surface of the tarsus.

The muscles of the palpebræ are commonly reckoned to be two; one peculiar to the upper eye-lid, named *levator palpebræ superioris*; the other common to both, called *musculus orbicularis palpebrarum*, which has been subdivided by different authors in different manners. The skin of the superior palpebra is folded arch-wise, almost in a parallel direction to that of the semioval fibres, the plicæ intersecting the levator; whereas the other folds only intersect the orbicularis. The radiated and oblique plicæ seldom appear in young persons, except when the first and second portions of the orbicularis are in action; but in aged persons its marks are visible at all times.

In man, the superior palpebra has much more motion than the inferior. The small simple motions, called *twinkling*, which frequently happen, though not equally often in all subjects, are performed by the alternate contraction of the levator palpebræ and orbicularis. These slight motions, especially those of the upper palpebra, are not very easy to be explained according to the true structure of the part. The motions which wrinkle the palpebræ, and which are commonly performed to keep one eye very close shut, while we look stedfastly with the other, are explicable by the simple contraction of all the portions of the orbicularis. These motions likewise depress the supercilia, which consequently may be moved in three different manners; upwards by the musculi frontales, downward by the orbiculares, and forward by the superciliares. For the appendages to the eyelids; the *glandula lachrymalis*, *puncta lachrymalia*, &c.; see LACHRYMAL GLAND, PUNCTA LACHRYMALIS, &c.

PA'LPEBRÆ SUPERIORIS LEVATOR. See LEVATOR PALPEBRÆ SUPERIORIS, and PALPEBRÆ.

PA'LPEBRUM APERIENS RECTUS. See LEVATOR PALPEBRÆ SUPERIORIS.

PALPITA'TIO, palpitation of the heart, which is either constant or frequently returning. It is a genus of disease in the class *neuroses*, and order *spasmi* of Cullen. In some cases the palpitation is so violent, that it may be heard at a considerable distance. It may proceed from a bad conformation of the heart itself, or some of the large vessels. It may also be occasioned by wounds or some other local stimulus affecting the heart; or it may proceed from polypous concretions or ossifications of that viscus, or from plethora, fear, or spasmodic affections of the nervous system. When it proceeds from diseases of the heart or large vessels, it is absolutely incurable. In spasmodic cases, the remedies prescribed in cases of epilepsy (see EPILEPSIA) may be useful. If the patient be plethoric, bleeding will probably remove the disorder, at least for the present. Palpitations very commonly accompany the sick head-ach, and still more frequently is it a symptom in hypochondriacal affections. In these, the cure consists, of course, in the removal of the original disease.

PALSY. See HEMIPLEGIA, PARAPLEGIA, PARALYSIS, &c.

PANACE'A (*πανακεια*; from *ϖαν*, *all*, and *ακεομαι*, *to make well)*; an epithet given by the ancients to those remedies which they conceived would cure every disease to which the human frame was incident. Unfortunately for us of the present day, there are no such remedies known.

PANA'DA (dim. of *pane*, bread, Ital.); wheaten bread boiled in water to a proper consistence for feeding children or infirm persons with. When sweetened moderately, it is often given with great advantage; but Dr. Willich says it ought never to be made of *new* or half-baked bread; which cannot fail to be detrimental to the organs of digestion. Nor is it advisable to employ a large proportion of sugar; as the mucilage contained in the bread, if combined with saccharine matter, is apt to cloy and oppress the stomach, and create acidity. Hence it will be proper rather to add a small quantity of salt; and instead of common bread, to substitute biscuits, which have already been well baked. Some merely soak these for a time, without boiling them, and add a moderate proportion of salt and a little honey. The French make an excellent panada of *baked flour*, than which nothing can be more wholesome for infants.

PANA'RIS (corrupted from *paronychia)*. See PARONYCHIA.

PA'NAX (*παναξ*, from *παν*, *all*, and *ακος*, *a cure)*, Hercules's all-heal, or wound-wort; *Laserpitium chironium* Linn. The seeds and roots are warm, and in flavour and qualities like those of the parsnip. But the roots and stalks have a much stronger smell, resembling that of opoponax; and Boerhaave relates, that on wounding the plant in the summer, he obtained a yellow juice, which being inspissated a little in the sun, agreed perfectly in both respects with opoponax.

PA'NAX, GINSENG; a genus of the diœcia order, belonging to the polygamia class of plants. There are five species of this plant: 1. *Quinquefolium;* 2. *Trifolium;* 3. *Fruticosum;* 4. *Arborea;* 5. *Spinosa.* The first and second are natives of North America. The quinquefolium is generally believed to be the same with the Tartarian ginseng; the figures and descriptions of that plant which have been sent to Europe by the missionaries agreeing perfectly with the American plant. This has a jointed, fleshy, and taper root, as large as a man's finger, frequently divided into two smaller fibres downwards. The stalk rises near a foot and an half high, and is naked at the top, where it generally divides into three smaller footstalks, each sustaining a leaf composed of five spear-shaped lobes, sawed on their edges: they are of a pale green, and a little hairy. The flowers grow on a slender footstalk, just at the division of the footstalks which sustain the leaves, and are formed into a small umbel at the top: they are of an herbaceous yellow colour, composed of small yellow petals, which are recurved. Dr. Woodville, in his *Medical Botany*, says they are white; that they are produced in a roundish terminal umbel, and are hermaphrodite or male on separate plants. The former are described to stand in close single umbels: the involucrum consists of several small, tapering, pointed, permanent leaves; the proper calyx is tubular, and divided at the rim into five small teeth: the corolla consists of five petals, which are small, oval, equal, and reflexed: the filaments are five, short, and furnished with simple antheræ: the germen is roundish, placed below the corolla, and supports two short erect styles, crowned by simple stigmata: the fruit is an umbilicated two-celled berry, each containing a single irregularly heart-shaped seed. The flowers appear in the beginning of June; and are succeeded by compressed, heart-shaped berries, which are first green, but afterwards turn red; inclosing two hard, compressed, heart-shaped seeds, which ripen in the beginning of August. The second sort grows naturally in the same countries: but Mr. Miller never saw more than one plant, which was sent to him from Maryland, and did not live beyond the first year; being planted in a dry soil, in a very dry season. The stalk was single, and did not rise more than five inches in height, dividing into three footstalks, each sustaining a trifoliate leaf, whose lobes were longer, narrower, and deeper indented on their edges, than the former. The flower-stalk rose from the divisions of the footstalk of the leaves; but, according to the latter writer, before the flowers opened the plant decayed.

Ginseng was formerly supposed to grow only in Chinese Tartary, affecting mountainous situations, shaded by close woods: but it has now been long known that this plant is also a native of North America, whence M. Sarrasin transmitted specimens of it to Paris in the year 1704; and the ginseng since discovered in Canada, Pennsylvania, and Virginia, by Lafiteau, Kalm, Bartram, and others, has been found to correspond exactly with the Tartarian species; and its roots are now regularly purchased by the Chinese, who consider them to be the same as those of eastern growth, which are known to undergo a certain preparation, whereby they assume an appearance somewhat different. For it is said, that in China the roots are washed and soaked in a decoction of rice or millet-seed, and afterwards exposed to the steam of the liquor, by which they acquire a greater firmness and clearness than in their natural state. The plant was first introduced into England in 1740 by that industrious naturalist Peter Collinson. They thrive in those places where it has a light soil and shady situation, and will produce flowers and seeds; but the latter, though in appearance ripe and perfect, will not produce any new plants, as Mr. Miller says he has repeatedly made the experiment, and waited for them three years without disturbing the ground. There are many good specimens in the Royal Botanic Garden at Kew.

The dried root of ginseng, as imported here, is scarcely the thickness of the little finger, about three or four inches long, frequently forked, transversely wrinkled, of a horny texture, and both internally and externally of a yellowish white colour. On the top are commonly one or more little knots, which are the remains of the stalks of the preceding years, and from the number of which the age of the root is judged of. "To the taste it discovers a mucilaginous sweetness, approaching to that of liquorice, accompanied with some degree of bitterness, and a slight aromatic warmth, with little or no smell. It is far sweeter, and of a more grateful smell, than the roots of fennel, to which it has by some been supposed similar; and differs likewise remarkably from those roots in the nature and pharmaceutic properties of its active principles, the sweet matter of the ginseng being preserved entire in the watery as well as the spirituous extract, whereas that of fennel roots is destroyed or dissipated in the inspissation of the watery tincture. The slight aromatic impregnation of the ginseng is likewise in good measure retained in the watery extract, and perfectly in the spirituous."

The Chinese ascribe extraordinary virtues to the root of ginseng; and have long considered it as a sovereign remedy in almost all diseases to which they are liable, having no confidence in any medicine unless in combination with it. It is observed by Jartoux, that the most eminent physicians in China have written volumes on the medicinal powers of this plant. We know, however, of no proofs of the efficacy of ginseng in Europe; and from its sensible qualities we judge it to possess very little power as a medicine. Dr. Cullen says, "We are told that the Chinese consider ginseng as a powerful aphrodisiac; but I have long neglected the authority of popular opinions, and this is one instance that has confirmed my judgment. I have known a gentleman, a little advanced in life, who chewed a quantity of this root every day for several years, but who acknowledged he never found his faculties in this way improved by it. Lewis tells us that a drachm of the ginseng root may be sliced and boiled in a quarter of a pint of water to about two ounces; then a little sugar being added, it may be drank as soon as it is cool enough. The dose must be repeated morning and evening; but the second dose may be prepared from the same portion of root which was used at first, for it will always admit of being twice boiled.

PA'NAX QUINQUEFOLIUM; the systematic name of the plant which affords the ginseng root. See Ginseng, and Panax.

PA'NCREAS (παγκρεας, from ϖαν, *omne*, all, and κρεας, *caro*, flesh; so called from its fleshy consistence), a long flat gland, of the conglomerate kind, situated under the stomach, between the liver and the spleen. Its figure resembles that of a dog's tongue; and it is divided into two sides, one superior, the other inferior; two edges, one anterior, the other posterior; and two extremities, one large, which represents the basis of a tongue, and one small and a little rounded like the point of a tongue. It is situated transversely under the stomach, in the duplicature of the posterior portion of the mesocolon. The large extremity is connected to the first incurvation of the duodenum, and from thence it passes before the rest of that intestine all the way to its last incurvation; so that a great part of the duodenum lies between the pancreas and the vertebræ of the back. The small extremity is fixed to the omentum near the spleen.

The pancreas is composed of a great number of soft glandular moleculæ, combined in such a manner as to exhibit the appearance of one uniform mass on the outside, the surface of which is rendered uneven only by numerous small convexities, more or less flatted.

When these moleculæ are separated a little from each other, we find, along the middle of the breadth of the pancreas, a particular duct, in which several smaller ducts terminate laterally on each side, like small rami in a stem.

This canal, which is named *ductus pancreaticus*, is very thin, white, and almost transparent, and the extremity of the trunk opens commonly into the extremity of the ductus cholidochus. From thence it diminishes gradually, and terminates in a point, next the spleen. The small lateral branches are likewise pretty large near the trunk, and very small toward the edges of the pancreas, all of them lying in the same plane like the branches of the common filix or fern. The pancreatic duct is sometimes double; one of the canals lying above the other. It is not always of an equal length, and sometimes runs in a winding course, but always in the same plane; and it is nearer the lower than the upper side of the pancreas. It pierces the coats of the duodenum, and opens into the ductus cholidochus, commonly a little above the prominent point of the orifice of that canal; and sometimes it opens immediately into the duodenum.

Winslow observed, that where the great extremity of the pancreas is connected to the curvature of the duodenum, it sends down an elongation, which adheres very closely to the following portion of the intestine. Upon a careful examination, he also found a particular pancreatic duct, ramified like the large one, which ran toward and intersected the great duct, into the extremity of which it opened, after having perforated the duodenum. This portion he has termed *pancreas minus.* It sometimes opens separately into the duodenum, in which we likewise observe several small holes round the ductus cholidochus, which answer to the pancreas.

The *arteries* of the pancreas come from the pylorica, duodenalis, and chiefly from the splenica, which adheres very closely to the whole lower side of the pancreas near the posterior edge, and it sends off in its passage a great many rami named *arteriæ pancreaticæ,* which go off from each side, more or less transversely. It receives also some small ramifications from the gastrica major and mesenterica superior. The pancreatic *veins* are rami of the splenica, one of the principal branches of the vena portæ major or ventralis. This vena splenica runs likewise along the lower side of the pancreas near the edge, in a shallow depression formed in the substance of the gland. These veins answer to the arteries of the same name; and there are likewise other small veins corresponding to the small arteries, which are productions of the great meseraica, &c. The *nerves* of the pancreas come partly from the plexus hepaticus, partly from the plexus splenicus, and partly from the plexus mesentericus superior; and it likewise receives some from the flat ganglion or plexiform intertexture, mentioned in the description of the nerves, by the name of the *transverse rope.*

The pancreatic duct is not only double in some subjects, as has been said, but the collateral branches have communications in form of islands in several places, within the body of the pancreas.

The *pancreatic juice,* which is watery, insipid, thin, neither acid nor alkaline, is poured into the same place into which the bile discharges itself. The quantity of juice secreted by the pancreas is uncertain; but it must be very considerable, if we compare the bulk or weight of it with that of the salival glands; than which it is three times larger, and seated in a warmer place. It is expelled by the force of the circulating blood, with an alternate pressure from the incumbent and surrounding viscera; as the liver, stomach, spleen, mesenteric and splenic arteries, with the aorta. The great usefulness of this gland may appear from its being found not only in man, but almost in all animals: nor is its use the less from that experiment which shows a great part of it may be cut out from a healthy animal without occasioning death; because, in the experiment, a part of the pancreas must be left with the duodenum. Its effervescence with the bile arises from the effect of a ligature, and air mixed with the intestinal secretion.

The pancreatic juice seems principally of use to dilute the viscid bile, to mitigate its acrimony, and mix it with the food. Hence it is poured into a place remote from the cystic duct as often as there is no cystis. Like the rest of the intestinal humours, this juice dilutes the mass of aliments, resolves them, and does every other office of the saliva.

PANCREATIC DUCT. See Ductus pancreaticus.

PANCREA'TICÆ ARTERIÆ. The splenic artery runs from the cœliac artery, under the stomach and pancreas, to the spleen. It adheres to the lower posterior part of the pancreas, to which it gives several branches, by some called *pancreaticæ arteriæ.*

PANCREA'TICÆ VENÆ. These are several small branches from the splenica, which run to the pancreas along its lower side; but there are other small pancreatic veins which do not rise from the splenica.

PANDEMIC (*pandemicus;* from παν, *all,* and δεμος, *the people*); a term synonimous with epidemic. See Epidemic.

PANDICULA'TIO, pandiculation; yawning, or stretching. It is that restless stretching which accompanies the cold fit of an intermitting fever.

PANI'CULA, in botany, a panicle; a part of a plant, formed by peduncles, divided or branched without any determined order, as occurs in the common oat.

PA'NICUM (or *paniculus,* from its many particles); a herb whose spike consists of innumerable thick seeds, disposed in many panicles; the common panic grass. It forms a genus in Linnæus's system.

PA'NICUM ITALICUM; the systematic name of the plant which affords the millet-seed. See Millet-seed.

PA'NICUM MILIACEUM; the systematic name of the plant which affords the Indian millet-seed. See Millet-seed, Indian.

PANNI'CULUS, a term used by some anatomical writers to signify the same as *membrana,* which see. Hence *panniculus adiposus* means the same as *membrana adiposa.*

PANNI'CULUS, or Panniculus carnosus, in comparative anatomy, a thin muscular expansion, situated in quadrupeds between the skin and the fat; by means of which they can move their skin, in whole or in part. It is altogether wanting in man.

PANOPHO'BIA (πανοφοϐια; from παν, *all,* and φοϐος, *fear*); that kind of melancholy which is attended with groundless fears. Our modern physicians consider it as symptomatic of other affections.

PANSIES. See Viola tricolor.

PANTA'RBE, a name given to an imaginary stone, the effects of which upon gold were similar to those of the loadstone upon iron. The ancients, as well as some modern writers, seem to have an opinion that there was such a stone; and the *amphitane* of Pliny is described as possessing this remarkable quality: but neither they nor we. have ever found reason, from any experiment well ascertained, to believe that there ever was such a stone.

PANTOPHO'BIA, the same as HYDROPHOBIA.

PAPAVER ALBUM (*papaver*, from *pappa*, pap; so called because nurses used to mix this plant in children's food to relieve the colic and make them sleep), the white poppy; *papaver somniferum* Linn. *Papaver calycibus capsulisque glabris, foliis amplexicaulibus incisis.* Class, *Polyandria.* Order, *Monogynia.* This plant rises with an upright smooth stalk, dividing or branching a yard or more high; garnished with large, deeply jagged, amplexicaule, smooth leaves; and terminated by large, spreading, dark purple and other coloured flowers, in the varieties, having smooth cups and capsules. There are a great many varieties, some of them extremely beautiful. The white officinal poppy is one of the varieties of this sort. It grows often to the height of five or six feet, having large flowers, both single and double, succeeded by capsules or heads as large as oranges, each containing about 8000 seeds.

We are told, that in the province of Bahar in the East Indies, the poppy-seeds are sown in the months of October and November, at about eight inches distance, and well watered till the plants are about half a foot high, when a compost of dung, nitrous earth, and ashes, is spread over the areas; and a little before the flowers appear, they are again watered profusely till the capsules are half grown, at which time the opium is collected; for when fully ripe they yield but little juice. Two longitudinal incisions from below upwards, without penetrating the cavity, are made at sunset for three or four successive evenings; in the morning the juice is scraped off with an iron scoop, and worked in an iron pot in the sun's heat, till it is of a consistence to be formed into thick cakes of about four pounds weight; these are covered over with the leaves of poppy, tobacco, or some other vegetable, to prevent their sticking together, and in this situation they are dried.

The somniferous quality of the white poppy is well known. This quality resides in the milky juice of the capsule containing the seeds, nor is it evaporated by drying the juice; hence the dried capsules are preserved in the shops for making the syrup. The inspissated juice itself is a kind of opium. See the article OPIUM. The seeds also make a very agreeable emulsion, but have no soporific virtue.

It grows in England, generally in neglected gardens, or uncultivated rich grounds, and flowers in July and August. Attempts however have lately been made in Britain, and with flattering success, to cultivate them for the supply of opium. This species is said to have been named *white poppy* from the whiteness of its seeds; a variety of it, however, is well known to produce black seeds: the double-flowered white poppy is also another variety: but for medicinal purposes, any of these may be employed indiscriminately, as we are not able to discover the least difference in their sensible qualities or effects. The seeds, according to some authors, possess a narcotic power; but there is no foundation for this opinion: they consist of a simple farinaceous matter, united with a bland oil, and in many countries are eaten as food. As a medicine, they have been usually given in the form of emulsion, in catarrhs, stranguries, &c. The heads or capsules of the poppy, which are directed for use in the Pharmacopœias, like the stalks and leaves, have an unpleasant smell, somewhat like that of opium, and an acrid bitterish taste. Both the smell and taste reside in a milky juice, which more especially abounds in the cortical part of the capsules, and in its concrete state constitutes the officinal opium. These capsules are powerfully narcotic or anodyne; boiled in water, they impart to the menstruum their narcotic juice, together with the other juices which they have in common with vegetable matters in general. The liquor, strongly pressed out, suffered to settle, clarified with whites of eggs, and evaporated to a due consistence, yields an extract which is about one-fifth or one-sixth of the weight of the heads. This possesses the virtues of opium, but requires to be given in double its dose to answer the same intention, which it is said to perform without occasioning a nausea and giddiness, the usual effects of opium. This extract was first recommended by Mr. Arnot; and a similar one is now received in the Edinburgh Pharmacopœia. It is found very convenient to prepare the syrup from this extract, by dissolving one drachm in two pounds and a half of simple syrup. The *syrupus papaveris albi*, as directed by the colleges, is a useful anodyne, and often succeeds in procuring sleep where opium fails; it is more especially adapted to children. White poppy heads are also used externally in fomentations, either alone, or more frequently added to other herbs.

PAPAVER ERRATICUM, the red or corn poppy; *Papaver rhœas* Linn. *Papaver capsulis glabris globosis, caule piloso multifloro, foliis pennatifidis incisis.* Class, *Polyandria.* Order *Monogynia.* The wild globular-headed poppy, rises with an upright, hairy, multiflorous stalk, branching a foot and a half high; garnished with long, pinnatifid, deeply cut, hairy leaves; the stalk terminated by many red and other coloured flowers in the varieties, succeeded by globular smooth capsules.

This plant is common in corn-fields, and flowers in June and July. It may be distinguished from the *papaver dubium*, to which it bears a general resemblance, by its urn-shaped capsules, and by the hairs upon the peduncles standing in a horizontal direction. The capsules of this species, like those of the *somniferum*, contain a milky juice of a narcotic quality, but the quantity is very inconsiderable, and has not been applied to any medical purpose; but an extract prepared from them has been successfully employed as a sedative. The flowers have somewhat of the smell of opium, and a mucilaginous taste, accompanied with a slight degree of bitterness. A syrup of these flowers is directed in the London Pharmacopœia, which has been thought useful as an anodyne and pectoral, and is therefore prescribed in coughs and catarrhal affections; but it seems valued rather for the beauty of its colour than for its virtues as a medicine.

PAPA'VER NIGRUM. The seeds and heads of the *papaver somniferum*, are called, in some Pharmacopœias, *semina* and *capitula papaveris nigri.* For the reason of this see PAPAVER ALBUM.

PAPA'VER RHÆAS; the systematic name of the red corn poppy. See PAPAVER ERRATICUM.

PAPA'VER SOMNI'FERUM; the systematic name of the white poppy. See PAPAVER ALBUM.

PAPAW; the *Carica papapa* Linn. a native of both Indies, and of the coast of Africa. It produces a roundish fruit, which, when nearly ripe, the inhabitants of India boil and eat with their meat, as we do turnips. It has somewhat the flavour of a pompion. Previous to boiling, they soak the papaw fruit for some time in salt and water, to extract the corrosive juice, unless the meat they are to be boiled with happens to be very salt and old, and then this juice being in them, makes it more tender. But they mostly pickle the long fruit, and thus they make no bad succedaneum for mango. The buds of the female flowers are gathered, and made into a sweet-meat; and the inhabitants are such good husbands of the produce of this tree, that they boil the shells of the ripe fruit into a repast, and the insides are eaten with sugar in the manner of melons.

PAPILIONA'CEA (from *papilio*, a butterfly), papilionaceous, in botany, flowers are thus called from their resemblance to the wings of a butterfly when expanded. They are irregular and usually four-petalled. The lower petal is shaped like a boat, and is called *carina*, or keel; the upper petal, which spreads and rises upwards, is called *vexillum*, standard, or banner: the two side ones stand singly, being separated by the keel, and are called *alæ*, the wings. The keel is sometimes split, and then this corolla is properly five-petalled. These flowers form a natural class, named *Papilionacea*, and are to be found in the 55th order of Linnæus's Fragments, and in the 32d of his natural orders. They are chiefly comprehended within the order *Decandria*, of the class *Diadelphia*, in the artificial system. This too is one of Tournefort's classes, and is the same with the *leguminosa* of Ray, and other authors. Of this tribe are peas, beans, kidney-beans, vetches, and other leguminous plants; which hence are called *pea-blossomed* flowers.

PAPI'LLA; the nipple of the breast. See NIPPLE.

PAPI'LLÆ; a term applied by anatomists to the fine terminations of nerves, &c. as the nervous papillæ of the tongue, skin, &c. It is by these we enjoy the sense of touch. See TOUCH.

PAPI'LLÆ MEDULLA'RES; small eminences on the medulla oblongata, called by Winslow *Tubercula Mamillaria.*

PAPILLA'RIS HERBA. See LAMPSANA.

PAPILLARY PROCESSES. The extremities of the olfactory nerves inserted into the mucous membrane of the nose, are thus named by some anatomists.

PA'PPUS; in botany, that soft, light down, which grows out of the seeds of some plants, such as thistles, dandelion, hawk-weed, &c. and which buoys them up so in the air, that they can be blown any-where about with the wind. Hence, with some botanists, this distinguishes the kind of plants called *Papposæ.*

PA'PPUS, the hair on the middle of the chin. See CAPILLUS.

PA'PULÆ (dim. of *pappa*, a dug or nipple); very small and accuminated elevations of the cuticle, with an inflamed base, not containing a fluid, nor tending to suppuration. Authors have observed, that the duration of papulæ is uncertain, but that they terminate for the most part in scurf. This term, in fact, is applied to a variety of different eruptions by medical authors; but Dr. Willan, in his work on cutaneous diseases, uses it in a more limited sense. He makes it the first order of those complaints, and says, that *Papulæ* may be considered as enlargements of the papillæ of the skin, occasioned by a strong determination of the blood to them, sometimes attended with a degree of inflammation: the small papillæ, thus enlarged, elevate the cuticle immediately above them, and appear red. A slight effusion of lymph often takes place in these circumstances, and gives a pustular form to several papulæ; but the fluid is reserved without breaking the cuticle. Of this order he enumerates three genera; the first of which is *Strophulus*, to which belong five species; *strophulus intertinctus, albidus, confertus, volaticus*, and *candidus:* the second, *Lichen*, with five species, *Lichen simplex, agrius, pilaris, lividus*, and *tropicus:* the third is *Prurigo*, with three species, *Prurigo mitis, formicans*, and *sensilis.* See STROPHULUS, LICHEN, and PRURIGO.

PAPY'RUS, the famous reed, described by Pliny and other naturalists, from which was made the far-famed paper of Egypt. An opinion generally received in Europe is, that this plant no-where exists at present. Mr. Bruce, however, asserts, that he not only saw the papyrus growing both in Egypt and Abyssinia, but actually made paper of it in the manner in which it was made by the ancients. He tells us likewise, that the bottom, root, or woody part, of this plant was applied to several uses; and that it was chewed in the manner of liquorice, having a considerable quantity of sweet juice in it. This indeed, we learn from Dioscorides, is still practised in Abyssinia, where they likewise chew the root of the Indian corn, and of every kind of cyperus. Herodotus tells us, that about a cubit of the lower part of the stalk was cut off, and roasted over the fire, and eaten.

PA'R VA'GUM, the eighth pair of nerves. They arise from the corpora olivaria of the medulla oblongata, and proceed into the neck, thorax, and abdomen. In the neck the par vagum gives off two branches, the lingual and superior laryngeal; and, in the thorax, four branches, the recurrent laryngeal, the cardiac, the pulmonary, and the œsophageal plexuses. At length the trunks of the nervi vagi, adjacent to the mediastinum, run into the stomach, and there form the stomachic plexus, which branches to the abdominal plexuses. From the distribution of the par vagum, we may learn, Dr. Monro says, how tickling the fauces with a feather, or any such substance, excites a nausea and inclination to vomit;—why coughing occasions vomiting, or vomiting raises a cough. Hence we see how the nervous asthma, the tussis convulsiva, and hooping-cough, are attended with a straitening of the glottis;—why food difficult to digest occasions the asthma in weakly people; and why emetics have frequently cured the asthma very speedily:—why an attempt to vomit is sometimes in danger of suffocating asthmatic people;—why the superior orifice of the stomach is so sensible as to have been deemed the seat of the soul by some anatomists;—why people subject to distensions of the stomach, have so often the sensation of balls in their breast and throat;—why the globus hystericus is so often attended with a violent strangulation at the glottis.

PA'RA (παρα, a Greek preposition). This, when prefixed to the name of a disorder, denotes its slightness, as *para-plexia*, a slight apoplexy.

PARACELSUS (Aurelius Philip Theophrastus Bombastus de Hohenheim); a famous physician, born at Einsidlen, a town in the canton of Schwitz in Swisserland. He was educated with great care by his father, who was the natural son of a prince, and in a little time made a great progress in the study of physic. He afterwards travelled into France, Spain, Italy, and Germany, in order to become acquainted with the most celebrated physicians. At his return to Swisserland, he stopped at Basil, where he read lectures on physic in the German tongue. He was one of the first who made use of chemical remedies with success, by which he acquired a very great reputation. Paracelsus gloried in destroying the method established by Galen, which he believed to be very uncertain; and by this means drew upon himself the hatred of the other physicians. It is said, that he boasted of being able, by his remedies, to preserve the life of man for several ages: but he himself experienced the vanity of his promises, by his dying at Saltzburg, in 504, at 37 years of age according to some, and at 48 according to others. The best edition of his works is that of Geneva in 1658, in 3 vols. folio.

PARACENTE'SIS (of the Gr. *παρακεντησις*; from *ϖαρακεντεω*, to *pierce through);* the operation of tapping, to evacuate the water in ascites, dropsy of the ovarium, uterus, &c. A fluid in the cavity of the abdomen is discovered by the swelling which it produces; by a sense of tightness in the part affected; by laborious and difficult breathing, especially when in the horizontal posture; but particularly by a sense of fluctuation being communicated to the fingers placed on one side of the abdomen, while the swelling is forcibly struck on the opposite side. There is besides much thirst, a dry skin, scantiness of urine, &c. Whatever may be the influence of diuretics and other evacuations in the cure of general dropsical affections, they are rarely serviceable in local diseases of this kind, and even the operation of tapping seldom cures the disease; but it commonly gives the patient ease for the present, and is attended with very little pain.

Upon the supposition that nothing forbids the extraction of the water, the manner of operating is this:—Having placed the patient in an horizontal situation, as best suited to prevent fainting, and to allow the water to run freely off, the part to be perforated ought to be marked with ink; and the most approved part for the operation seems to be at a point lying at nearly an equal distance between the umbilicus and the centre of the spine of the os ilium, this being most out of the way of any of the viscera, and sufficiently depending to allow the water to escape; and as the spleen is less frequently enlarged than the liver, the left side is generally preferred. Various means have been used for applying an equal pressure in this operation. Some apply pressure by the hands of assistants; others use a broad piece of flannel, or other kinds of cloth, slit a certain way from each end; then the ends are drawn by assistants till sufficient pressure is made. Broad belts are used by some practitioners; but one of the best contrivances for this purpose is the bandage invented by the late Dr. Monro. For several years, a puncture was first made with a lancet, then a trocar of the common round form with a triangular point was constantly used; but the entrance of this instrument being always attended with difficulty and pain, a flat trocar is now employed; and that invented by Mr. Andrée seems the best which has yet appeared. The bandage being now applied and drawn a little tight, the part to be punctured is to project a little over the edge of the bed. The operator fixes the head of the trocar in the palm, while the fore-finger directs the point of the instrument. He is then to push it forwards till he is satisfied, by the want of resistance, that the end of the canula has reached the cavity of the abdomen. The perforator is now to be withdrawn, and the water allowed to flow as long as any of it can be taken off, the bandage being from time to time pulled to favour the discharge. But if the patient become faint, a stop for a few minutes should be put to the discharge every now and then, by placing the point of the finger upon the mouth of the canula. If any of the viscera happen to stop the flow of the water before the swelling is much diminished, a blunt probe is to be introduced, but bent at the end, lest it slip into the cavity of the abdomen. When the serum is thick and gelatinous, it may sometimes be necessary to introduce a larger trocar than the one first employed. When the water does not flow, because it is collected into cysts, the canula is to be withdrawn, and the wound covered with a pledget of simple ointment. The operation may then be renewed immediately, or on the following day, upon the opposite side of the abdomen, or in the most depending part of the tumor, in whatever part of the abdomen it may be placed.

During the operation it is necessary to keep up a pressure on the abdomen, otherwise the patient will be apt to fall into faintings, from the weight on the great vessels of the abdomen being taken off, and the sinking of the diaphragm succeeding; in consequence of which more blood flows into the inferior vessels than usual, the superior ones are left too empty, and thus the regular progress of the circulation is interrupted. To obviate this, the pressure must not only be made during the operation, but be afterwards continued. As to the dressing, it has been advised generally, that the wound may be covered with a pledget of simple ointment; but between the skin and the roller some recommend a piece of flannel dipped in brandy or spirit of wine to be applied. The bandaging in this manner may even have some effect in preventing a return of the disease. When the water again collects, the operation should be repeated whenever the swelling has acquired a considerable size; and though this operation seldom effects an absolute cure, yet it sometimes preserves life a great many years, and even a comfortable one, especially if the water has been long collected.

After the operation, some practitioners advise the abdomen to be frequently rubbed with astringent spirituous applications. This cannot however be done for the first two days after the operation, as it would be improper sooner to remove the bandages; but after that time, they may be removed daily, for about a quarter of an hour; and camphorated spirit of wine, or other applications which may have a similar effect, may be applied with strong friction over the abdomen, the body being kept, during this period, in the horizontal situation, and the bandage applied immediately after.

This operation is also sometimes resorted to for the discharge of air in cases of tympanites. See TYMPANITES.

PARACU'SIS (παρακȣσις; from *ϖαρα, wrong*, and *ακȣω*, to *hear);* depraved hearing, or a singing in the ears. This constitutes a genus of disease in the class *locales*, and order *dysæsthesiæ* of Cullen: the species are, 1. *Paracusis imperfecta*, when existing sounds are not heard as usual. 2. *Paracusis imaginaria*, when imaginary sounds are heard. See DEAFNESS, and TINNITUS AURIUM.

PARACYNA'NCHE (παρακυμαγχη, from *παρα, κυων, a dog*, and *αγχω, to strangle)*, a species of quinsy; that being a distemper to which dogs are subject.

PARADI'SI GRANA. See GRANA PARADISI.

PARALLE'LA, a name given to a sort of scurf, in parallel lines, on the palms of the hands: it happens sometimes in the venereal disease.

PARALLELOPIPE'DIA, a genus of spars, externally of a determinate and regular figure, always found loose, detached, and separate from all other bodies, and in form of an oblique parallelopiped, with six parallelogram sides and eight solid angles; easily sessile either in an horizontal or perpendicular direction; being composed of numbers of thin plates, and those very elegantly and regularly arranged bodies, each of the same form with the whole mass, except that they are thinner in proportion to their horizontal planes, and naturally fall into these and no other figures, on being broken with a slight blow.

PARA'LYSIS, (παϱαλυσις; from ϖαϱαλυω, to loose); the palsy. It is a genus of disease in the class *neuroses*, and order *comata*, of Cullen, known by a loss of the power of voluntary motion, affecting certain parts. The species are, 1. *Paralysis partialis*, partial palsy, or that of some particular muscles. 2. *Paralysis hemiplegica*, palsy of one side. 3. *Paralysis paraplegica*, palsy of one half of the body. 4. *Paralysis venenata*, from the sedative effects of poisons. Paralysis is also symptomatic of several diseases, as worms, scrophula, syphilis, &c.

The palsy under each of the different forms here mentioned as a particular species, shews itself by a sudden loss of tone and vital power in a certain part of the body. In the slighter degrees of the disease, it only affects a particular muscle, as the sphincter of the anus or bladder, thus occasioning an involuntary discharge of excrements or of urine; of the muscles of the tongue, which occasions stammering, or loss of speech; of the muscles of the larynx, by which the patient becomes unable to swallow solids, and sometimes even liquids also.—In the higher degrees of the disease, the paralytic affection is diffused over a whole limb, as the foot, leg, hand, or arm; and sometimes it affects a whole side of the body, in which case it is called *hemiplegia;* and sometimes, which is the most violent case, it affects all parts below the waste, or even below the head, though this last is exceedingly rare. In these violent cases the speech is either very much impeded, or totally lost. Convulsions often take place in the sound side, with the cynic spasm or involuntary laughter, and other distortions of the face. Sometimes the whole paralytic part of the body becomes livid, or even mortifies before the patient's death; and sometimes the paralytic parts gradually decay and shrivel up, so as to become much less than before. Whether the disease be more or less extended, many different varieties may be observed in its form. Sometimes there occurs a total loss of sense while motion is entire; in others a total loss of motion, with very slight or even no affection of sense; and in some cases, while a total loss of motion takes place in one side, a total loss of sense has been observed on the other. This depends entirely on the particular nerves, or branches of nerves, in which the affection is situated: loss of sense depending on an affection of the subcutaneous nerves; and loss of motion on an affection of those leading to the muscles.

Palsies most commonly supervene upon the different species of coma, especially the apoplexy. They are also occasioned by any debilitating power applied to the body, especially by excesses in venery. Sometimes they are a kind of crisis or consequence of other diseases, as the Devonshire colic, and the apoplexy. The hemiplegia especially, often follows the last-mentioned disease. Aged people, and those who are by any other means debilitated, are subject to palsy; which will sometimes also affect even infants, from the repulsion of exanthemata of various kinds. Palsies are also the infallible consequence of injuries of the large nerves.

Except in the slighter cases of palsy, we have little room to hope for a cure; however, death does not immediately follow even the most severe paralytic affections. In an hemiplegia it is not uncommon to see the patients live several years; and even in the paraplegia, if death do not ensue within two or three weeks, it may not take place for a considerable time. It is a promising sign when the patient feels a slight degree of painful itchiness in the affected parts; and if a fever should arise, it bids fair to cure the palsy. When the sense of feeling remains, there is much more room to hope for a cure than where it is gone, as well as the power of motion. But when we observe the flesh to waste, and the skin to appear withered and dry, we may look upon the disease to be incurable. Convulsions supervening on a palsy are a fatal sign.

Many remedies have been recommended in palsies: but it must be confessed, that, except in the slighter cases, medicines seldom prove effectual; and before any scheme of cure can be laid down, every circumstance relative to the patient's habit of body and previous state of health should be carefully weighed. If an hemiplegia or paraplegia should come on after an apoplexy, attended with those circumstances which physicians have supposed to denote a viscid state of the blood, a course of the attenuant gums, with fixed alkaline salts, and chalybeate waters, may do service; to which it will be proper to add frictions with the volatile liniments all down the spine: but in habits where the blood is inclined to the watery state, it will be necessary to give emetics from time to time; to apply blisters, and to open issues in the back and other parts.

The natural hot baths are often useful in paralytic cases; and where the patients cannot avail themselves of these, an artificial bath may be tried by dissolving vitriolated iron in water, and impregnating the water with fixed air. Frictions of the parts, and scourging them with nettles, have also been recommended, and may do service, as well as volatile and stimulating medicines taken inwardly. And it is probably by operating in this manner, that the use of camphor, or a mercurial course continued for some length of time to such a degree as gently to affect the mouth, have been found productive of a cure in obstinate cases of this affection.

Dr. Saunders says, the cure is best attempted by the following means:—1. By bleeding in plethoric and inflammatory habits, in cases where the attack has been sudden, and where the head is much affected: in other cases it is to be avoided. 2. By active purgatives and stimulating clysters, except in very old habits. 3. By the use of volatile and diffusive stimulants, taken internally, or applied externally. 4. In some cases where the head has not been much affected, vomits have been useful. 5. External warmth, but more particularly bathing in the hot baths at Bath. 6. Various external applications; such as blisters, warm plasters, volatile and acrid liniments, friction, and electricity; to which we may now add Galvanic electricity. See Galvanism. The doctor directs—

℞ Ammoniæ præp. gr. vj.
Tinct. Cardam. comp. ʒj.
Aq. Pulegii ℥iss.
Syr. cort. aurant. ʒj. Misce.
Fiat Haustus, sexta quavis hora capiendus.

℞ Linim. sapon. ℥iss.
Tinct. cantharid. ℥ss. M.
Sit Linimentum quo partes adfectæ perfricandæ sunt.

℞ Colocynthid. ʒj.
Aq. fervent. ℥x.
Coque per min. x. et liquori colato, adde,
Syr. Spin. Cerv. ℥j. ut fiat Enema.

℞ Sinap. sem. contus.
Raphan. rust. incis. sing. ʒvj.
Aq. fervent. lib. j.
Macera in vase operto et liquorem cola, cui addantur,
Sp. Pimento ℥ij. Sum. unc. ij. bis terve indies.

An infusion of the *arnica montana* or German leopard's bane (see Arnica), has been highly extolled in the cure of this disease by some foreign writers: but the trials made with it in Britain, particularly at Edinburgh, have been by no means equally successful with those related by Dr. Collins.

The palsy from poisons arises most frequently from lead, gradually and in imperceptible quantities taken into the body; and this being a consequence of the *Colica Pictonum*, or Devonshire colic, it is more particularly treated under that article.

PARA'LYSIS HERBA (*παραλυσις*; from *παραλυω*, to *weaken)*; so called from its use in paralytic disorders. The cowslip and primrose have been sometimes so termed. See Primula veris, and Primula vulgaris.

PARAPHO'NIA (*παραφωνια*; from *ϖαρα*, *wrong*, and *φωνη*, *sound)*; an alteration of the voice. It is a genus of disease in the class *locales*, and order *dyscinesia* of Cullen, comprehending six species: 1. *Paraphonia puberum.* 2. *Paraphonia rauca.* 3. *Paraphonia resonans.* 4. *Paraphonia palatina.* 5. *Paraphonia clangens.* 6. *Paraphonia comatosa.* The voice may be changed from various causes. In males it becomes much more hard about the time of puberty; but this can by no means be reckoned a disease. In others it proceeds from a catarrh, or what we call a *cold*. It arises also from affection of the nose and palate, as by polypi, ulcers, &c. in which case the cure belongs properly to surgery. In some it arises from a laxity of the *velum pendulum palati* and glottis, which causes a kind of snoring noise during inspiration. The cure of this last case is to be attempted internally, by tonics and such other medicines as are of service in diseases attended with laxity, and by the topical use of *camphorated spirits*, a slight application of which has sometimes a very wonderful effect.

PARAPHRENI'TIS (*παραφρενιτις*; from *ϖαρα*, dim. and *φρεν*, the *mind)*, called also *diaphragmitis*; an inflammation of the diaphragm. It is a genus of disease in the class *pyrexiæ* and order *phlegmasiæ* of Cullen. It arises from the same causes as the inflammation of the *pleura*. See Pleuritis. The pain is very violent and deep seated in the lower part of the breast, or under the short ribs; or striking between them and the back: the belly is drawn up, and kept as much at rest as possible; the respiration is excessively quick, small, and difficult, and performed principally by the muscles of the breast; the patient is frequently affected with sickness and hiccough; the pulse is for the most part very frequent, small, hard, and often irregular; there is great anxiety; the other symptoms of irritation come on, and death frequently ensues. If this do not happen, the progress, termination, and manner of treatment, are nearly the same as in the pleurisy.

PARAPHYMO'SIS (*παραφιμοσις*; from *ϖαρα*, *about*, and *φιμοω*, to *bend)*; a disorder wherein the prepuce, being retracted toward the root of the penis, cannot be returned again over the glans, but makes a tight ligature behind the corona. This disease is easily known; the glans being uncovered, the skin tumefied above it forming a circular band or stricture, which, from the skin being unequally extended, becomes indented, and makes several rings round the part. A paraphymosis may proceed from two causes: first, from the imprudence of young people, and sometimes also of grown persons, who having naturally the end of the prepuce very straight, cannot denude the glans without pain, and when they have done it, neglect to return it so soon as they ought; and thus the contracted part of the prepuce forms a constriction behind the glans. In consequence of an impediment thus occasioned to the circulation, both the glans and penis swell, and the prepuce being consequently very much distended, is affected in the same manner; an inflammation seizes upon both, and swellings quickly appear upon the stricture formed by the prepuce, so that the whole may be liable to a gangrene, if not speedily relieved. The second and most frequent cause of a paraphymosis, is a venereal infection. In adults, whose glans is uncovered, there frequently arise venereal chancres in the prepuce after impure coition, which, before they digest, are generally attended with inflammation, more or less considerable. This inflammation is alone sufficient to render the prepuce too strait for the size of the penis, in consequence of which a swelling may ensue like that before mentioned; and this is what is termed a paraphymosis.

Whilst the disease is in the incipient state, the patient may generally be relieved, by the surgeon pushing the glans gently back with his thumbs, while with his fingers he brings the prepuce gradually forward. But a more effectual method than this, is to enclose the glans with one of the hands, and press gently on all sides, by which the fluids forming the enlargement will be pushed into the body of the penis behind the stricture. If this method be persevered in for a considerable time, it will generally be found to answer the purpose; but should it prove ineffectual, we may try the effects of cold applications; and the best seem to be those of the astringent kind. When the penis is evidently much swelled and inflamed, the patient should be kept cool, gentle laxatives and low diet should be prescribed, and a number of leeches applied to the penis. Should the disease still continue to increase, and an œdematous swelling appear about the under part of the prepuce, an operation is necessary to prevent a mortification from taking place in the glans. An incision is to be made on each side of the penis, immediately behind the glans, so large as completely to divide the stricture. The wound ought to be allowed to bleed freely; after which a pledget spread with simple ointment is to be applied, and an emollient poultice laid over the whole.

PARAPLE'GIA (*παϱαπληγια*; from *παϱαπλησσω*, to *strike inharmoniously)*; a palsy of one half of the body taken transversely. It is one of the three species of paralysis. See Paralysis.

PARASITIC; an epithet applied to animals, &c. that receive their nourishment in the bodies of others, as worms, polypes, hydatids, &c.

PARASITICAL, in botany, a term applied to such plants as are produced out of the trunk or branches of other plants, from whence they receive their nourishment, and will not grow upon the ground, as the misletoe, &c.

PARASTA'TÆ (*παραστατα*, from *παριστημι*, *to stand near)*. In Hippocrates, this term signifies the *epididymis.* Herophilus and Galen called these the *varicosæ parastatæ*, to distinguish them from the *glandulosæ parastatæ*, now called *Prostatæ.* Rufus Ephesus called the tubæ Fallopianæ by the name of *parastatæ varicosæ.*

PARATHE'NAR (*παραθεναρ*; from *παρα*, *near*, and *ϑεναρ*, the *sole of the foot)*. The muscles situated near the sole of the foot are distinguished thus by Winslow.

PARATHE'NAR MINOR. See Flexor brevis minimi digiti pedis.

PARATHE'NAR MAJOR. See Abductor minimi digiti pedis.

PAREGORICS (*παρεγορικος*, *paregoric;* from *παρεγορεω to console*, *mitigate*, or *assuage.)* All opiates are thus called, but it is an epithet for any medicine that relieves pain, whether anodyne or not.

PAREI'RA BRA'VA *(Pariera*, Span.); the *Cissampelos pariera*, *foliis pellatis cordatis emarginatis* of Linnæus. Class, *Diœcia.* Order, *Monadelphia.* This is a perennial climbing plant, which grows in the West-India islands, and in South America. The root, which is the part used in medicine, is brought from Brazil, in pieces of different sizes, some no bigger than one's finger, others as large as a child's arm. It is crooked, and variously wrinkled on the surface; outwardly of a dark colour, internally of a dull yellowish, and interwoven with woody fibres; so that, upon a transverse section, a number of concentric circles appear, crossed with fibres, which run from the centre to the circumference. It has no smell; and the taste is a little bitterish, blended with a sweetness like that of liquorice. Neumann got from 480 parts, 123 alcoholic and 60 watery extract; and inversely, 140 watery and 66 alcoholic. Nothing was raised from it in distillation.

The properties of this root are highly extolled by the Americans and Portuguese, who employ it in a great variety of diseases, particularly against suppressions of urine, nephritic pains, and calculus. Geoffroy also found it useful in nephritic disorders, in ulcers of the kidneys and bladder, in the humoral asthma, and in some species of jaundice. The common people of Jamaica use a decoction of the roots for pains and weakness of the stomach, proceeding from relaxation. The dose of the root in substance, is from twelve grains to half a drachm; if in decoction, from two to three drachms.

PARENCHY'MA (*παρεγχυμα*, from *παρεγχυω*, *transfundo*, to strain through). The ancients used to imagine some parts in a human body consisted of a mere fleshy mass, in opposition to the vascular structure, and that through this some of the humours were strained, as water soaks through earth; but better information has taught us otherwise. Erasistratus is said to have introduced this term to signify all that substance which is contained in the interstices between the blood-vessels of the viscera, which he imagined to be extravasated and concreted blood. According to others, this term applies to any of the viscera through which the blood is transmitted, and these were called *Parenchymata;* being looked upon as so many strainers to the humours of the body.

PARENCHY'MA; in botany, the pith or pulp, or that inner part of a fruit or plant, through which the juice is supposed to be distributed. See Plant.

PARE'SIS (*παρεσις*; from *παριημι*, to *relax)*; an imperfect degree of paralysis.

PARETONE'UM, the name of an earth found on the shores of Egypt, Cyrene, and the island of Crete, used by the ancients in painting. It had its name either from a part of Egypt, near which it was gathered, or from the name of a town in that kingdom, where it was usually sold. Vitruvius is of the first opinion, and Volaternus of the other. Of late it was thought to be lost; but it is still common on the shores of most of the islands of the Archipelago, though not observed or regarded; and is merely a very heavy and tough clay of a fine white colour, found in masses of different sizes, generally as soft as the softer clays within the strata; and, by rolling about on the beach in this state, it gathers up the sand, small shells, and other foulnesses we always find about it. It is likely that there are strata of it fine and pure in the cliffs there, and that the sea washes off masses of them in storms and high tides, which are what are usually found.

PARGET, a name given to several kinds of gypsum, or plaster-stone.

PARIETAL BONES (from *paries*, a wall, because they defend the brain like walls), also named, by different anatomists, *Ossa verticis*, *Ossa syncipitis*, *Ossa verticalia vel bregmatis;* two bones, situated one on each side of the superior part of the cranium. Each of these bones forms an irregular square, whose upper and fore sides are longer than the one behind or below. The inferior side is a concave arch; the middle part receiving the upper round part of the temporal bone.—The angle formed by this upper side and the fore one, is so extended, as to have the appearance of a process.

The external surface of each os parietale is convex. Upon it, somewhat below the middle height of the bone, there is a transverse arched ridge, generally of a whiter colour than any other part of the bone; from which, in bones that have strong prints of muscles, we see a great many converging furrows, like so many radii drawn from a circumference towards a centre. From this ridge of each bone the temporal muscle rises; and, by the pressure of its fibres, occasions the furrows just now mentioned.—Below these we observe, near the semicircular edges, a great many risings and depressions, which are joined to like inequalities on the inside of the temporal bone, and form the squamous suture. The temporal bone may therefore serve here as a buttress, to prevent the lower side of the parietal from starting outwards when its upper part is pressed or struck.

Near the upper sides of these bones, towards the hind part, is a small hole in each, through which a vein passes from the teguments of the head to the longitudinal sinus. Dr. Monro says he has sometimes seen a branch of the temporal artery pass through this hole, to be distributed to the upper part of the falx, and to the dura mater at its sides, where it had frequent anastomoses with the branches of the arteries derived from the external carotids, which commonly have the name of the arteries of the dura mater, and with the branches of the internal carotids which go to the falx. In several skulls, one of the ossa parietalia has not this hole; in others, there are two in one bone; and in some, not one in either. Most frequently this hole is through both tables; at other times the external table only is perforated. The knowledge of the course of these vessels may be of use to surgeons when they make any incision near this part of the head; lest, if the vessels are rashly cut near the hole, they shrink within the substance of the bone, and so cause an obstinate hæmorrhagy, which neither ligatures nor medicines can stop.

On the inner concave surface of the parietal bones, we see a great many deep furrows, disposed somewhat like the branches of trees; the furrows are largest and deepest at the lower edge of each os parietale, especially near its anterior angle, where a complete canal is sometimes formed. They afterwards divide into small furrows, in their progress upwards. In some skulls a large furrow begins at the hole near the upper edge, and divides into branches, which join with those that come upwards; shewing the communications of the upper and lower vessels of the dura mater. In these furrows we frequently see passages into the diploë; and sometimes canals have been found going off, which allowed a small probe to pass a few inches into the bony substance. Some authors tell us, that they have observed these canals piercing the bone towards the occiput. On the inside of the upper edge of the ossa parietalia, there is a large sinuosity, frequently larger in the bone of one side than of the other, where the upper part of the falx is fastened, and the superior longitudinal sinus is lodged. Part of the lateral sinuses generally makes a depression near the angle formed by the lower and posterior sides of these bones; and the pits made by the prominent parts of the brain are to be seen in no part of the skull more frequent, or more considerable, than in the internal surface of these bones.

The parietal bones are the most equal and smooth, and are among the thinnest bones of the cranium; but they enjoy the general structure of two tables and diploë the completest of any.

The junction of these bones is, at their fore side, to the os frontis by the coronal suture; at their long inferior angles, to the sphenoid bone, by part of the suture of this name; at their lower edge, to the ossa temporum, by the squamous suture, and its posterior additamentum; behind, to the os occipitis, or ossa triquetra, by the lambdoid suture; and above, to one another, by the sagittal suture. Their *uses* are obvious in the general structure of the cranium.

In a child born at the full time, none of the sides of this bone are completed; and there never is a hole in the ossified part of it near the sagittal suture. The large unossified ligamentous part of the cranium, observable between the parietal bones and the middle of the divided os frontis of new-born children, called by the vulgar the *open of the head*, was imagined by the ancients to serve for the evacuation of the superfluous moisture of the brain: and therefore they named it *bregma*, or *the fountain;* sometimes adding the epithet *pulsatilis*, or beating, on account of the pulsation of the brain felt through this flexible ligamento-cartilaginous substance. Hence it is that the parietal bones have been called *ossa bregmatis.*

The upper middle part of the head of a child, in a natural birth, being what presents itself first at the os uteri, an accoucheur may reach the bregma with his finger, when the os uteri is a little opened. If the bregma is stretched, and the pulsation of the brain is felt through it, the child is certainly alive; but if it is shrivelled and flaccid, and without any observable pulsation in it, there is some reason to suspect the child to be very weak, or perhaps dead. Those who practise midwifery should therefore examine the state of this part accurately.

All the bregma is generally ossified before seven years of age. Several authors, however, allege, that they have observed it unossified in adults; and physicians formerly ordered the application of medicines at the meeting of the coronal and sagittal sutures, to cause a derivation of noxious humours from the encephalon.

PARIETA'RIA (from *paries,* a wall, because it grows upon old walls, and among rubbish), wall-pelitory, the *Parietaria officinalis* Linn. *Parietaria foliis lanceolato-ovatis, pedunculis dichotomis, calycibus diphyllis.* Class, *Polygamia.* Order, *Monœcia.* This plant has no smell, and its taste is simply herbaceous. There are six species, of which one only, named the *officinalis,* is used in medicine. This has a creeping root. The stalk grows erect, is rough to the touch, and adhesive: the leaves are alternate, elliptical, lanceolate, veined, and a little rough. The flowers grow out of the alæ of the leaves, in sessile, branched, verticillate clusters, of a greenish colour tinged with red. The antheræ have a great degree of sensibility; for, if irritated with the point of a pin, they fly from the calyx with elastic force, and throw out their powder. The plant has a cooling and diuretic quality. Three ounces of the juice taken internally, has been found serviceable in the strangury. This plant however is seldom employed at present.

PARIETA'RIA OFFICINA'LIS; the systematic name of the wall-pellitory. See PARIETARIA.

PARI'ETES, in anatomy, a term used to denote the inclosures or membranes that inclose the hollow parts of the body; especially those of the abdomen, thorax, heart, &c. The parietes of the two ventricles of the heart are of unequal strength and thickness; the left exceeding the right, because of its office, which is to force the blood through all parts of the body; whereas the right only drives it through the lungs.

PA'RIS (so called in reference to the youth, celebrated by the poets for having adjudged the golden apple to Venus, this herb bearing but one seed); the herb Paris, or true-love. It is the *Paris quadrifolia* of Linnæus. The calyx is tetraphyllous; there are four petals, narrow in proportion; the berry quadrilocular. There is but one species, growing naturally in woods and shady places both in Scotland and England. This has a single naked stem, greenish blossoms, and blueish black berries. The leaves and berries are said to partake of the properties of opium; and the juice of the berries to be useful in inflammations of the eyes. Linnæus says, that the root will vomit as well as ipecacuanha, but must be taken in double the quantity. Though this plant has been reckoned of a poisonous nature, being ranked among the *aconites,* yet later authors attribute quite other properties to it, esteeming it to be a counter-poison, and good in malignant and pestilential fevers. In this country, however, it is quite neglected.

PA'RIS QUADRIFO'LIA; the systematic name of the herb *Paris.* See PARIS.

PARIS, PLASTER OF; a remedy first brought into notice by Mr. Home of London, who says he was led to make use of it from an idea that it would absorb the matter of a superficial sore as fast as it was secreted, and *form a crust,* which, similar to *a scab,* would induce the parts underneath to skin over. Experience, however, proved to him that this is not the case; and the edges of the sore, in many instances, were much irritated by the application. Whether there be any other mode of employing this remedy to anomalous ulcers, by which their healing may be promoted, can only be determined by further experiments.

PARMESA'N, a sort of cheese much esteemed among the Italians; so named from the duchy of *Parma,* where it is made, and whence it is conveyed to various parts of Europe. The excellent pasture-grounds of this country are watered by the Po; and the cows from whose milk this cheese is made yield a great quantity of it. Of this cheese there are three sorts; the *fromaggio di forma,* about two palms in diameter, and seven or eight inches thick; and the *fromaggio di ribiole* and *di ribolini,* which are not so large. This cheese is of a saffron colour; and the best is kept three or four years. As to its properties as an article of food, little can be said further than is generally stated under the article CHEESE.

PARONY'CHIA (*παρονυχια*; from *παρα,* about, and *ονυξ,* the nail), also called *Panaris,* and *Panaritium;* a whitlow, or whitloe. Any collection of pus formed in the fingers is termed by authors panaris or whitloe; but properly, it is that which appears *about the nail* (as the Greek term expresses it), or at the *extremities* of the fingers. This disease, however, is classed into four kinds from the different seats of it, and it is particularly necessary to distinguish each species from the other, on account of their different degrees of importance, and the necessity of treating them differently.

1. The *first species* is situated round the nail, immediately under the cuticle or epidermis. It is in general a disease of little consequence, but may be made troublesome by ill treatment.

It begins by forming a little swelling, attended with a degree of redness, and some pain at one corner of the nail. A linen compress dipped in spirit of wine and camphor, applied moderately tight round the finger, and kept constantly moist, very frequently proves sufficient to cure the complaint in a few hours, and prevent the formation of matter. A lady who was very subject to frequent attacks of this disease, had been taught always to treat it with the good old woman's remedy, a bread and milk poultice, and by this means the complaint frequently lasted a fortnight, and proved extremely worrying and troublesome. Her surgeon, however, directed her, as soon as she felt the least pain in her finger, to dip the part and wrap it up in cloths wet with spirit of wine and camphor; and by this management she never afterwards had a whitloe that proceeded to suppuration.

But if, notwithstanding these precautions, matter should still make its appearance, which it generally does at first by one white spot under the cuticle, we must not delay cutting off the cuticle from that spot immediately, and from every part of the finger where it is raised. The application of a piece of rag, wet in a solution of muriated ammonia, or even vinegar and water, and renewed when dry, is then sufficient to cure the disease in four-and-twenty hours. But if, on that evening, we delay opening the cuticle, which is easily separated from the subjacent skin, it becomes loosened by the matter, which extends perhaps round the finger, and sometimes a considerable way down it, and what is worse, destroys the adhesion of the nail to the cuticle from which it is produced. Hence there is a necessity for casting off the old nail, and consequently waiting for the growth of a new one, which makes a tedious and troublesome disease of one that would have been well in a few hours if properly treated at the outset.

2. The *second species of whitloe* is seated immediately in or under the cutis, in the adipose membrane about the end of the finger. The inflammation being greater here, and also the pain, from the greater sensibility of the parts concerned, the disease becomes of a little more consequence. There is a strong throbbing and pulsation in the part, and a considerable elevation of the skin. We may attempt to disperse this abscess by immersing the finger for half an hour at a time in warm water, and by keeping rags, wet with the saturnine water, constantly applied to the part; but if these attempts should fail, the sooner the matter finds an issue outwardly, the better; every thing, therefore, that tends to remove the obstacle to the exit of the matter, should be speedily attempted. The cuticle in these parts is very thick, and it often happens that the matter shall have got through the skin, and shall not be able to make its way through the epidermis. For the natural thickness of the cuticle is here increased by the inflammation, and by the practice of soaking the part constantly in a bread and milk poultice. This is evident to the senses, for the cuticle becomes white and perfectly opaque, resembling that of washerwomen who have been soaking their hands all day in water.

In slight cases of this sort, the separating of the lamellæ of the cuticle from each other, or, in other words, the thinning of the cuticle, proves sufficient to afford an outlet, either at the time or in a few hours after, to the matter, and to cure the disease. In several instances, where there may exist an evident tumor, with no fluctuation, but, from all appearance, a tendency to suppuration, we may succeed in preventing further mischief, by plunging a knife into the prominent part through the skin and fat; which effect is, in all likelihood, produced by unloading the vessels of the part, in the same manner as when topical bleeding cures inflammation.

3. The *third species of whitloe* is seated underneath the sheath of the flexor tendons of the fingers. This is a disorder infinitely more violent and dangerous than either of the two former. The matter being deeper seated, under strong ligamentous parts, such as those thick bands placed at intervals over the flexor tendons to confine them in their position, meets with still more difficulty in finding its way outwards. It therefore insinuates itself under and along the sheath of the tendons, and gets into the hand, where the fluctuation is generally first felt in the palm, under the aponeurotic expansion of the palmaris muscle. From thence, the matter sometimes proceeds along the palm of the hand, and having reached the annular ligament of the carpus, passes under that into the fore-arm.

The pain arising from this species of the disease is most excruciating, not only from the inflammation of these strong parts, but also from the very great resistance they make to the distending power of the matter. A great degree of fever is consequently excited, the patient can have no rest, and a greater or less degree of delirium ensues, according to the greater or less violence of the complaint.

To prevent all the fore-mentioned evils, it would perhaps be only necessary to make an early incision into the part first affected, through the strong ligamentous bands confining the tendons; but one thing is to be observed, that if we make a simple incision, the great swelling and distension of the parts will prevent that incision from having any effect, and the wound will appear closed almost as soon as it is made. It should therefore be a rule, in such cases, to cut off a portion of the integuments, and thus make a large and evasated wound, which admits of a free discharge of all the matter, and procures immediate relief to the patient. If the tendon itself be diseased, or the ligamentous bands which confine it, it will be necessary, not only to make an incision through them, but to remove part of the ligament, and even part or the whole of the tendon; for that, if it be diseased, will infallibly slough away. In a word, at all events, a free opening is to be made; otherwise we might as well make none.

If this opening be made very early, all the dreadful mischiefs we have been describing, and which sometimes lead on to amputation, sometimes even to the destruction of the suffering patient, might be prevented. However, in whatever stage of the disease the opening may be made, it is right to follow it up as far as the matter reaches. If it should extend through the palm of the hand, the aponeurosis of the palmaris must not only be simply cut through, but freely divided or set loose in various directions, that there may be no tightness or tension remaining. It is even necessary to follow up the matter through the carpal ligament and into the arm, if it should have reached so far. But all these evils may in general be prevented, as we have before observed, by an early opening; and it is rather a matter of surprise, that this salutary and effectual mode of treatment should ever have been neglected, because there is one symptom which is peculiarly characteristic of this disease, and distinguishes it from every other species of paronychia. This is, a violent pain which the patient complains of in the internal condyl of the humerus, and which happens in consequence of the two muscles, called profundus and sublimis, terminating in the flexor tendons of the fingers, which are the parts immediately affected in this complaint.

The best dressing for this kind of whitloe when opened, is oil of turpentine, or some such stimulating and spirituous dressing. Greasy and unctuous compositions generally increase the evil, and should only be used as retentives to other dressings.

4. The *fourth species of whitloe*, is when the matter is formed under the periosteum, between that and the bone, or in the body of the bone itself. In this, the pain is much more deep seated, and is not felt at the internal condyl of the humerus, as in the former species. The pain is very violent, but, in the beginning, not quite so much so as in the third kind. The swelling and tension of the finger are much less; and are, in general, confined to the part itself; but the pain soon increases so as to bring on fever and delirium as in the fore-mentioned case. The finger frequently becomes livid, and is covered with little blisters containing a bloody serum, and threatening a mortification.

This is a case which demands the surgeon's utmost sagacity and resolution; yet we may venture to say, if these be properly exerted, that the result will generally be the preservation of the finger, which otherwise would infallibly be lost. When a violent pain therefore rages at the extremity of the finger, causing fever and delirium, though there may be no other symptoms to lead us, we are warranted in plunging a bistoury (in by the *side* of the finger, to avoid the tendons) through the periosteum, and down to the bone. This is sometimes done to very great advantage, and in such instances the surgeon perhaps will give vent to a single drop of brown-coloured matter or purulent sanies; and this well-timed operation will commonly be sufficient to ease the patient, and remove all the violent symptoms which may have been induced.

The inexperienced practitioner will be apt to feel doubtful as to the propriety of attempting this operation, from the uncertainty of meeting with and giving issue to matter. But some have confidently assured us, that, whether matter be formed or not (in which however none can well be mistaken), the relief will be the same; so that nothing ought to deter us from the undertaking.

If it should be found, that the incision recommended does not produce the desired effect within four-and-twenty hours, and that the disorder should continue raging with as much violence as ever, the amputation of the finger must take place, and as we are certain that we must come to that at last, the sooner we do it the better; for we shall shorten the duration of the disease much by it, since all the violent symptoms will cease almost immediately upon the amputation of the finger.

The necessity and utility of early opening in the two last species of whitloe, is confirmed by another circumstance, which experience enables us to assert with some degree of confidence. When, after having made a deep incision into these parts, with an intent to let out matter, it has so happened that no matter has followed the incision, it has been known, notwithstanding, to flow plentifully on the following day, from the orifice.

PARORCHI'DIUM (παρορχιδιον; from ϖαρα, and ορχις, a *testicle*); a tumour in the groin, occasioned by the testicle, during its passage into the scrotum. This is sometimes mistaken for a hernia, and a truss applied; very much to the inconvenience and danger of the patient.

Sometimes the testicles, one or both, are detained in the groin: usually about the time of the child's birth they descend into the scrotum; in some instances a little before birth, in others soon after. But this is very uncertain with respect to different persons; also in the same person the two testicles will considerably vary as to the time of their descent. Sometimes one, at others both, are detained in the belly, or stick in passing through the groin. These accidents happen for a longer or lesser time after the birth; and in some instances the testes never pass down into the scrotum. Mr. Pott takes notice of this case, and gives several instances of it in his works; where he says, that he knows not of any particular inconvenience arising from the detention of a testicle within the cavity of the belly; but the lodgment of it in the groin renders it liable to be hurt by accidental pressure. When it is so hurt, it may be mistaken for a different disease, and thereby occasion its being very improperly treated. To these considerations he adds, that, there is no kind of disease to which the testicle is liable in its natural situation, but what may also affect it in any or all its unnatural ones. In the first case related by Mr. Pott, a testicle being detained in the groin of a young healthy seaman, who hurt the part by hitting it against a piece of timber, the tumour there became extremely painful, and was mistaken for a bubonocele, from which it might have been more readily distinguished by the following circumstances, had not the extreme tenderness of the injured testicle absolutely prevented any examination there by the touch; and the very hard swelling of the scrotum, which prevented any certainty of a testicle being there or not.

Mr. Pott here observes, that the tumour in the groin did not, like the bubonocele, point obliquely from the ilium towards the pubes, but lay as it were across the groin: also, as necessarily must happen, that when the scrotum became soft, no testicle could be felt in it; two striking circumstances by which to distinguish the detained testicle from the bubonocele, and also to determine the nature of the case. In the earlier part of this young man's life, this detained testicle had been mistaken for a rupture, and a truss had been applied to it. In the second case, the testicle was detained in the groin: this patient had also been advised to wear a truss, on the supposition that the case was a rupture; but he could not wear it, because of the pain it occasioned. At length getting a clap, this detained testicle inflamed, forming a hernia humoralis, which was mistaken for a bubo. In this case, the tumour was moveable, and the scrotum on that side had no testicle in it; two circumstances sufficient for distinction and determination. Both the above cases were cured as inflammations of the testicles are when their situation is in the scrotum.

PAROTID GLAND *(Glandula parotidea,* from ϖαρα, *about,* and ȣς, the *ear)*; a large conglomerate and salival gland, situated under the ear, on each side of the head, between the mamillary process of the temple bone, and the angle of the lower jaw. The superior portion of this gland lies before the cartilaginous meatus of the ear, and touches the apophysis zygomatica of the os temporis; and it is extended forward and backward under the lobe of the ear, as far as the mastoid apophysis. From the anterior and superior portion of this gland, a white membranous duct or canal is produced by the union of a great number of small tubes representing so many roots. This duct runs obliquely forward on the outside of the masseter; and then perforates the buccinator from without inward, opposite to the interstice between the second and third dentes molares, where the hole or orifice represents the spout of an ewer.

PAROXY'SMUS (*παροξυσμος*; from *παροξυνω*, to *aggravate)*; a paroxysm or periodical exacerbation or fit of a disease.

PARSLEY, BLACK MOUNTAIN. See Oreoselinum.

PARSLEY, COMMON. See Petroselinum.

PARSLEY, MACEDONIAN. See Petroselinum Macedonicum.

PARSNEP. See Pastinaca.

PARSNEP, WATER. See Sium.

PA'RULIS (*παρȣλις*; from *ϖαρα*, and *ουλον*, the *gum)*; a gum-boil. Gum-boils may arise from cold or from external violence, &c. but most frequently they are the consequence of tooth-ach. The complaint begins with pain attending a tumor on the parts affected; by degrees the side of the face swells considerably; the tumor of the gum now begins to point; and if it be not opened, it bursts and gives the patient immediate relief. When the boil is owing merely to inflammation, after the matter is evacuated, the complaint goes off; but when it proceeds from a caries of a tooth, it will continue as long as the cause remains; the tooth therefore ought to be extracted. After the abscess has burst, if the matter continue to be discharged, it may sometimes be dried up by injecting some astringent liquor; but the most effectual method is to lay the abscess fully open, and to heal it from the bottom by dossils of lint. Sometimes abscesses occur of a more obstinate nature, owing to a carious state of the jaw. In that case suppuration ought to be promoted, and the part laid open as soon as matter is formed; keeping the passage open for the discharge, being the only means for effecting a cure.

Excrescences of various degrees of firmness sometimes grow upon the gums. Some are soft and fungous, while others are of a warty nature. In general they are not attended with pain. They frequently originate from caries of the teeth, or of their sockets; in which case the removal of the decayed teeth, and the subsequent exfoliation of the carious part of the jaw, will often accomplish a cure. But when this does not happen, the tumour should be removed as soon as it becomes troublesome, otherwise there may be danger of its ending in cancer. The removal may be effected by a ligature or knife, according as the tumor may have a narrow or broad basis. It is sometimes necessary to use a speculum oris to keep the mouth open. After the tumor is extirpated, the wound should be allowed to bleed freely, to prevent subsequent inflammation. When the hemorrhage proceeds too far, it should be restrained by the application of spirit of wine, or tincture of myrrh, or solution of alum, &c. and should these prove unsuccessful, the lunar caustic will seldom fail of having the desired effect. No dressings can be applied; but for some days after the operation, the mouth should be frequently washed with a warm emollient decoction; and the cure will be afterwards promoted by the application of some gently astringent liquor, as port wine, tincture of roses, &c.

PARTHE'NIUM (*παρθενιον*; from *παρθενος*, a *virgin*; so called because of its uses in diseases of young women). See Matricaria.

PARTHE'NIUM MAS. See Tanacetum.

PARTING, in chemistry, an operation by which gold and silver are separated from each other. As these two metals resist equally well the action of fire and of lead, they must therefore be separated by other methods. This separation could not be effected if they were not soluble by different menstruums. Nitrous acid, marine acid, and sulphur, which cannot dissolve gold, attack silver very easily; and therefore these three agents furnish methods of separating silver from gold, or of the operation called *parting*. Parting by nitrous acid is most convenient, and therefore most used, and even almost the only one employed by goldsmiths and coiners; hence it is called simply *parting*. That made with the marine acid is only made by cementation, and is known by the name of *concentrated parting*. Lastly, parting by sulphur is made by fusion, which the chemists call the *dry way*, and is therefore called *dry parting*.

PA'SSA MINOR. See Uva passa minor.

PASSIFLO'RA LAURIFO'LIA; the bay-leaved passion-flower, a native of Surinam. The fruits procured from this tree have a delicious smell and flavour, and are excellent for quenching thirst, abating heat of the stomach, increasing the appetite, recruiting the spirits, and allaying the heat of burning fevers in hot climates.

PASSIFLO'RA MALIFO'RMIS; the apple-shaped granadelley. The fruit of this species of passion-flower is esteemed a delicacy in the West Indies, where it is served up at table in desserts. It is not unwholesome if eaten in moderation.

PASSION, a word of which, as Dr. Reid observes, the meaning is not precisely ascertained either in common discourse or in the writings of philosophers. In its original import, it denotes every *feeling* of the mind occasioned by an extrinsic cause: but it is generally used to signify some *agitation* of mind opposed to that state of tranquillity in which a man is most master of himself. That it was thus used by the Greeks and Romans, is evident from Cicero's rendering *ϖαθος*, the word by which the philosophers of Greece expressed it, by *perturbatio* in Latin. In this sense of the word, passion cannot be itself a *distinct* and *independent* principle of action; but only an occasional degree of vehemence given to those dispositions, desires, and affections, which are at all times present to the mind of man; and that this is its proper sense, we need no other proof than that passion has always been conceived to bear analogy to a storm at sea or to a tempest in the atmosphere.

In medicine, the passions make one of the non-naturals, and produce very sensible effects on the body. *Joy*, *anger*, *love*, and *fear*, or *grief*, are the principal. In the former, the spirits are hurried with too great vivacity; whereas, in the latter, they are as it were curbed and concentrated: whence we may conclude, that they have a very bad effect upon the health.

Passions operate upon the body, Dr. Willich observes, either suddenly, or slowly and by degrees. Sudden death, or imminent danger of life, may be the consequence of the former; a gradual decline and consumption that of the latter. The passions, as such, may be aptly divided into two principal classes, those of an agreeable and of a disagreeable nature. Men of strong imaginations chiefly suffer from passions of the violent kind, while those of more understanding and less fancy are subject to slow emotions of the mind. Indolent persons, and those whose sensations are not quick, are, upon the whole, less passionate, than those who combine acute feelings, and a lively imagination, with a clear understanding. The greatest minds are generally the most impassioned.

All passions, of whatever kind, if they rise to a high and violent degree, have a dangerous tendency: bodily disease, nay death itself, may be their concomitant effects. Fatal apoplexies have frequently followed sudden dread or terror. Catalepsy and epileptic fits not rarely accompany immoderate affliction, or distressing anxiety. Hypochondria, hysterics, and habitual dejection, may indeed arise from a variety of physical causes; but they are as frequently generated by the passions or sufferings of the mind alone, in individuals otherwise healthy. Diseases of the mind, after some time, produce various disorders of the body; as diseases of the body occasionally terminate in mental disorders. In either case, the malady must be opposed by physical, as well as moral, remedies.

It is only by the constitution and education of the body, that the passions may be rendered useful; for, if uncontrolled and left to themselves, they affect us as a tempest does the ocean, without our being able to counteract their pernicious influence. Since all affections whatever consist in desire or aversion, they must necessarily be accompanied with representations of so lively a nature, as to induce the body to perform motions conformable to them. Consequently the affections must also be accompanied by *sensible* motions within the body, not only by voluntary actions, but by those also which contribute to the support of life, and which are more or less violent according to the degree of the affection. Joy, for instance, enlivens all bodily actions, and, as it were, pervades the whole animal frame. Hope has nearly a similar effect; and these two affections contribute to the preservation of health and life, more than all the medicines that can be contrived. But of the other affections of the mind, we can, in most instances, observe scarcely any other effect, than that of irregular motions, which, not unlike medicines, in a limited degree, and under certain circumstances, may be occasionally useful. *Hence the dominion over our passions and affections is an essential and indispensable requisite to health.* Every individual, indeed, is at his birth provided with a certain bias of the inclinations, and with a peculiar moral temperament: the most tender infant may even discover, by his features and gestures, faint traces of the predominant inclinations of his mind. If these be fostered in his susceptible breast, they will grow up with him, and take so deep a root, that the adult cannot, without the greatest exertion, overcome them by the power of reason.

The physical state of the body is most happy, when the mind enjoys a moderate degree of gaiety, such as is almost universally met with in those who regulate their lives by the strict rules of religion and virtue. The circulation of the fluids, the influence of the nerves, and a free perspiration, are carried on with proper vigour; stagnations are prevented or removed; by this lively and uniform motion, not only digestion, but also all the other functions of the body, are duly performed.

The effects produced on the body by particular passions will be noticed under their several heads. See Joy, Sorrow, Rage, &c.

PASSION, CÆLIAC. See Diarrhœa.

PASSION, HYSTERIC. See Hysteria.

PASSION, ILIAC. See Iliac passion.

PA'SSULÆ MAJO'RES. See Uva passa major.

PASTE, a soft composition of flour, wrought up with proper fluids, as water, milk, or the like, to serve for cases or coffins, for containing meats, fruits, &c. in puddings, pyes, tarts, patties, pasties, and other forms. All pastry is hard and indigestible without a due proportion of suet, butter, or other animal fat: but, with such addition in excess, it is apt to produce the heart-burn, acidity, and complaints of indigestion; because the viscid, perhaps rancid, matter of such ingredients, especially if imperfectly cooked, occasions obstructions in the abdomen, and is frequently productive of head-ach, cholera, and other morbid affections. Children, in particular, ought not to be indulged in the *habitual* eating of rich pastry; for their palates are thus artificially stimulated, and a false appetite is thereby created. Hence arises that propensity which, in many infants, borders on gluttony; and which many weak parents consider as a criterion of perfect health. Glandular obstructions of the mesentery, however, indigestion, scrophula, and other affections, Dr. Willich insists, are by this means induced; these gradually undermine the constitution of the child; and, after a succession of colds or catarrhs, occasion a state of *atrophy*. The fact is, that the wholesomeness of this species of food depends upon its being not more than sufficiently rich; if boiled, *thoroughly done*; if baked, *not scorched*; not over-sweetened, either with sugar or preserved fruits; not eaten in too great quantity, nor to the exclusion of animal food.

PA'STIL; in the old practice of pharmacy, a dry composition of sweet-smelling resins, aromatic woods, &c. which were sometimes burnt to improve and scent the air of a sick-chamber. See Fumigation, nitrous.

PASTINA'CA *(pasta,* from its usefulness as a food); the parsnep. The wild species is sometimes called *Elaphoboscum.* The cultivated or garden parsnep is the *Pastinaca sativa, foliolis simpliciter pinnatis* Linn. Its roots are sweet and nutritious, and in high esteem as an article of food. They possess an aromatic flavour, more especially those of the wild plant, and are exhibited in calculous complaints for their diuretic and sheathing qualities.

PASTINA'CA OPO'PANAX; the systematic name of the plant which yields opopanax. See Opopanax.

PASTINA'CA SATI'VA; the systematic name of the parsnep. See Pastinaca.

PATE'LLA (dim. of *patina,* a dish; so named from its shape), or rotula, the knee-pan; a small flat bone, which in some measure resembles the common figure of the heart with its point downwards, and is placed in the fore part of the joint of the knee. The anterior convex surface of the rotula is pierced by a great number of holes, into which fibres of the strong ligament, that is spread over it, enter. Behind, its surface is smooth, covered with cartilage, and divided by a middle convex ridge into two cavities, of which the external is largest; and both are exactly adapted to the pulley of the os femoris, on which they are placed in the most ordinary unstrained postures of the leg: but when the leg is much bent, the patella descends far down on the condyles; and when the leg is fully extended, this bone rises higher in its upper part than the pulley of the thigh-bone. The plain smooth surface is surrounded by a rough prominent edge, to which the capsular ligament adheres: below, the point of the bone is scabrous, where the strong tendinous ligament from the tubercle of the tibia is fixed. The upper horizontal part of this bone is flatted and unequal, where the tendons of the extensors of the leg are inserted.

The substance of the patella is cellular, with very thin external firm plates; but then these cells are so small, and such a quantity of bone is employed in their formation, that scarce any bone of its bulk is so strong. Besides, it is covered all over with a thick ligament, as this sort of bones generally is, to connect its substance, and is moveable to one side or other: therefore it is sufficiently strong to resist the ordinary actions of the large muscles that are inserted into it, or any common external force applied to it; while a fixed process, such as the olecranon, would not have been sufficient to bear the whole weight of our bodies, which frequently falls on it, and would have hindered the rotatory motion of the leg. Dr. Monro says, that notwithstanding these precautions to preserve the patella from such injuries, he knew of a transverse fracture of it, when, by the report of the patient, and of the people about him, and by the want of swelling, discoloration, or other mark of bruise or contusion, it was plain the bone was broken by the violent effort of the muscles. Though this patient recovered the use of the knee joint, yet it is found, that this sort of fracture is commonly attended with difficulty of motion after the broken parts are reunited; because the callous matter probably extends itself into the cavity of the joint, where it either grows to some of the parts, or makes such an inequality on the surface of this bone, as does not allow it to perform the necessary motions on the condyles of the femur.

At the ordinary time of birth, the patella is entirely cartilaginous, and scarcely assumes a bony nature so soon as most epiphyses do. As this is one of the parts which constitute the joint of the knee, its concern in the motions of that part fall to be considered under the article Knee.

PATHE'TICI (so named from παθος, an *affection,* because they direct the eyes to express the passions of the mind), also named *trochleatores;* the fourth pair of nerves. They arise from the crura of the cerebellum laterally, and are distributed in the musculus obliquus superior *seu* trochlearis.

PATHOGNOMONIC *(pathognomonicus, παθογνωμονικος;* from ϖαθος, a *disease,* and γινωσκω, to *know);* a term applied to those symptoms which are peculiar to a disease. They are also termed proper or characteristic symptoms.

PATHOLO'GIA (παθολογια; from ϖαθος, a *disease,* and λογος, a *discourse), pathology;* or the doctrine of diseases. It comprehends *nosology, ætiology, symptomatology,* and *therapteia.* These give instructions for *discerning, distinguishing, preventing,* and *curing* diseases, as they occur in particular persons.

The art of *discerning* and *distinguishing* diseases may be best attained by an accurate and complete observation of their phenomena, as these occur in concourse and in succession; and by constantly endeavouring to distinguish the peculiar and inseparable concurrence of symptoms, to establish a methodical nosology, or an arrangement of diseases according to their genera and species, founded upon observation alone, abstracted from all reasoning. See Nosology.

The *prevention* of diseases depends upon the knowledge of their remote causes; their *cure* chiefly, and almost unavoidably, founded in the knowledge of their proximate causes. This requires an acquaintance with the institutions of medicine; that is, with the knowledge of the structure, action, and functions of the human body; of the several changes which it may undergo; and of the several powers by which it can be changed. Our knowledge of these particulars, however, is still incomplete, is in many respects doubtful, and has been often involved in mistake and error. The doctrine, therefore, of proximate causes, founded upon that knowledge, must be frequently precarious and uncertain. It is, however, possible for a judicious physician to avoid what is vulgarly called theory, that is, all reasoning founded upon hypothesis, and thereby many of the errors which have formerly taken place in the institutions of medicine. It is possible also for a person who has an extensive knowledge of the facts relative to the animal economy in health and in sickness, by a cautious and complete induction, to establish many general principles which may guide his reasoning with safety; and while, at the same time, a physician admits, as a foundation of practice, those reasonings only which are simple, obvious, and certain, and for the most part admits, as proximate causes, those alone that are established as matters of fact rather than as deductions of reasoning, he may with great advantage establish a system of practice chiefly founded on the doctrine of proximate causes. But when this cannot be done with sufficient certainty, the judicious and prudent physician will have recourse to experience alone; always, however, aware of the hitherto incomplete and fallacious state of empiricism.

From the sketch given of Dr. Cullen's physiology under that head, it may easily be imagined that the distinguishing characteristic of his *pathology* will be, that almost all diseases are the consequence of an affection of the nervous system. The nervous power, he thinks, is the same with what Hippocrates called *nature*, and to which he ascribed such efficacy in removing diseases. This subject, however, the latter did not prosecute to any good purpose, and his followers still less. Erasistratus took no notice of it; and though Galen ascribed an active power to what he called *nature*, yet he considered this as chiefly concerned in the support of health and the cure of diseases, and referred the operation of nature in the cure of diseases to the solids and fluids. In the fifteenth and sixteenth centuries the restorers of physic for a long time overlooked the nervous power; and though the chemists introduced their doctrines with regard to the fluids, yet they acquiesced in the former doctrine, which ascribed to them the ultimate power of the animal economy. Van Helmont, indeed, proposed a very considerable change by his doctrine of the *archæus;* maintaining, that the motion of it had a greater share in the production of diseases than the causes assigned by the chemists and Galenists. But this doctrine was delivered in such an obscure and fanciful manner, that no notice was taken of it; and people continued to imagine that diseases consisted in a certain *intemperies* of the fluids, and that *fever* particularly consisted in a preternatural heat.

PATIE'NTIA (from *patior*, to bear or suffer); the name of the herb monk's-rhubarb, from its gentle purging qualities. See RHABARBARUM.

PATIENCE, GARDEN. See RHABARBARUM MONACHORUM.

PAUL'S BETONY. See VERONICA.

PAVA'NÆ LIGNUM. See LIGNUM PAVANÆ.

PEACH. See PERSICA.

PEAGLE. See PRIMULA VERIS.

PEARL. See MARGARITA.

PEARL-ASH, a kind of fixed alkaline salt, prepared chiefly in America, Russia, and Poland, by extracting the salts out of the ashes of burnt wood; and having reduced them again to dryness, evaporating the moisture, and calcining them for a considerable time in a furnace moderately hot. The goodness of pearl-ashes may be distinguished by the uniform and white appearance of them: they are nevertheless subject to a common adulteration, not easy to be distinguished by the mere appearance, which is done by the addition of common salt. In order to find out this fraud, take a small quantity of the suspected salt; and after it has been softened by lying in the air, put it over the fire in a shovel: if it contains any common salt, a crackling and kind of slight explosion will take place as the salt grows hot. Mr. Kirwan tells us, that in 100 parts of the Dantzick pearl-ash the vegetable alkali amounted to somewhat above 63. His pearl-ash he prepares by calcining a ley of vegetable ashes dried into a salt to whiteness. In this operation, he says, "particular care should be taken that it should not melt, as the extractive matter would not be thoroughly consumed, and the alkali would form such a union with the earthy parts as could not easily be dissolved." He has also given tables of the quantities of ashes and salt obtained from different vegetables; and he concludes from them, 1. "That in general weeds yield much more ashes, and their ashes much more salt, than woods; and that, consequently, as to salts of the vegetable alkaline kind, neither America, Trieste, nor the northern countries, possess any advantage over us. 2. That of all weeds, fumitory produces most salt, and next to it wormwood; but if we attend only to the quantity of salt in a given weight of ashes, the ashes of wormwood contain most." *Trifolium fibrinum* also produces more ashes and salt than fern. See POTASS.

PEARL-BARLEY. See HORDEUM.

PECHU'RIM; the name of a highly aromatic bark, the produce of a species of *Laurus*. It is extremely fragrant, like unto that of cinnamon, which it greatly resembles in its properties. In Lisbon it is much esteemed in the cure of dysenteries, for allaying obstinate vomitings, and as an aromatic in complaints of the stomach.

PECHU'RIM, FA'BA. See FABA PECHURIM.

PECHU'RIS. See PECHURIM.

PECQUET'S DUCT; *ductus Pecquettii;* the thoracic duct. See THORACIC DUCT.

PECTINA'LIS (so named from its arising at the *pecten*, or pubis), the *pectinæus* of Albinus; a small flat muscle, situated obliquely between the pubis and the little trochanter, at the upper and anterior part of the thigh. It arises broad and fleshy from all the anterior edge of the os pectinis, or pubis, as it is more commonly called, as far as its spine, and descending obliquely backwards and outwards, is inserted, by a short and broad tendon, into the upper and anterior part of the linea aspera of the os femoris, a little below the lesser trochanter. This muscle bends the thigh, by drawing it upwards and inwards, and likewise assists in rolling it outwards.

PECTINA'TI MUSCULI (from *pecten*, a comb; so named from their supposed resemblance); the fasciculated muscular fibres of the right auricle of the heart.

PECTINÆ'US. See PECTINALIS.

PECTORA'LIS. See PECTORALIS MAJOR.

PECTORA'LIS MAJOR (*pectoralis;* from *pectus*, the breast), the *pectoralis* of Albinus; a broad, thick, fleshy, and radiated muscle, situated immediately under the integuments, and covering almost the whole anterior part of the breast. Winslow calls it *pectoralis major*, to distinguish it from the serratus anticus, which he has named *pectoralis minor*. It arises from the cartilaginous extremities of the fifth and sixth ribs, from the last of which its tendinous fibres descend over the upper part of the obliquus externus and rectus abdominis, helping to form a part of the sheath in which the latter is included. It likewise springs from almost the whole length of the sternum by short tendinous fibres, which evidently decussate those on the other side; and tendinous and fleshy from more than a third of the anterior part of the clavicle. From these origins the fibres run in a folding manner towards the axilla, and are inserted by a broad tendon into the os humeri, above the insertion of the deltoid muscle, and at the outer side of the groove which lodges the tendon of the long head of the biceps. Some of its fibres likewise extend into that groove; and, from the lower part of this tendon, which is spread near two inches along the os humeri, we find it sending off other fibres, which help to form the fascia that covers the muscles of the arm. It often happens, that that part of the pectoralis which arises from the clavicle, is separated from the inferior portion, so as to appear like a distinct muscle. This, Dr. Hooper says, has induced Winslow to divide it into parts, one of which he calls the *clavicular*, and the other the *thoracic* portion. Sometimes these two portions are inserted by separate tendons, which cross one another at the upper and inner part of the os humeri, the tendon of the thoracic portion being inserted at the outer edge of the bicipital groove, immediately behind the other. This muscle, and the latissimus dorsi, form the cavity of the axilla or arm-pit. The use of the pectoralis is to move the arm forwards, or to raise it obliquely towards the sternum. It likewise occasionally assists in moving the trunk upon the arm; thus, when we exert any efforts with the hand, as in raising ourselves from off an arm-chair, or in sealing a letter, the contraction of this muscle is particularly observable. To these uses Haller adds that of assisting in respiration, by raising the sternum and ribs. He tells us he well remembers, that when this muscle was affected by rheumatism, his breathing was incommoded: and that, when troubled with difficulty of respiration, he has often found himself greatly relieved by raising and drawing back his shoulders, keeping his arms at the same time firmly fixed. Winslow, however, has denied this use, and Albinus has omitted it, probably because it does not take place in a natural state.

PECTORA'LIS MINOR, the *serratus anticus* of Albinus, *serratus minor anticus* of Douglas, and *pectoralis minor* of Winslow. It is a fleshy and rather considerable muscle, situated at the anterior and lateral part of the thorax, immediately under the pectoralis major. It arises from the upper edges of the third, fourth, and fifth ribs, near where they join with their cartilages by an equal number of tendinous and fleshy digitations, like the teeth of a saw, whence this and some other muscles, from their having a similar origin or insertion, have gotten the name of *serrati*. From these origins it becomes thicker and narrower in its ascent, and is inserted by a flat tendon into the upper part of the coraçoid process of the scapula. The principal use of this muscle is to draw the scapula forwards and downwards; and when that is fixed, it may serve also to elevate the ribs.

PECTORALS (*pectoralia*, from *pectus*, the breast); medicines that relieve disorders of the chest. Employed in that general sense, Dr. Cullen thinks this term improper, and that it has certainly led to abuse. Though, as it is at present commonly employed in the same sense as expectorantia, it perhaps might be allowed; but certainly the latter term, as more precise, ought to be the one commonly made use of. If the *pectoralia* may, with M. Lieutaud, be of three kinds, demulcents, astringents, and resolvents, it will be very obvious that the general term will be liable to much abuse. See EXPECTORANTS.

PEDICULA'RIA (from *pediculus*, a louse), the herb stavesacre. It is so called from its use in destroying lice. See STAPHISAGRIA.

PEDILU'VIUM (from *pedes*, the feet, and *lavo*, to wash), a warm-water bath for the feet. The uses of warm-bathing in general, and of the pediluvium in particular, are so little understood, that they are often preposterously used, and sometimes as injudiciously abstained from. The benefit obtained by a warm pediluvium is justly attributed to its making a derivation into the parts immersed, and a revulsion from those affected, because they are relieved. In recent colds, with slight humoral peripneumonies, it frequently works an immediate cure. Borelli, Boerhaave, and Hoffman, are all of opinion, that the warm pediluvium acts by driving a larger quantity of blood into the parts immersed; but their arguments have been disputed in the Edinburgh Medical Essays by a writer who endeavours to prove, that the warm pediluvium acts by rarefying the blood, and relaxing the vessels on the surface of the body. A pediluvium ought to be no more than pleasantly warm, for, if *hot*, its operation will be directly contrary to the intentions of cure: and it is this circumstance, probably, which has given rise to the difference of opinion relative to the modus operandi of the warm pediluvium, which is an excellent remedy if properly used.

PELA'GRA, a disease which does not appear to have been noticed by any of our nosologists, although the peculiar symptoms with which it is attended, and the fatal consequences which sometimes ensue from it, render it equally curious and important. In certain districts, as Milan and Padua in Italy, where it is peculiarly prevalent, Dr. Hooper says it is computed to attack five persons out of every hundred.

Dr. Jansen, who had an opportunity of seeing this disease at Milan, says, that about the month of March or April, when the season invites the farmers to cultivate their fields, a shining red spot suddenly arises on the back of the hand, resembling the common erysipelas, but without much itching or pain, or indeed any other particular inconvenience. Both men and women, girls and boys, are equally subject to it. Sometimes it affects both hands, without appearing on any other part of the body. Not uncommonly it arises also on the shins, sometimes on the neck, and now and then, though very rarely, on the face. It is sometimes also seen on the breasts of women, where they are uncovered, but such parts of the body as are not exposed to the air, are very seldom affected; nor has it ever been observed to attack the palm of the hand, or the sole of the foot. This red spot elevates the skin a little, producing numerous small tubercles of different colours; the skin becomes dry and cracks, and the epidermis sometimes assumes a fibrous appearance. At length it falls off in white furfuraceous scales; but the shining redness underneath still continues, and in some instances remains through the following winter. In the mean time, except this mere local affection, the health is not at all impaired, the patient performs all his labours as before, eats heartily, and digests well. The bowels are generally relaxed at the very commencement of the disease, and continue so throughout its whole course. All the other excretions are as usual; and, in females, the menses return in the proper way. But what is most surprising is, that in the month of September, when the heat of the summer is over, in some cases sooner, in others later, the disorder generally altogether disappears, and the skin resumes its natural healthy appearance. This change has been known to take place as early as the latter end of May or June, when it has only been in its earliest stage. The patients, however, are not now to be considered as well; the disease hides itself, but is not eradicated; for no sooner does the following spring arrive, but it quickly reappears, and generally is accompanied with severer symptoms. The spot grows larger, the skin becomes more unequal and hard, with deeper cracks. The patient now begins to feel uneasiness in his head, becomes fearful, dull, less capable of labour, and more wearied with his usual exertions. He is exceedingly affected with the changes of the atmosphere, and impatient both of cold and heat. Nevertheless, he generally gets through his ordinary labour, with less vigour and cheerfulness indeed than formerly, but still without being obliged to take to his bed; and, as he has no fever, his appetite continues good, and the chylopoietic viscera perform their proper functions. When the pelagra has even arrived at this stage, the returning winter, nevertheless, commonly restores the patient to apparent health; but the more severe the symptoms have been, and the deeper root the disease has taken, the more certainly does the return of spring produce it with additional violence. Sometimes the disease in the skin disappears, but the other symptoms remain notwithstanding. The powers both of the mind and body now become daily more enfeebled; peevishness, watchings, vertigo, and at length complete melancholy, supervene. Nor is there a more distressing kind of melancholy any-where to be seen, than takes place in this disease. Gradually indeed this melancholy increases, and at length ends in real mania.

Dr. Jansen saw many in the hospital at Legnano, who were covered with a peculiar and characteristic sweat, which had a very offensive smell, like that of mouldy bread. A person accustomed to see the disease, he says, would at once recognise it by this single symptom. Many complained of a burning pain at night in the soles of the feet, which often deprived them of sleep. Some were affected with double vision; others with fatuity; others with visceral obstructions; others with anomalous symptoms. Nevertheless, fever still keeps off, the appetite is unimpaired, and the secretions are regular. But the disease goes on increasing, the nerves are more debilitated, the legs and thighs lose the power of motion, stupor or delirium comes on, and the melancholy terminates in confirmed mania. It was remarkable, that all who were in this stage of the disease had a strong propensity to drown themselves. They begin to grow emaciated, and the delirium is often followed by a species of tabes: a colliquative diarrhœa comes on, which no remedy can stop, as also has been observed in nostalgia. Sometimes, in the pelagra, the diarrhœa comes on before the delirium, and the delirium and stupor mutually interchange with each other. The appetite often suddenly fails, so that the sick will sometimes go for nearly a week without tasting food. Not uncommonly it returns as suddenly, so that they eagerly devour whatever is offered them, and this even at times when they are horridly convulsed. Some are seized with emprosthotonos; and others with other species of tetanus. At length syncope and death close the scene, often without any symptom of fever occurring through the whole course of the disease.

The first stage of the pelagra, in which the local affection only takes place, Dr. Jansen observes, continues in some instances for a great length of time; persons being occasionally met with in whom it has lasted six or eight, or even fifteen years, disappearing regularly every winter, or returning again in the spring. This occasions some of the inhabitants to pay little attention to it; although, in other cases, it reaches its greatest height after the second or third attack. It appears that this disease is not infectious, and that the causes producing it are yet unascertained. It has been supposed by some to arise from the heat of the sun's rays; and hence it is now and then called *mal de sole*; but this does not produce any similar disease in other parts of the world, where it is in an equal or even much greater degree than at Milan; no disease in any respect resembling it having hitherto been noticed in such regions, except the *lepra Asturiensis* described by Thiery, and after him by Sauvages. In this a tremor of the head and trunk of the body takes place, which does not happen in the pelagra. This, however, is the principal difference between the two diseases.

PELATO-SALPINGEUS. See CIRCUMFLEXUS.

PELICAN, in chemistry, a glass alembic consisting of one piece. It has a tubulated capital, from which two opposite and crooked beaks pass out, and enter again at the belly of the cucurbit. This vessel has been contrived for a continued distillation and cohobation, which chemists call *circulation*. The volatile parts of substances put into this vessel rise into the capital, and are obliged to return through the crooked beaks into the cucurbit; and this without interruption, or luting and unluting the vessels. See Pl. 19. Vol. I. Although the pelican seems to be a very convenient instrument, it is nevertheless little used, and even much neglected at present: either because the modern chemists have not so much patience as the ancient chemists had for making long experiments, or because they find that two matrasses, the mouth of one of which is inserted into the mouth of the other, produce the same effect.

PELITORY, BASTARD. See PTARMICA.

PELITORY OF SPAIN. See PYRETHRUM.

PELITORY, WALL. See PARIETARIA.

PELVIMETER; an instrument calculated to ascertain with exactness, the dimensions of the female pelvis. This invention of M. Coutonli, properly applied, is referred to under PELVIS. A, A, fig. 5. Is the first branch; whose square, B, is applied to the projection of the os sacrum. *c*, A kind of hook intended to keep the first branch in its place, while we introduce and develope the second. This has a dove-tailed groove, in which the body of the second branch is lodged and moved. *d*, *d*, the second branch of the instrument, whose square *e* is placed against the symphysis of the pubes. F, a scale four inches long, graduated in the branch *d*, *d*; and intended to shew the degree of opening from the pubes to the sacrum.

As being immediately connected with the subject, we have also shewn M. Baudelocque's *calipers* for measuring the antero-posterior diameter of the superior strait of the pelvis. *a*, *a*, are the branches of the calipers. B, The hinge which unites the two branches. *c*, *c*, Lenticular buttons which terminate the branches. *d*, A graduated scale nine inches long, intended to demonstrate the thickness of the body comprised between the two branches. This scale is contained in a deep groove cut lengthwise in the branch of the calipers, from the letter *e* to the hinge B; and passes through a mortise made in the other branch under the letter *f*. *e*, The place where the scale is united by a kind of hinge. *f*, A little screw with a flat head, designed to fix the scale, while we calculate the thickness of the body comprised between the two branches.

PE'LVIS (from ϖελυς, a *basin*, because it is shaped like the basin used in former times), in the human skeleton, the cavity situated immediately below the abdomen. It is bounded forward by the os pubis; backward by the os sacrum above, and coccygis below; laterally by the ilia above, and ischia below. In midwifery, the knowledge of the structure and peculiarities of this part is an important circumstance.

Dr. Denman observes, that the term *pelvis* has been applied indiscriminately to the inferior cavity of the abdomen, and to the bones which form that cavity; but he thinks it most proper to confine it to the bones, and to distinguish the hollow by the name of the cavity of the pelvis. In the state of infancy, the pelvis is composed of five or six bones, most of which in the fœtus are soft and flexible; some of them being, in a manner, quite cartilaginous; while the edges of others are found covered with a substance of the same kind. This construction is thought by some to facilitate delivery, as the pelvis of the fœtus can thus change its figure like the cranium; but M. Baudelocque thinks this an erroneous opinion, "consonant neither to reason nor experience."

In the adult, the pelvis consists only of four bones, viz. the *sacrum*, the *os coccygis*, and the two *ossa innominata*. These being described under their proper names, we shall here content ourselves with observing, that an anchylosis is not unfrequently formed between the os sacrum and the ossa innominata; and sometimes an imperfect joint in consequence of their separation; whence the part is very much weakened, and the person ever afterwards walks with difficulty.

The os coccygis in infancy is cartilaginous; but in the adult it is composed of three, or more frequently of four, bones, connected by intermediate cartilages, the uppermost of which is somewhat broader than the lower part of the os sacrum. In some subjects these bones coalesce, and form a single one: in others an anchylosis is formed between the sacrum and os coccygis; in consequence of which the latter is shortened and turned inwards, so as to obstruct the head of the child in its passage through the pelvis. But the impediment thereby occasioned at the time of labour may be overcome by the force with which the head of the child is propelled, and the os occygis again separated from the sacrum with a noise loud enough to be distinctly heard. In general, however, some regressive motion is preserved between the bones of which the os occygis is composed; and that which is produced between the *sacrum* and *os coccygis*, when the latter is pressed by the head of a child passing through the pelvis, occasions a considerable temporary enlargement of the inferior aperture of the pelvis. Any lateral motion is prevented by the insertion of the *coccygœi* muscles, part of the *levatores ani*, and some portions of the sacro-sciatic ligaments into the sides of the *os coccygis*.

The *os innominatum*, in a woman of the ordinary size, is about six inches broad from the anterior to the posterior superior spine. The height is nearly six inches and a half from the anterior spine to the bottom of the tuberosity of the ischium, and seven and a half if taken from the middle of the crista of the ilium; and hence we may in some measure be enabled to determine the depth of the cavity of the pelvis laterally from the superior to the inferior strait.

The ossa pubes are joined together by means of a substance which has always been described by the name of cartilage, though it differs as much from that as from a ligament. According to some anatomists, each *os pubis* is covered by its own cartilage. Their junction is not a true synchondrosis; but a close articulation, which admits only of insensible motions. By carefully examining this symphysis, we observe that each os pubis is really covered by a cartilage at its anterior extremity; that this cartilage is thicker before than behind, and in its superior and inferior parts than in the middle of its length; that these bones, thus covered, are bound together by means of a substance which seems ligamentous, and whose fibres, which are mostly transverse, go from one to the other; that these fibres are so disposed, that the deepest are the shortest, and the most superficial the longest; that they leave between one another a kind of meshes filled with reddish corpuscles, very like those which are seen about the moveable articulations, and which are commonly thought to be synovial glands. We observe further, that this fibrous and ligamentous substance does not occupy the whole thickness of the symphysis, and does not bind the bones together through the whole extent of the surfaces presented by their anterior extremities; but there exists a true articulation of the species known by the name of *arthrodia*. If we open this symphysis towards the inside of the pelvis, after a cellular tissue very thin and loose, which we meet with first, we discover a capsular membrane, whose most apparent fibres are transversal; afterwards two cartilaginous facettes, smooth, polished, and moist, from six to eight lines long and two broad, of a figure a little semilunar, lightly convex on one bone, and concave on the other. These facettes comprehend nearly the middle third of the length of the symphysis and the posterior third of its thickness.—This symphysis then presents in one third of its extent, or thereabouts, a true articulation; and in the rest a *syneurosis* and *synchondrosis* at the same time.

This compound and articular substance, being detached from the bones, forms a kind of wedge, whose base constitutes the anterior part of the symphysis, and its edge the posterior; so that these bones seem to touch towards the inside of the pelvis, and appear separated to the distance of several lines without: the base of this kind of wedge is generally from four to six lines broad towards the middle of the length of the symphysis, and from eight to ten in the inferior and superior parts, while the edge at most does not exceed one line. Its thickness, taken according to that of the bones, is greater above than below; where this substance, become thinner, forms what is called the triangular ligament.

This first means of union was not sufficient to give these bones the firmness necessary for the free exercise of the functions to which the pelvis is destined. It is covered and fortified in all parts, but especially before, by bundles of ligamentous and aponeurotic fibres. Independently of the thick and very strong ligamentous structure which forms the fore-part of the symphysis, we observe bundles of tendinous fibres which decussate each other a thousand ways, some of which arise from the interior *graciles* and the external *obturators*, and others from the external portions of the inguinal rings. The triangular expansion which terminates the symphysis inferiorily, and which forms the top of the arch of the pubes, seems to have other uses than that of binding the bones together.

The manner in which the *os sacrum* is connected with the *ossa innominata*, differs considerably from that in which the *ossa pubes* are joined. Here each articular facette is covered by a true cartilaginous layer, and there are inequalities on each side, which mutually receive one another, while nothing of that kind is observed in the junction of the pubes; neither are there in any part of these articular facettes any of the transverse fibres which go from one bone to the other in the *ossa pubis:* these articulations, therefore, derive all their strength from the great numbers of ligaments which surround them. Most of these are very short, and do not extend beyond the edges of the articular facettes; but there are others longer to be seen above, below, and behind these symphyses.

The *os sacrum* is not only articulated with the ilia, but with the spine and coccyx. It is joined in three places to the spine: 1. By an oblong and cartilaginous impression in the middle of the basis, which unites it to a similar impression in the body of the last *lumbar vertebra*, by means of an elastic substance. 2. By two little articular masses fixed in the posterior edge of that first impression, and which answer to similar substances in the vertebra above mentioned.

The elastic substance which unites the middle of the base of the sacrum to the spine, is entirely similar in its nature to that seen between the bodies of all the vertebræ. Being very thick before and thin behind, the angle resulting from the disposition of the articular facettes of these two parts is rendered more obtuse. This *sacro-vertebral* junction is surrounded by an infinity of ligaments, some without and others concealed within the spinal canal. All motion is not prohibited by this kind of junction; but, as it only depends on the compression of the intermediate substance, it can but be very small. The motion between the body of the last lumbar vertebra and the base of the sacrum is never extensive enough to make any alteration in the degree of acuteness of the angle which results from their junction; but the convexity of the lumbar column may be augmented or diminished by means of a compound motion, formed of those which take place between each of the lower lumbar vertebræ and between the lower ones of the back. This augmentation or diminution of the convexity, in proportion as the trunk is bent backward or forward, or by raising or lowering the breech when the woman lies on her back, deserves particular attention in the practice of midwifery; for thus we may make a favourable change in the direction of the axis of the pelvis, relatively to that of the trunk, to that of the uterus, and in the direction of the expulsive forces of the latter, which may be rendered more or less efficacious according to circumstances, by making the woman preserve a proper attitude.

The junction of the coccyx with the sacrum permits the former to move, and yield to the different degrees of pressure it undergoes in different circumstances. The mobility is very great in youth; but diminishes insensibly as the patient grows older, and at last is totally lost. If entirely lost, or considerably diminished, before a woman is past child-bearing, it produces sometimes, though very rarely, an obstacle to delivery. The connections of the pelvis with the inferior extremities are not of much importance in midwifery. The natural course of labour cannot be disturbed by any fault in their configuration when the pelvis itself is well formed; but in general they are consequences of a deformity of it. They are *enarthroses*, which allow of motion in every direction.

The pelvis is divided into two parts, called the *upper* and *lower*, by a ridge sometimes elliptical, and sometimes of other shapes. The breadth of the upper part from the anterior superior spine of one ilium to another, is usually eight or nine inches, and its depth from three to four. At the back part of it is the projection of the lumbar vertebræ, and at the sides the *iliac fossæ*. The lower part forms a kind of canal, whose entrance and outlet are somewhat narrower than the middle; whence it has been distinguished into the *superior* strait, the *inferior* strait, and an excavation.—The *superior* strait is a kind of circle forming the entrance of the canal; its form, however, is various, as is also its obliquity from behind forwards. M. Levret has fixed this last at an angle of from 35 to 40 degrees.

The smallest diameter of this strait is generally about four inches, extending from the middle of the projection of the sacrum to the superior and internal part of the symphysis of the pubes. The other diameter is usually about an inch longer, extending from one side of the strait to the other. The oblique diameters are a medium betwixt the two former, extending diagonally from each acetabulum to the sacro-iliac junction of the opposite side. The pelvis is cut at right angles by the two former, and into acute ones by the latter; but the diameters, considered in relation to delivery, are somewhat different from those just mentioned, some changes in them being occasioned by the soft parts within the pelvis.

The inferior strait is in general smaller, and of a more irregular figure, than the other, being not formed, like it, entirely of bones. The edge, rendered unequal by three deep and large notches, is completed behind and at the sides by the sacro-ischiatic ligaments, forming a kind of circular notch before, called the *arch of the pubes*. The diameters of it are commonly about four inches in length; and though the transverse, which extends from one *ischium* to the other, be often a little longer than that which extends from the fore to the back part, it must be reckoned the smallest with regard to delivery; because the latter augments in proportion as the point of the coccyx recedes from the pubes. We must also remember, that the great diameter of the inferior strait is parallel to the smallest of the superior, and that it crosses the longest of that strait at an angle more or less acute; and by carefully attending to this, we may, in many cases, with the finger alone, when properly directed, remove obstacles which could not have been overcome, even by means of instruments, without exposing the child to great inconveniences. It is likewise favourable to delivery that the middle part of the pelvis is a little larger from before backwards than the straits; which disposition proceeds from the curved figure of the *os sacrum*.—On one side this curve diminishes the numerous and long-continued frictions which the child's head would necessarily undergo if the pelvis were equally broad in all its parts; and on the other side it is equally useful in preventing the effects of a long and forcible pressure on the sacral nerves, which a flat form of the sacrum would have rendered unavoidable during the whole time of the passage of the head. The cavity of the pelvis is commonly from four to five inches deep behind, three and a half at the sides, and one and a half at most before.

The arch of the pubes, which at the top is only from one inch and a quarter to one and two thirds in breadth, augments gradually as it descends; so that at the bottom its sides are three inches and a half, or even four inches, separated from one another; that is, if we take the line which is looked upon as the transverse diameter of the inferior strait for its base; the height being about two inches.

The axis of the superior strait of the pelvis cannot well be determined; but that of the inferior one, with regard to delivery, must be considered as passing through the centre of the opening of the vagina dilated by the child's head. Its direction is then so much inclined from behind forward, that its superior extremity traverses the lower part of the first false vertebra of the sacrum, and crosses that of the other strait at a very obtuse angle.

Hitherto we have treated only of that form of the pelvis which is most favourable for delivery: but the proportions and forms of it are various; and as it differs from those above described, the delivery is attended with more or less difficulty.

The *defects of the pelvis*, with regard to facility of delivery, consist in its being either too large or too small. At first sight it might be imagined, that a large pelvis would make the delivery more easy, as the head of the child will thus be exposed to less friction, be more easily expelled, and the labour be less painful. But women who have a very large pelvis, are subject to those inconveniences which arise from an obliquity of the uterus, or even to a descent of it altogether; especially in the time of labour, when that viscus, being already charged with the weight of the child, is entirely subjected to the expulsive power of the abdominal muscles. In women who have had several children, the uterus is but weakly retained by its ligaments; and in subsequent pregnancies it descends still lower, until at last it rests on the margin of the pelvis. This, however, does not take place before the conclusion of the first four or five months: before that time its weight lies principally on the extremity of the rectum; and by this, as well as by its bulk, the discharge of the urine and fæces is impeded, and accidents sometimes ensue from the compression of the veins which pass through the pelvis. These symptoms sometimes vanish about the middle of pregnancy, but reappear towards the latter end; because the head of the child is early engaged in the pelvis, and acts on the same parts that the whole uterus did before. Besides all these accidents, there are others which may take place at the time of delivery; so that, upon the whole, it cannot be reckoned any real advantage for a woman to have a large pelvis.

The accidents, however, which arise from too great a size of the pelvis, are much more easily remedied, and in themselves less dangerous, than such as arise from its narrowness. This defect may be considered as either relative or absolute. The former arises from an excess of size in the head of the child; the latter, from a bad conformation of the pelvis itself. The absolute narrowness of the pelvis rarely affects all parts of it at once: it is generally found only in one of the straits; in which case, the other is usually of the natural size, nay, sometimes even larger than natural. The fault is more frequently in the superior than the inferior strait; and it is remarkable, that it most commonly affects the strait in its small diameter; very rarely in its transversal; sometimes affecting only one side. In the inferior strait it is generally caused by he approximation of the tuberosities of the ischia.

It is easy, M. Baudelocque says, to determine why the superior strait is more frequently deformed than the inferior; and why it is almost always between the pubes and sacrum that it is defective respecting delivery. If we consider the direction of the forces which act on the pelvis of ricketty children, in whom the bones are at the same time softer and more loosely connected than in the natural state, we shall see, that the greater part of those forces tend to carry the base of the sacrum forward and the *ossa pubis* backwards. Whether the child be standing or sitting, if we attend to the direction of the spinal column, we shall see that the weight of the body must insensibly push the base of the sacrum towards the pubes; and that it acts in the same manner on the inner parts of the acetabula, which serve as a fulcrum to the inferior extremities when the child is standing or walking. The *ossa pubis*, particularly in these latter cases, must be pushed towards the sacrum; in such a manner, however, that their posterior extremities often approach a little nearer to the projection of the base of that bone than their anterior extremities, or the symphysis. If the superior strait does not constantly present the same figure in deformed *pelvises;* if it is sometimes larger on one side than the other; if one of the acetabula is nearer to the sacrum, while the other approaches less; if the symphysis of the pubes is removed, in many cases, from a line which would divide the body into two equal parts—it is because the rickets have not equally affected all the bones of the pelvis, nor equally hurt all their junctions; and because the attitude which the child takes in walking or sitting may change a little the direction of the compressing powers just mentioned. The weight of the body may also equally hurt the form of the inferior strait, but variously, according to the most usual attitude of the child, and the direction taken by the spinal column. For example: If it sits much, the sacrum will be more curved, and the strait more contracted from before backwards: in this attitude, if it inclines habitually to one side, one of the ischiatic tuberosities will be thrown inwards, the *os ilium* will be more elevated, &c. The action of the muscles which are attached to the pelvis, the pressure of clothes, and that which the arms of the nurse exert on this part, contribute also something to the deformities in question, but much less than the weight of the trunk: whence we see, of what importance it is to keep ricketty children in bed, and leave them at liberty; instead of obliging them to walk, to sit up, or have them constantly in the arms, as is done almost every-where.

The *dimensions of the pelvis* itself vary no less than the contour of the straits. If the diameter of some, taken from the pubes to the middle of the projection of the *os sacrum*, be only a few lines; in others the defect is several inches, so that scarcely a single inch is left between these bones. These extremes, however, are not frequently met with; and the latter of them is never so great in the inferior as in the superior strait. On comparing the dimensions of a well-formed pelvis with those of a child's head, we shall find that the former might admit of being some inches less in circumference, and yet be large enough for an easy delivery. The circumference of a common head is usually no more than ten inches and a quarter, or ten and a half. The first degree of narrowness in any pelvis therefore must be, when each diameter is something less than three inches and a half. M. Baudelocque says, that he has seen pelvises in which the distance of the pubes from the sacrum superiorly was no more than six or eight lines; and he had in his possession two others, in one of which the distance from the back of the right acetabulum to the projection of the sacrum was only three or four lines, and the other had but fourteen lines between that projection and the symphysis of the pubes.

The narrowness of the pelvis is to be accounted one of the principal causes of difficult delivery.—When an opening of only three inches and a quarter is left, the labour must be more difficult than when it is three inches and a half, as the number of frictions which the child's head must undergo are then more numerous and frequent. When there is an opening only of three inches, the labour must be still more difficult; but still there are instances of natural deliveries without any assistance, notwithstanding the disproportion betwixt the size of the child's head and pelvis. This may even happen when the diameter of the pelvis is still smaller, such as two inches and three quarters, or two and a half. M. Solayres observed in a case of this kind, that the head was lengthened in such a manner, that its longest diameter was eight inches all but two lines, that which goes from one parietal protuberance to the other being reduced to two inches five or six lines; and M. Baudelocque has observed similar changes in the form of the head, and the respective lengths of its diameters at the instant of birth, where the child was equally deformed, the long diameter being seven inches, and the transverse one two inches six or seven lines. The children were in good health; and the day after their birth their heads wanted very little of the usual proportions.

But when the small diameter of the pelvis is less than two inches and a half, the head of the child cannot pass; and then some of the dangerous chirurgical methods must be undertaken, which frequently prove fatal both to the mother and child. Even when the pelvis is two inches and a half in diameter, the natural delivery is not always without danger to both; as, on one hand, the soft parts which cover the pelvis are subjected to such violent pressure that they become inflamed, exquisitely painful, and at last are even threatened with gangrene; on the other, the bones of the child's cranium riding over one another, or sometimes fractured and depressed, wound the brain, and produce internal extravasations, which generally prove fatal. The bad consequences resulting from a deformed pelvis, shew themselves sooner or later, according as the superior or inferior strait is vitiated. When both are so, the obstacles to the birth begin to manifest themselves as soon as the labour begins; and sometimes those at the superior strait are so great, that the expulsive powers are exhausted, and the head stops there; or if it be pushed further into the pelvis, and stopping there, it will remain incapable of being delivered without the assistance of art. The head cannot pass this strait without being in a considerable degree elongated; and when it enters the pelvis, the cavity being there sufficient for it, it naturally returns to its former dimensions, at least in part, and more or less so as it stays a longer or shorter time. The same conformation of the head, however, which enabled it to pass the first strait, is still more necessary to enable it to pass the second: and hence the symptoms which had come on with the first pains, sometimes disappear in a great measure during the time that the head stays in the evacuation; but increase to a greater degree than ever when the strong labour comes on.

When the superior strait alone is contracted, the head advances at first with great difficulty; but as soon as the parietal protuberances have cleared the strait, the other parts of the pelvis being relatively or absolutely larger, the head passes them with so much ease, that the delivery is frequently terminated by a few pains. The contrary is observable when the fault is in the inferior strait, if the first be of the usual size. The head then descends easily into the lower part of the pelvis; but cannot proceed any further, until it overcome the obstacles which obstruct its course, and render it difficult and laborious. In this case, the symptoms attending obstruction appear later than in the former. In these cases, however, it is necessary that the practitioner should accustom himself by practice to form a just estimate of the powers of nature, otherwise he may easily deceive himself; in the former, supposing that a delivery is impossible; and in the the latter, that a delivery will be easy which cannot be effected without the assistance of art. An instance of this is given by our author, in a case where the circumference of the superior strait of the pelvis, when divested of all its coverings, measured 14 inches, but the inferior only *nine*. The distance from the point of the os sacrum to the symphysis of the pubes, as well as the interval between the ischiatic tuberosities, was but three inches. The cavity of this pelvis diminished insensibly in breadth from one strait to the other, and was as regular as possible in its contour.

The excavation, or middle part of the pelvis, is much more seldom defective in its form than the straits; and when this is the case, it must arise from some exostosis, or from the sacrum describing a right line in its anterior part, instead of being curved as usual. The straight and flat form of the sacrum generally produces fewer obstacles to delivery than the too great curvature of it. The former fault generally affects only the cavity of the pelvis, and cannot hinder the passage of the child, if the canal be otherwise well disposed: but the latter, or too great a curve of the sacrum, commonly proves injurious to both straits, contracting them from before backwards, and at the same time diminishing the depth of the pelvis at the back part, as well as the respective height of the arch of the pubes. In these cases the head, though it passes the first strait with difficulty, cannot pass the second; being stopped in its course by the inferior part of the sacrum before the occiput is long enough to engage under the arch.

Labours may also be rendered difficult by too great a length of the symphysis of the pubes; a want of elevation, or breadth of the arch of these bones; the length and wrong direction of the ischiatic spines, as well as a consolidation of the coccyx with the point of the sacrum. These faults, however, are very rare, if we except the consolidation of the coccyx: they are scarcely ever met with alone, and are generally the consequences of a bad conformation of the rest of the pelvis. Even this consolidation, however, though more common than the other faults, yet cannot obstruct delivery so frequently as has been imagined; and when it does so, it is only in women who have a narrow pelvis. Our author denies the position laid down by some, that the head of the child, in all cases, pushes back the point of the coccyx half an inch, or even a whole inch. Those who assert this, he says, know not the relation betwixt the dimensions of the head and the inferior strait in most women. Whence he cannot recommend a precept founded upon this principle, by which it is directed to push back the coccyx, when the head, though low down, cannot disengage itself easily.

A subject on which former writers upon midwifery have been greatly divided, is the separation of the bones of the pelvis said to take place in the time of labour. Some have imagined that this separation took place in all labours; others, that it happened only in difficult cases; some, that it indicates a morbific state; and some that it was quite impossible.—M. Baudelocque, and some accoucheurs of our own country, allow the possibility of such a separation, but deny that it happens so frequently as is imagined, or without a predisposing cause. Notwithstanding the arguments used on the affirmative side of the question, Dr. Denman does not look upon the matter to be yet absolutely decided. " No person," he says, " who has been conversant in the dissection of women who have died in child-bed, can have wanted opportunities of seeing every intermediate state of these parts, from a separation in which the surfaces of the bones were loosened, and at a considerable distance from each other, to that in which there was not the least disposition to disunite." When this separation therefore takes place beyond a certain degree, it is to be looked upon as morbid: and it may be produced by the two following causes: " 1. A spontaneous disposition of the connecting parts. 2. The violence with which the head of the child is protruded through the pelvis." On the whole, however, it is evident, that Dr. Denman differs considerably in his opinion from M. Baudelocque concerning the separation of these bones. According to him, it appears that this separation, though extremely painful, does not seem to be attended with *fatal* consequences; and with regard to the *quantity* of the separation, it must undoubtedly be sometimes much greater than what M. Baudelocque supposes; for Dr. Denman brings an instance from No. 484 of the Phil. Trans. in which the bones were separated to the distance of *four inches*, from an accident, in consequence of the starting of a horse when a gentleman was riding. He observes, however, that in women, the violence which the connecting parts of the bones undergo when the head of the child is protruded through the pelvis with extreme difficulty, sometimes occasions an affection of more consequence than even the separation of the bones themselves. This is the formation of matter upon the loosened surfaces of the bones, preceded by great pain, and other symptoms of inflammation.

In the beginning of this complaint, it is difficult to ascertain whether the connecting parts of the bones, or some of those contiguous, be the seat of the disease; but when suppuration has taken place in consequence of the injury sustained at the junction of the ossa innominata with the sacrum, the abscess has sometimes been cured by the common treatment; having formed in the neighbourhood of the injured part. At other times, when matter has been formed about the symphysis of the os pubis, hectic symptoms have ensued, and the cause of them only discovered after the patient died. In some cases the matter has burst through the capsular ligament of the symphysis at the inferior edge, or perhaps made its way into the bladder; and in others it has insinuated itself under the *periosteum*, continuing its course along the pubes, until it arrives at the acetabulum. Thus all the symptoms were aggravated; and the matter making its way towards the surface, a large abscess has been formed on the inner or fore part of the thigh, or near the hip; so that the patients have at last sunk under the fever, and profuse discharge from the ulcer. As the shape of the female pelvis is so important in delivery, we refer to the article Labour for other particulars. See also the article Pelvimeter.

In Plate XXX. fig. 1. represents a *well-formed pelvis*. AAAA, The *ossa ilia*, properly so called. *a a*, The iliac fossæ. *b b b b*, The angle which divides transversely and obliquely, from behind forward, the internal face of the os ilium into two parts, making part of the brim of the pelvis. *c c c c*, The cristæ of the ossa ilia. *e e*, Their anterior superior spines. *f f*, The angle formed by the internal lip of the crista of the os ilium, to which is attached a ligament inserted at the other end in the transverse apophysis of the last lumbar vertebra. *g g*, The inferior angle of the os ilium, which makes part of the acetabulum. BB, The os ischium. *h h*, Its tuberosities. *i i*, Its branches. *k k*, Its posterior part, making part of the acetabulum. CC, The body of the os pubis. *l l*, Its angle. *m m*, Its posterior extremity, making part of the acetabulum. *n n*, Its descending branch, uniting with that of the ischium. DDD, The os sacrum. 1, 2, 3, 4, The anterior holes. *o o o o*, Its base. *p p*, The sides. *q*, The point. E, the coccyx. F, The last lumbar vetebra. *r r*, The transverse apophysis of that vertebra. *s s*, The ligament proceeding from the transverse apophysis of the last vertebra to the angle of the internal lip of the crista of the os ilium, marked *s s*. *t t*, Another ligament which descends from the same apophysis to the superior edge of the sacro-iliac symphysis. GG, The femur or thigh-bone. VV, Its head received in the acetabulum. *u u*, The foramina ovalia. H, the symphysis of the ossa pubis. II, The sacro-iliac symphysis. K, The sacro-vertebral symphysis.

Fig. 2. represents the *superior strait* of a well-formed pelvis. *a a*, The iliac fossæ. *b*, The sacro-vertebral angle, or projection of the sacrum. *c*, The last lumbar vertebra. *d d*, The lateral parts of the base of the sacrum. *e e*, The sacro-iliac symphyses. *f f*, The parts over the acetabula. *g*, The symphyses of the pubes. The lines denote the different diameters of the superior strait. AB, The little diameter. CD, The transverse or great diameter. EF, GH, The oblique diameter, extending from the left acetabulum to the right sacro-iliac junction.

Fig. 3. shows the *inferior strait* of a well-formed pelvis. *a a*, The external faces of the ossa ilia. *b b*, Their anterior superior spines. *c c*, Their anterior inferior spines. *d d*, The acetabula. *e e*, The foramina ovalia, with the obturator ligaments. *f f*, The ischiatic tuberosities. *g g*, The ossa pubis. *h h*, The branches of the os pubis and ischium united. *i i*, The sacrum. *k*, The coccyx. *l l*, The sacro-ischiatic ligaments. *m*, The symphysis of the pubes. *n*, Its arch. The diameters of the inferior strait are marked by the lines. AA, The *antero-posterior*, or great diameter. BB, the transverse or little diameter. CC, DD, The oblique diameters.

Fig. 4. shews a *deformed pelvis*. *a a*, The ossa ilia. *b b*, The ossa pubis. *c c*, The ossa ischia. *d d d*, The last lumbar vertebræ. *e*, The projection of the sacrum. *f f*, The sacro-iliac symphyses. *g*, The symphysis of the pubes. *h h*, The foramina ovalia. *i i*, The branches of the ossa pubis and ischia, which form the anterior arch of the pelvis. *k k*, The acetabula. AA, The *antero-posterior* diameter; the natural length being fourteen or fifteen lines. BB, the transverse diameter; the natural length four inches and ten lines. CC, The distance from the projection of the sacrum to that point of the margin which answers to the left acetabulum, being thirteen lines. DD, The distance from the same point of the sacrum to that of the margin which answers to the right acetabulum, twenty lines.

Fig. 5. shews a *vertical section* of the pelvis. A,A,A,A, The four last lumbar vertebræ. B,B,B, The os sacrum. CC, The coccyx. *d d*, The surface resulting from the section of the symphysis of the pubes. E, the left iliac fossa. F, The left side of the superior strait. G, The sacro-ischiatic ligament. H, The tuberosity of the ischium. *i i*, The entrance of the vagina. K, one of the labia pudendi. L, the anus. M, The mons veneris. N, the left buttock.

Fig. 6. shews a deformed pelvis, of which the small diameter of the superior strait is only two inches seven lines. The figure is triple: *a*, Shews it in its natural state. *b*, The ossa pubis separated 18 lines; and *c*, with a separation of two inches and a half, in order to shew the quantity of amplification which the section of the symphysis in such a pelvis can produce. The lines indicate the natural size of the pelvis in the different directions in which they are traced; and their dotted extremities, the amplification which the superior strait acquires in those same directions at a separation of eighteen lines, and of thirty lines between the ossa pubis. By giving the smallest attention to the relation of these dimensions to those which the head of a fœtus of the usual size presents in their direction in time of labour, we shall see that they are very favourable; except the first, which is, strictly speaking, eleven lines too short, being only thirty-one lines in extent: whereas the transverse diameter of the head is commonly forty-two. It is only in this latter direction, and to the extent of eleven lines, that it would be necessary to augment the capacity of such a pelvis, to favour delivery. As the greater part of those who have performed the Sigaultian operation have only obtained a separation of eighteen lines or thereabouts between the ossa pubis, it is fixed at that degree in the second figure.

Fig. 7. shews a pelvis with only fourteen or fifteen lines in the small diameter of its entrance, and four inches ten lines in the largest. The figure is triple like the former. *a*, Represents it in its natural situation. *b*, With the ossa pubis separated two inches and a half. *c*, With a separation of three inches. M. le Roy says, that he constantly obtained those two degrees of separation without any inconvenience. The lines indicate the length of the different diameters of the superior strait, in the direction in which they are traced; and their dotted extremities, the amplification to be expected from a separation of two inches and a half, and of three inches.

From his reasoning upon this subject, M. Baudelocque concludes directly against the operation of cutting the symphysis of the pubes, as being not only useless, but attended with very dangerous consequences. "When this separation (says he) has been suddenly made, severe pains in the parts divided, an impossibility of walking, and sometimes even of moving the inferior extremities, inflammation, fever, abscesses, caries, and lastly death itself, have generally been the effects of it; but when a relaxation only takes place, the consequences are less severe; a painful and tottering walk being the only symptom attending it."

PE'LVIS, LIGAMENTS OF. These have been thus described by Dr. Hooper. The articulation of the os sacrum with the last lumbar vertebra, and with the ossa innominata, is strengthened by means of a strong transverse ligament, which passes from the extremity and lower edge of the last lumbar vertebra, to the posterior and internal surface of the spine of the ilium. Other ligaments are extended posteriorly from the os sacrum to the os ilia on each side, and from the direction of their fibres, some anatomists call them the lateral ligaments. Besides these, there are many shorter ligamentous fibres, which are seen stretching from the whole circumference of the articulating surfaces of these two bones. But the most remarkable ligaments of the pelvis are the two *sacro-ischiatic*, which are placed towards the posterior and inferior part of the pelvis. One of these may be called the greater, and the other the lesser sacro-ischiatic ligament. The first is attached to the posterior edge of the os sacrum, to the tuberosity of the ilium, and to the first of the three divisions of the os coccygis. Its other extremity is inserted into the inner surface of the tuberosity of the ischium. At its upper part it is of considerable breadth, after which it becomes narrower, but expands again before its insertion into the ischium, and, extending along the tuberosity of that bone to the lower branch of the os pubis, where it terminates in a point, forms a kind of falx, one end of which is loose, while the other is fixed to the bone. The lesser sacro-ischiatic ligament is somewhat thicker than the former, and is placed obliquely before it. It extends from the transverse processes of the os sacrum, and the tuberosity of the spine of the ilium on each side, to the spine of the ischium. These two ligaments not only serve to strengthen the articulation of the ossa innominata with the os sacrum, but to support the weight of the viscera contained in the pelvis, the back and lower part of which is closed by these ligaments. The posterior and external surface of the greater ligament likewise serves for the attachment of some portions of the gluteus maximus and gemini muscles. The symphysis pubis is strengthened internally by a transverse ligament, some of the fibres of which are extended to the obturator ligament. See PELVIS.

PE'MPHIGUS (πεμφιγος, from πεμφιξ, a *bubble*); a fever attended by successive eruptions of vesicles about the size of almonds, which are filled with a yellowish serum, and in three or four days subside. It is a genus of disease in the class *pyrexia* and order *exanthemata* of Cullen. The fever may be either synocha or typhus. The latest writers on this disease contend, that it is sometimes acute, and sometimes a chronic affection; that the former is constantly attended with fever, the latter as constantly without; that, in neither case, is it an acrimonious or contagious matter thrown out by the constitution, but pure serum, secreted by the cutaneous exhalent arteries. So rare was this disease when Dr. Cullen wrote, that he never saw it but once, in a case which was shewn to him by Dr. Home. Dr. David Stuart, then physician to the hospital at Aberdeen, published an account of it in the Edinburgh Medical Commentaries. The patient was a private soldier of the 73d regiment, aged eighteen years, formerly a pedlar, and naturally of a healthy constitution. About twenty days before, he had been seized with the measles when in the country; and, in marching to town on the second day of their eruption, he was exposed to cold; upon which they suddenly disappeared. On his arrival at Aberdeen, he was quartered in a damp underground apartment. He then complained of sickness at stomach, great oppression about the præcordia, head-ach, lassitude, and weariness, on the least exertion; with stiffness and rigidity of his knees and other joints. He had been purged, but with little benefit. About ten days before, he observed on the inside of his thighs a number of very small, distinct, red spots, a little elevated above the surface of the skin, and much resembling the first appearance of small-pox. This eruption gradually spread itself over his whole body, and the pustules continued every day to increase in size.

Upon being received into the hospital, he complained of head-ach, sickness at stomach, oppression about the præcordia, thirst, sore throat, with difficulty of swallowing; his tongue was foul, his skin felt hot and feverish; pulse from 110 to 120, rather depressed; belly costive; eyes dull and languid, but without delirium. The whole surface of the skin was interspersed with vesicles, or phlyctænæ, of the size of an ordinary walnut; many of them were larger, especially on the arms and breast. In the interstices between the vesicles, the appearance of the skin was natural, nor was there any redness round their base; the distance from one to another was from half an inch to a hand breadth or more. In some places two or three were joined together, like the pustules in the confluent small-pox. A few vesicles had burst of themselves, and formed a whitish scab or crust. These were mostly on the neck and face; others shewed a tolerably laudable pus. However, by far the greatest number were perfectly entire, turgid, and of a blueish colour. Upon opening them, it was evident that the cuticle, elevated above the cutis and distended with a thin, yellowish, semi-pellucid serum, formed this appearance. Nor was the surface of the cutis ulcerated or livid; but of a red florid colour, as when the cuticle is separated by a blister or superficial burning. No other person laboured under a similar disease, either in the part of the country from which he came, or where he resided in Aberdeen.

This case was treated with success, in the following manner: The largest of the vesicles were snipped, and dressed with *cerat. lap. calamin.* In the evening he was vomited with a solution of tartarised antimony, which procured two loose stools. He was ordered for drink, water-gruel acidulated with lemon-juice; and had the bark exhibited in port wine.

Observations on this disease have been published by Dr. Dickson, of Dublin, by Mr. Gaitskell and Mr. Upton, in the Mem. of the Med. Soc. of London; and by Mr. Christie, in the Med. and Phys. Journal. The former, in the Trans. of the R. I. Acad. gives an account of six different cases which he had an opportunity of seeing. Judging from these, the author thinks that Dr. Cullen's definition of the disease requires correction. He concludes that the disease varies considerably as to its mildness or malignity. In three instances, the symptoms were extremely mild, but in the other three strong symptoms of putrescency were manifest, and the life even of the patient was in great danger. With respect to the method of cure, he is of opinion, that the general symptoms of weakness, and tendency to putrefaction, obviously point out the proper treatment. Nourishment must be supplied, and the Peruvian bark and wine carefully administered; and when vesicles appear on internal parts, irritation must be guarded against by opiates, demulcents, and gentle laxatives.

PE'MPHIGUS MAJOR; a title under which pemphigus is spoken of by Sauvages, who defines it, "eruptio phlyctænarum avellanæ circiter magnitudinem sero diluto flavo turgidarum." See PEMPHIGUS.

PE'MPHIGUS MINOR, the lesser pemphigus. In this species the vesicles are no larger than garden peas.

PENÆ'A MUCRONA'TA; the systematic name of the plant which affords the sarcocolla. See SARCOCOLLA.

PE'NGUIN. See BRUMELIA KARATUS.

PE'NIS (*à pendendo*, from its hanging down); the *membrum virile*, or active organ of generation in men. See GENERATION; also the articles CORPUS SPONGIOSUM, CORPORA CAVERNOSA, GLANS, PREPUTIUM, &c. The arteries of the penis are from the hypogastric and ischiatic. The vein of the penis, *vena magna ipsius penis*, empties itself into the hypogastric vein. The absorbents of this organ are very numerous, and run under the common integuments to the inguinal glands: absorbents also are found in great plenty in the urethra. The glands of the penis are, Cowper's glands, the prostatæ (see PROSTATÆ), muciparous, and odoriferous glands. The nerves of the penis are branches of the sacral and ischiatic.

PE'NIS ERECTOR. See ERECTOR PENIS.

PENNYROYAL. See PULEGIUM.

PENNYROYAL, HART'S. See PULEGIUM CERVINUM.

PENTA'DACTYLON, in botany, *five fingers*, a name given by some authors to the *ricinus* or *palma Christi*, from the figure of its leaf.

PENTÆDRO'STYLA; the name of a genus of spars. The bodies of this genus are spars in form of pentagonal columns, terminated by pentangular pyramids at one end, and regularly affixed at the other to some solid body.

PENTAGONOTHE'CA, in botany, the name given by Vaillant to the plant called by Linnæus, Plumier, Houston, and others, *Pisonia*.

PENTAGY'NIA (from πεντε, *quinque, five*, and γυνη, *mulier, a woman)*; one of the orders in the Linnæan botanic system. The plants have five pistilla, or female organs of generation. See BOTANY.

PENTA'NDRIA (from ϖεντε, *five*, and ανηρ, a *man* or *husband)*; the name of the fifth class in Linnæus's sexual method, consisting of plants which have hermaphrodite flowers, with five stamina or male organs. See BOTANY.

PENTAPETALOUS, in botany, an appellation given to flowers which consist of five petals or leaves.

PENTAPHY'LLUM (πενταφυλλον, from πεντε, *five*, and φυλλον, a *leaf*; so named because it has five leaves on each stalk), the common cinquefoil, or five-leaved grass, *Potentilla repens; foliis quinatis, caule repente, pedunculis unifloris* of Linnæus. Class, *Icosandria.* Order, *Polygynia.* The roots of this plant have a bitterish styptic taste. They were used by the ancients in the cure of intermittent fevers; but the medicinal quality of cinquefoil is confined, in the present day, to the stopping of diarrhœas, and even in this view it is very seldom resorted to, except by the vulgar.

PEONY, COMMON. See PÆONIA.

PE'PO (πεπω, from πεπτω, to *ripen)*. See CUCURBITA.

PEPPER, *piper*; a general name for certain aromatic berries of a hot dry quality, chiefly used in seasoning. We have three kinds of pepper at present used in cookery and in pharmacy; the black, the white, and the long peppers. 1. Black pepper is the fruit of the piper, and is brought from the Dutch settlements in the East Indies. 2. The common white pepper is factitious, being prepared from the black in the following manner: they steep this in sea-water, exposed to the heat of the sun for several days, till the rind or outer bark loosens; they then take it out, and, when it is half dry, rub it till the rind falls off; then they dry the white fruit, and blow the remains of the rind away like chaff. A great deal of the heat of the pepper is taken off by this process, so that the white kind is more fit for many purposes than the black. However, there is a sort of native white pepper produced on a species of the same plant, which is much better than the factitious, and indeed little inferior to the black. 3. The long pepper is a dried fruit, of an inch or an inch and a half in length, and about the thickness of a large goose-quill: it is of a brownish grey colour, cylindrical in figure, and said to be produced on a plant of the same genus. Pepper is principally used by us in food, to assist digestion (see CONDIMENTA); but some people in the East-Indies esteem it as a stomachic, and drink a strong infusion of it in water by way of giving them an appetite. It is said, they have also a way of making a fiery spirit of fermented fresh pepper with water, which they use for the same purposes. They also preserve the common and long peppers in vinegar, and eat them at their meals.

PEPPER, BLACK. See PIPER NIGRUM.

PEPPER, GUINEA. See CAPSICUM.

PEPPER, JAMAICA. See PIMENTO.

PEPPER, LONG. See PIPER LONGUM.

PEPPER, POOR-MAN'S. See HYDRO-PIPER.

PEPPER, WALL. See ILLECEBRA.

PEPPER, WATER. See HYDRO-PIPER.

PEPPER, WHITE. See PIPER NIGRUM.

PEPPERMINT. See MENTHA PIPERITIS.

PEPPERWORT. See LEPIDIUM.

PERCOLATION (from *per, through*, and *colo, to strain)*; a term sometimes applied to animal secretion, from the office of the glands resembling that of a strainer, in transmitting the liquors that pass through them.

PER DELI'QUIUM, by melting. *Kali* dissolved in the water which it imbibes from the air, was formerly called *Oil of tartar per deliquium.* This term however is now disused.

PER DESCE'NSUM, by descent; a particular manner of distillation, in which the product was made to pass downward.

PERENNIALS, in botany, a term applied to those plants whose roots will abide many years, whether they retain their leaves in winter or not. Those which retain their leaves are called *evergreens;* but such as cast their leaves are named *deciduous.*

PERFOLIA'TA (from *per* and *folium*, so called because the leaves surround the stem, like those of the cabbage), round-leaved hare's-ear, or thorow-wax; the *Bupleurum rotundifolium* Linn. This plant was formerly celebrated for curing ruptures, in which cases it was mixed into a poultice with wine and oatmeal.

PE'RFORANS. See FLEXOR PROFUNDIS PERFORANS.

PERFORATION, the passing any body through another, as a thing is bored through. In a medical sense this term is used by surgeons to signify the penetrating, by an instrument, into any of the cavities of the body; as in the operation of the paracentesis, &c.

PERFORA'TUS. See FLEXOR BREVIS DIGITORUM PEDIS, and FLEXOR SUBLIMIS PERFORATUS.

PERFUME, denotes either the volatile effluvia from any body affecting the organ of smelling, or the substance emitting those effluvia; in which last sense the word is most commonly used. The generality of perfumes are made up of musk, ambergris, civet, rose and cedar woods, orange flowers, jessamines, jonquils, tuberoses, and other odoriferous flowers. Those drugs commonly called aromatics, such as storax, frankincense, benzoin, cloves, mace, &c. enter the composition of a perfume; some are also composed of aromatic herbs or leaves, as lavender, marjoram, sage, thyme, hyssop, &c. Since the generality of people are become sensible of the harm they do to the nerves of the head, perfumes are somewhat less used among us. They are still however common in France, Spain, and Italy, and used with an injurious profusion, especially by females of rank.

PERIA'NTHIUM (from πὲρι, *round*, and ανθος, the *flower)*, in botany, the flower-cup properly so called; the most common species of calyx, placed immediately under the flower, which is contained in it as in a cup. See BOTANY.

PERIBLE'PSIS (περιϐλεψις, from περιϐλέπω, to *stare about)*, a name given by the old writers to that kind of wild look which is observed in delirious persons.

PERIBRO'SIS (of the Gr. περιϐρωσις); an ulceration or erosion at the corners of the eyelids. This disorder most frequently affects the internal commissura of the eyelids. The species are, 1. *Peribrosis*, arising from the acrimony of the tears, as may be observed in persons affected with the epiphora. 2. *Peribrosis*, from an ægylops, which sometimes extends to the commissura of the eyelids. The cure consists in the common treatment applied to diseased eyelids. See OPHTHALMIA and PALPEBRÆ.

PERICARDI'TIS (περικαρδιτις, from ϖερικαρδιον, the *pericardium)*, an inflammation of the pericardium. Dr. Cullen considers this as synonymous with *carditis*, or *inflammatio cordis;* and says, "the pericardium has been known often to be inflamed, without any other symptoms attendant except those of a peripneumony." But it must be observed, that the pain seems to be deeper seated, and is not so much increased upon inspiration. If a cure is attempted, it is necessary to proceed as in the pleurisy or peripneumony. See CARDITIS.

PERICA'RDIUM (ϖερικαρδιον, from περι, *about*, and καρδια, the *heart)*; the membranous bag that surrounds the heart, and whose use is to secrete and contain the vapour of the pericardium, which lubricates the heart, and thus prevents their connection with each other. The pericardium is not fixed to the basis of the heart, but round the large veins above the auricles before they send off the ramifications, and round the large arteries before their divisions. It is made of three laminæ; the middle and chief of which is composed of very fine tendinous filaments, which are best seen in old subjects; they are closely interwoven, and cross each other in different directions. The internal lamina seems to be a continuation of the outer coat of the heart, auricles, and great vessels. The trunks of the aorta and pulmonary artery have one common coat, which contains them both as in a sheath, and is lined on the inside by a cellular substance, chiefly in that space which lies between where the trunks are turned to each other, and the sides of the sheath. There is but a very small portion of the inferior vena cava contained in the pericardium.

It is the middle lamina which chiefly forms the pericardium; and the figure of this bag is not simply conical, its apex or point being very round, and the basis having a particular elongation which surrounds the great vessels, as has been already said, as amply as the other portion surrounds the heart.

The pericardium is closely connected to the diaphragm, not at the apex, but exactly at that place which answers to the flat or lower side of the heart; and it is a very difficult matter to separate it from the diaphragm in dissection, the tendinous fibres of the one substance intermixing with those of the other. This adhering portion is in some measure of a triangular shape, answering to that of the lower side of the heart; and the rest of the bag lies upon the diaphragm, without any adhesion.

The external lamina, or common covering, as it may be called more properly, is formed by the duplicature of the mediastinum. It adheres to the proper bag of the pericardium by the intervention of the cellular substance in that duplicature, but leaves it where the pericardium adheres to the diaphragm, on the upper surface of which it is spread, as being a continuation of the pleura.

The internal lamina is perforated by an infinite number of very small holes, through which a serous fluid continually transudes, in the same manner as in the peritonæum, there being no glands for this purpose, as some have supposed. The pericardium, at its forepart, receives arteries from the mammaria interna and diaphragmatica. The lower part is supplied by the diaphragmatica; while the posterior surface has branches from the subclavia, from the mammaria, and from the aorta, &c. The veins correspond with the arteries, excepting some which go to the vena azygos. The nerves are chiefly from the eighth pair and great symphathetics. This fluid being gradually collected after death, makes what is called *liquor pericardii*, which is found in considerable quantities in opening dead bodies while they remain fresh. Sometimes it is of a reddish colour, which may be owing to the transudation of the red particles of blood through the fine membrane of the auricles.

PERICA'RPIUM (from ϖερι, *round*, and καρπος, *fruit)*, the seed-vessel; an entrail of the plant big with seeds, which it discharges when ripe. The seed-vessel is in fact the developed seed-bud, and may very properly be compared to the fecundated ovary in animals; for it does not exist till after the fertilising of the seeds by the pollen, and the consequent fall of the flower. All plants, however, are not furnished with a seed-vessel; in such as are deprived of it, the receptacle, or calyx, performs its functions by inclosing the seeds as in a matrix, and accompanying them to perfect maturity. It is distinguished, according to the circumstances which attend it, into eight different kinds: 1. A *capsule*. 2. A *siliqua* or pod. 3. A *legumen*. 4. A *conceptacle*. 5. A *drupa*. 6. A *pomum*. 7. A *bacca* or berry. 8. A *strobilus*. See the articles CAPSULE, &c.

PERICHO'NDRIUM (περιχονδριον, from ϖερι, *about*, and χονδρον, a *cartilage)*; the membrane that covers a cartilage.

PERICRA'NIUM (περικρανιον, from ϖερι and κρανιον, the *cranium)*; the membrane that is closely connected to the bones of the head, in the same manner, and for the same end, that the periosteum is connected with the cylindrical bones. See PERIOSTEUM.

PERINÆ'US TRANSVERSUS. See TRANSVERSUS PERINEI.

PERINÆ'UM (from περινεω, to *flow round*, because that part is generally moist); that space which lies between the anus and organs of generation in each sex. It is divided into two equal lateral portions by a distinct line, which is longer in males than in females. In midwifery it is observed, that when the os externum is so much dilated by the head of the fœtus as to allow the delivery of the same, it is generally stretched to the length of three, and sometimes of four inches; whence at this time delivery should not be precipitated, lest a laceration in this part should be the consequence. Instead of stretching back the *perinæum* with the finger, as is the practice of some, it should be supported with the palm of the hand, and the head of the child at the same time moderately opposed in its force against it, that its distension may be made gradually, until sufficiently dilated for delivery. Inflammations and lacerations of the *perinæum*, if they occasion vomiting, are fatal in a few days. If a laceration happens, besides keeping the woman long in bed, and advising her to keep her knees close as constantly as possible, her bowels should be kept soluble.

The puncture of the *perinæum* is an operation which was used to be performed when the bladder was under such a suppression of urine as could not be relieved by any gentler method. The operation was performed by pushing a trochar from the place where the external wound in the old way of cutting for the stone was made, into the cavity of the bladder, and so procuring the issue of the water through the canula. At present, instead of this method, the water is evacuated by pushing the trochar into the bladder, from a little above the os pubis. This method of discharging the urine has succeeded in particular cases; but when the suppression is of any considerable standing, the operation is not so safe.

The perinæum is subject to abscess and fistula. Of the former we have spoken under the article ABSCESS. The term *Fistula in Perinæo*, implies a sinuous ulcer in that part, which commonly communicates with the urethra, but sometimes is found to have opened into the bladder. The same term is, however, applied to similar sores which open into the scrotum, or into any part of the penis. This disease may arise from wounds in the bladder, or of the urethra, from external violence; from a laceration of parts when performing the operation of lithotomy; from incision into the urethra for the extraction of calculi impacted there; from sinuses producing matter capable of corroding the membranous part of the urethra; from suppuration in the perinæum in consequence of inflammation; from the urine passing through an opening in the urethra into the perinæum, or other neighbouring parts, and rendering the edges of the sore callous: but most frequently the disease is occasioned by strictures in the urethra in consequence of repeated gonorrhœas. See STRICTURE.

In the *treatment* of this disease, when it has arisen from a general affection of the system, a removal of the primary disorder is also necessary before a cure can be attempted. When the complaint is entirely of a local nature, a simple incision into the sinus is all that is necessary; and for this purpose a staff is to be introduced into the urethra, so as to pass the opening at which the urine is discharged. A probe, or a small director, is now to be passed at the external opening of the sore till it reach the staff; and cutting upon it, the sinus is to be laid open through its whole length till it terminate either in the urethra, or, if necessary, in the bladder itself. When more openings than one are present, they are to be treated in the same manner; and if the sinuses are found to be remarkably hard, the removal of a small portion of the diseased part will expedite the cure, though the consequent inflammation and suppuration will render this seldom necessary. After the operation, the wound is to be dressed with pledgets of emollient ointment, so as to allow it to fill up completely from its bottom. If symptoms of inflammation be violent, an emollient poultice is to be applied in the course of twenty-four hours after the operation. As soon as a free suppuration is formed, light easy dressings are to be used till the sore is completely healed.

When this disease has arisen from neglected strictures these must be removed either by the bougie or by caustic. Mr. Home says, that where fistulæ in perinæo have been formed, the parts behind the stricture are so much thickened, and are rendered so indolent, that the common bougie is unable to dilate them; and the lower surface of the urethra, in consequence of inflammation and ulceration, where the fistulous orifices have their origin, is rendered so irregular that a bougie cannot readily pass over it. If this is not understood, the surgeon may be led to mistake the case, and suppose that there are other obstructions which prevent the bougie from passing on. The flexible gum catheter is therefore, in such instances, the only instrument by which the real state of the canal can be ascertained; since, when introduced with a stilet of metal which is bent to the curve of the urethra, the point of the instrument is always directed upwards, and avoids any irregularity on the lower surface which might obstruct it.

PERIO'STEUM (περιοϛεον, from ϖερι, *about*, and οϛεον, a *bone)*; that membrane which invests the external surface of all the bones except the crowns of the teeth. It is of a fibrous texture, and well supplied with arteries, veins, nerves, and absorbents. It is called *pericranium* on the cranium; *periorbita* on the orbits; *perichondrium* when it covers a cartilage; and *peridesmium* when covering a ligament. Its use appears to be, to distribute blood-vessels on the external surfaces of bones, and to protect the bones themselves from friction, and occasionally to afford a medium of attachment for the muscles.

PERIPNEUMO'NIA (περιϖνευμονια, from ϖερι, and ϖνευμον, the *lung)*, the peripneumony, or inflammation of the lungs. See Pneumonia.

PERIPNEUMO'NIA NOTHA, the bastard or spurious peripneumony. Modern writers, it would appear, do not all affix this name to the same disease; some affirming it be a rheumatic affection of the respiratory muscles, while others consider it as a mild degree of the peripneumony. It is characterised by difficulty of breathing, great oppression at the chest, with obscure pains, cough, and occasionally an expectoration. Dr. Macbride considers this disease as an asthmatic complaint. He says it commonly seizes the old and phlegmatic, the weak and lax, the fat and unwieldy, and is most prevalent in wet situations, in foggy weather, and winter seasons. He attributes it to an accumulation of serum in the air-cells of the *lungs*, whence great oppression of the chest, and some degree of obstruction in the pulmonic and bronchial arteries. This disease is described as *always extremely dangerous*; and requiring the utmost circumspection, as the mildness of the symptoms, at the beginning, is too apt to mislead both the patient and physician. Dr. Macbride is of opinion, that writers on this disease, from not making a proper distinction between the cellular and tubular parts of the lungs, and by supposing that the offending matter in the *peripneumonia notha* chokes up the extremities of the pulmonary artery, have confounded the theory of this disease, since the symptoms cannot be satisfactorily accounted for, on the supposition that the morbific matter is lodged in any other place than the cellular interstices, whereby it presses both upon the air-vessels and blood-vessels; hindering the first from being fully distended with air, and the last from transmitting blood. In this disease, therefore, bleeding is of no service, but does harm, and our only hope is founded on repeated emetics and blisters. The most proper emetics are those of the antimonial class; nor should the patient drink much after a vomit is given, in order that the agitation from puking may be stronger. The blisters are to be laid on the back, sides, and arms, which are also to be bathed; and the body must be kept open by calomel and aloetics, or by clysters. But all this will very rarely answer; and we may foresee the death of the patient, from the perpetual laborious wheezing, great anxiety, and intolerable oppression of the præcordia, together with a constant dozing, coldness of the extremities, and a livid colour in the hands and face. People advanced in years, who are of a gross habit and lax fibre, may sometimes be prevented from falling into this disease, by large issues opened between the shoulders, as these seem to prevent the accumulation of lymph in the air-cells of the *lungs*.

PERIPYE'MA (of the Gr. περιϖυημα); a collection of matter about any part, as round a tooth in the gums.

PERISTALTIC MOTION (περιϛαλτικος, from ϖεριϛελλω, to *contract)*, the vermicular contraction of the intestines, by which they propel their contents towards the rectum. The intestinal feces, naturally retained in the beginning of the colon, or large intestine, there grow dry by the absorption of their moisture, so as to be capable of receiving a figure from the round contracted parts of the colon; then they ascend from the bottom of the cœcum elevated by the long ligaments, which end in the appendix vermiformis. And here the manner in which the feces are propelled by the contraction of the circular fibres, appears better than in the small intestines. The longitudinal fibres of the intestine, being attached to the contracted parts as fixed points, draw up and dilate the lower parts of the intestine; the parts of the intestine, to which the feces are next brought, being irritated and contracted in like manner, are immediately after drawn together by the round and long fibres, by a successive repetition of which, the feces finish their course, through the whole large intestine, in about twenty-four hours, in a healthy person.

While the gross feces ascend by the folds or valves of the ileum, the weight of them depresses the lower fold to the left side, which draws back the ligament common to each valve, in such a manner as to compress and exactly close the upper fold downward, that nothing may return back into the ileum; which might easily happen in a fluid state of the feces, if this passage were not so accurately shut up. The feces, when in danger of falling down from the upper parts, depress the upper valve, and thus accurately exclude themselves. The feces continue to move slowly forward, becoming more dry, consistent, and figured by the same causes, through the whole tract and repeated flexures of the colon. This intestine is from five to seven feet long, and it is in general capable of retaining the feces for twenty-four hours, so as to give no interruption to the common affairs of life; this retention, however, is always proportional to the velocity with which the small intestines propel their contents. At length the feces fall into the rectum, which being situated in the midst of much surrounding fat and cellular substance, easily expands, and suffers the excrement to be collected in large quantities, and to be retained for a considerable time.

A similar motion takes place in the Fallopian tubes, after conception, by means of which the ovum is translated from the ovarium into the uterus.

PERISTE'RUM (περιστερον, from περιστερος, a *pigeon*, so called because pigeons covet it); the herb vervain. See Verbena.

PERISY'STOLE (περισυστολη, from περιστελλω, to *compress)*; the intermission, or time which intervenes between the contraction and dilatation of the heart.

PERITONÆ'UM (from περιτεινο, to *extend round)*; a strong simple membrane, by which all the viscera of the abdomen are surrounded, and in some measure supported. Many anatomical writers, particularly Winslow, have described it as being composed of two distinct membranous laminæ; but their description seems to be erroneous. What perhaps appeared to be a second lamina, being found to be simply a cellular coat, which sends off productions to the blood-vessels passing out of the abdominal cavity. The aorta and vena cava likewise derive a covering from the same membrane, which seems to be a part of the cellular membrane we have already described. The peritonæum, by its productions and reduplications, envelopes the greatest part of the abdominal viscera. It is soft, and capable of considerable extension; and is kept smooth and moist by a vapour, which is constantly exhaling from its inner surface, and is returned again into the circulation by the absorbents. This moisture not only contributes to the softness of the peritonæum, but prevents the attrition, and other ill effects, which would otherwise probably be occasioned by the motion of the viscera upon each other. When this fluid is supplied in too great a quantity, or the absorbents become incapable of carrying it off, it accumulates, and constitutes an ascites or dropsy of the belly; and when by any means the exhalation is discontinued, the peritonæum thickens, becomes diseased, and the viscera are sometimes found adhering to each other. The peritonæum is not a very vascular membrane. In a sound state it seems to be endued with little or no feeling, and the nerves that pass through it appear to belong to the abdominal muscles. An inflammation of this membrane is named Peritonitis.

PERITONI'TIS (περιτονιτις, from περιτοναιον, the *peritonæum)*, inflammation of the peritonæum, a genus of disease in the class *pyrexiæ* and order *phlegmasiæ* of Cullen. It is known by the presence of pyrexia, with pain in the abdomen, which is increased when the body is in an erect position. When the inflammation attacks the peritonæum of the viscera, it takes the name of the viscus: thus, *peritonitis hepatis*, *peritonitis intestinalis*, *peritonitis omentalis*, or *epiploitis*, or *omentalis*, *peritonitis mesenterii*, &c. All these Dr. Cullen considers under the general head of *Gastritis*, as there are no certain signs by which they can be distinguished from each other, and the method of cure must be the same in all. See Gastritis.

PE'RLA *(perla*, Ital. and Span. *perl*, Welsh, *perlen*, Germ.) See Margarita.

PE'RNIO, a chilblain. It is a species of the *erythema* of Dr. Cullen. See Chilblain.

PERONE'US ANTI'CUS. See Peroneus brevis.

PERONE'US BREVIS (περοναιος, from περονη, the *fibula)*; a muscle, which is in a great measure covered by the peroneus anticus. It is the *peroneus secundus* seu *anticus* of Douglas, and the *peroneus medius* seu *anticus*, of Winslow. It arises by an acute, thin, and fleshy origin from the anterior and outer part of the fibula, its fibres continuing to adhere to the interior portion of that bone. Its round tendon passes through the groove in the malleolus externus, along with that of the peroneus longus, after which it runs in a separate groove to be inserted into the upper and posterior part of the tubercle at the basis of the metatarsal bone, that supports the little toe. This muscle affords support to the peroneus longus.

PERONE'US LONGUS; the *peroneus primus* seu *posticus* of Douglas, and the *peroneus maximus* seu *posterior* of Winslow. This muscle is placed somewhat anteriorly along the outer side of the leg. It arises tendinous and fleshy from the external lateral part of the head of the tibia, and likewise from the upper anterior surface and outer side of the fibula, its fibres continuing to adhere to the outer surface of the latter till within three or four inches of the malleolus externus. The peroneus longus terminates in a long round tendon, which runs obliquely behind the malleolus internus, where it passes through a cartilaginous groove in common with the peroneus brevis, being bound down by an annular ligament. When it has reached the os calcis, it quits the tendon of the peroneus brevis, and runs obliquely inwards along a groove in the os cuboides, under the muscles on the sole of the foot, to be inserted into the outside of the posterior extremity of the metatarsal bone that supports the great toe. Near to the insertion of this muscle there is a small *bursa mucosa.* Its office is to draw the foot outwards, and likewise to assist in extending it.

PERONE'US MAXIMUS. See Peroneus longus.

PERONE'US MEDIUS. See Peroneus brevis.

PERONE'US POSTICUS. See Peroneus longus.

PERONE'US PRIMUS. See Peroneus longus.

PERONE'US TERTIUS, the name given by Albinus to a muscle which other writers have called *nonus Vesalii*, or Vesalius's ninth muscle of the foot. But anatomists consider it at present as a portion of the extensor longus digitorum pedis. It is situated at the anterior, inferior, and outer part of the leg, passing along the outer edge of the peroneus longus muscle, to which it is intimately united. It arises fleshy from the anterior surface of the lower half of the fibula, and from the adjacent part of the interosseous ligament. Its fibres pass obliquely downwards, towards a tendon which runs under the annular ligament, and then turning obliquely outwards, is inserted into the root of the metatarsal bone that supports the little toe. This muscle helps to bend the foot.

PERONE'US SECUNDUS. See Peroneus brevis.

PERRENIAL WORM-GRASS. See Spigelia.

PERRY, a very pleasant vinous liquor, made from the juice of the pear. As a beverage, it is liable to the same objections as Cyder and the pomaceæ in substance. See Pomaceæ and Fructus recentes.

PE'RSICA (περσικη, from *Persia*, its native soil), the peach; the fruit of the *Amygdalis persica* Linn. It is universally known to be grateful and wholesome, seldom disagreeing with the stomach, unless it be in a morbid state; yet if eaten to excess, its effects are similar to those of the other dulco-acid summer fruits. See Fructus. The flowers, including the calyx, as well as the corolla, are the parts of the persica which were once used for medicinal purposes. These have an agreeable but weak smell, and a bitterish taste. The flowers have a cathartic effect, and have been successfully given to children as a vermifuge. An infusion of a drachm of the flowers dried, or of half an ounce in their recent state, is the requisite dose. The leaves of the Persica are also found to possess an anthelmintic power, and from a great number of experiments appear to have been given with success both to children and adults; yet, as the leaves and flowers manifest in some degree the deleterious quality of those of the lauro-cerasus, they ought to be used with great caution in all cases.

PERSICA'RIA (from *persica*, the peach-tree, so called because its blossoms are like those of the peach), the *Persicaria mitis*, or *Plumbago;* arsmart. This is the *Polygonum persicaria* of Linnæus. It is said to possess vulnerary and antiseptic properties; with which intentions it has been given in wine, to restrain the progress of gangrene. Few, however, will rely on its powers, in such cases, at present.

PERSICA'RIA MITIS. See Persicaria.

PERSICA'RIA URENS. See Hydropiper.

PE'RSICUS IGNIS, a name given by some of the old writers to the anthrax or carbuncle. Avicenna says, it is that species of carbuncle which is attended with pustules and vesications.

PERSONA'TA (from *persona*, a disguised person, because, according to Pliny, the ancient actors used to mask themselves with the leaves of this plant); the great burdock. See Bardana.

PERSONA'TÆ, the name of the 40th order in Linnæus's Fragments of a Natural Method, consisting of a number of plants whose flowers are furnished with an irregular gaping or grinning petal, which in figure somewhat resembles the snout of an animal. The bulk of the genera of this natural order arrange themselves under the class and order didynamia angiospermia of the sexual method. The rest, although they cannot enter into the artificial class just mentioned, for want of the classic character, the inequality of the stamina; yet, in a natural method, which admits of greater latitude, may be arranged with those plants which they resemble in their habit and general appearance, and particularly in the circumstances expressed in that title.

PERSPIRA'TIO, *perspiration* or sweat, the vapour that is secreted by the extremities of the cutaneous arteries from the external surface of the body. It is distinguished into *sensible* and *insensible.* The matter of insensible perspiration, or, in other words, the subtile vapour that is continually exhaling from the surface of the body, is not secreted by any particular glands, but seems to be derived wholly from the extremities of the minute arteries that are every-where dispersed through the skin. These exhaling vessels are easily demonstrated in the dead subject, by throwing water into the arteries; for then small drops exsude from all parts of the skin, and raise up the cuticle, the pores of which are closed by death; and in the living subject, a looking-glass placed against the skin, is soon obscured by the vapour. Bidloo fancied he had discovered ducts leading from the cutis to the cuticle, and transmitting this fluid; but in this he was mistaken.

When the perspiration is by any means increased, and several drops that were insensible when separate are united together and condensed by the external air, they form upon the skin small but visible drops called *sweat.* This particularly happens after much exercise, or whatever occasions an increased determination of fluids to the surface of the body; a greater quantity of perspirable matter being in such cases carried through the passages that are destined to convey it off.

It has been disputed, indeed, whether the insensible perspiration and sweat are to be considered as one and the same excretion, differing only in degree; or whether they are two distinct excretions derived from different sources. In support of the latter opinion, it has been alledged, that the insensible perspiration is agreeable to nature, and essential to health, whereas sweat may be considered as a species of disease. But this argument proves nothing; and it seems probable, that both the insensible vapour and the sweat are exhaled in a similar manner, though they differ in quantity, and probably in their qualities; the former being more limpid, and seemingly less impregnated with salts than the latter: at any rate we may consider the skin as an emunctory through which the redundant water, and sometimes the other more saline parts of the blood, are carried off. But the insensible perspiration is not confined to the skin only—a great part of what we are constantly throwing off in this way is from the lungs. The quantity of fluid exhaled from the human body by this in-insensible perspiration is very considerable. Sanctorius, an Italian physician, who indefatigably passed a great many years in a series of statical experiments, demonstrated long ago what has been confirmed by later observations, that the quantity of vapour exhaled from the skin, and from the surface of the lungs, amounts nearly to 5-8ths of the aliment we take in. So that if in the warm climate of Italy a person eats and drinks the quantity of eight pounds in the course of a day, five pounds of it will pass off by insensible perspiration, while three pounds only will be evacuated by stool, urine, saliva, &c. But in countries where the degree of cold is greater than in Italy, the quantity of perspired matter is less; in some of the more northern climates, it being found not to equal the discharge by urine. It is likewise observed to vary according to the season of the year, and according to the constitution, age, sex, diseases, diet, exercise, passions, &c. of different people.

The perspirable matter and the sweat are in some measure analogous to the urine, as appears from their taste and saline nature. And it is worthy of observation, that when either of these secretions is increased in quantity, the other is diminished; so that they who perspire the least, usually pass the greatest quantity of urine, and vice versa.

From what has been said respecting this secretion, it will be easily conceived, that this evacuation cannot be either much increased or diminished in quantity without affecting the health. A *diminution of perspiration* produces plethora, lassitude, languor, depression of mind, bad digestion, loss of appetite, and even a general corruption of the humours from the retention of such a quantity of putrescent matter.—The more suddenly the diminution or suppression of the perspiration takes place, the sooner the mischief is produced, and the greater it is; not only by retaining the matter which ought to be thrown out, but by repelling the humours from the surface of the body, and directing them to other parts; whence fevers, inflammations, congestions of the blood, &c. frequently take place.

Thus suppression of perspiration may arise from many different causes; as from cold suddenly applied to the body when very hot; sometimes from very violent passions of the mind; or from spasmodic diseases, as the hysterics, &c. It may be suppressed also by that kind of constriction of the vessels of the skin which is produced by various kinds of fevers, the nature of which has hitherto been but little known.

Excessive perspiration or sweating is injurious by debilitating the body, relaxing the skin, and exposing the patient to all the evils which arise from catching cold. It may even be carried to such a height as to produce fainting and death; though, it must be owned, that we cannot easily bring examples of people having from this cause their blood inspissated, corrupted, or being thence made liable to inflammations and fevers.

PERTU'SSIS (from *per*, much, and *tussis*, a cough), the hooping-cough; a genus of disease in the class *neuroses*, and order *spasmi*, of Cullen. This disease comes on at first like a common cold; but is from the beginning attended with a greater degree of dyspnœa than is common in catarrh; and there is a remarkable affection of the eyes, as if they were swelled, and a little pushed out of their sockets. By degrees the fits of coughing become longer and more violent, till at last they are plainly convulsive, so that for a considerable time the patient cannot respire, and when at last he recovers his breath, inspiration is performed with a shrill kind of noise like the crowing of a cock. This kind of inspiration serves only as an introduction to another convulsive fit of coughing, which is in like manner followed by another inspiration of the same kind; and thus it continues for some time, very often till the patient vomits, which puts an end to the paroxysm at that time. These paroxysms are attended with a violent determination of the blood towards the head, so that the vessels become extremely turgid, and blood not unfrequently flows from the mouth and nose. The disease is tedious, and often continues for many months. It is not commonly attended with fever.

The hooping-cough is an infectious disorder, and very often epidemic; but the nature of the contagion is not understood; at least it is no further understood than that of small-pox, measles, or similar epidemics. We well know that it is from a peculiar and specific contagion alone that this disease, as well as the others above mentioned, can arise. But with regard to the nature of any of them, we are totally in the dark. It generally attacks children, or adults of a lax habit, making its attack frequently in the spring or autumn; at the same time, when this contagion is introduced into any town, village, or neighbourhood, it will rage epidemically at any season. Those alone are affected with this disease who have never been subjected to it. For in this affection, as well as in small-pox, having had the disease once, gives defence against future contagion. Every individual, however, does not seem to be equally really affected with this contagion. Like other contagious diseases occurring only once in a lifetime, it may naturally be expected to be more frequent among children than at any other period of life. But many, though frequently exposed to contagion, are yet not affected with the disease; and those children who live upon unwholesome watery food, or breathe unwholesome air, are most liable to its attacks, and suffer most from them. In general it has been concluded, that whatever weakens the solids, or tends to bring on a dissolution of the fluids, predisposes to this disease.

The hooping-cough is not very often fatal. During one epidemic, however, it is often observed to be much more dangerous and much more severe than during another. This is often remarked with regard even to particular periods of the same epidemic; and it is also to be observed, that in certain families this disease is much more severe than in others. Its danger, however, is still more connected with the period of life at which it occurs. In children under two years of age it is most dangerous; and kills them by producing convulsions, suffocation, inflammation and suppuration of the brain or in the lungs, ruptures, and incurvation of the spine. In pregnant women it will produce abortion; and in adults inflammation of the lungs, and all the consequences of pneumonia, more frequently than in children. From a long continuance of the disease patients will become asthmatic, ricketty, and scrofulous. It is generally reckoned a good sign when a fit terminates by vomiting; for in this disease there seems to be a considerable increase of the secretion of mucus, and the vomiting affords great relief.

Pertussis is one of those diseases, which, after the contagion has exerted its influence, can be terminated only by running a certain course: but it is much less limited in its course than small-pox and measles, and often it runs on to a very great length, or at least it is very difficult to distinguish certain sequelæ of this disease from the disease itself. And when it exists in the former of these states, it admits of an artificial termination. In the treatment of this affection, therefore, the objects at which a practitioner chiefly aims, are, in the first place, the obviating urgent symptoms, and forwarding the natural termination of the disease; and, secondly, the inducing an artificial termination. With these intentions various remedies are employed on different occasions. The most approved are vomits, purges, bleeding, and the attenuating pectorals; for the other kinds generally do hurt: but large evacuations of any kind are pernicious. In the Medical Observations, Vol. III. Dr. Morris recommends castor and the bark; but in cases attended with any degree of inflammation, the latter must certainly do hurt, and the former will generally be insignificant. Dr. Butter, in a dissertation expressly on the subject, relates twenty cases of it cured by the extract of hemlock. He directs half a grain a-day for a child under six months old; one grain for a child from six months to two years; afterwards allowing half a grain for every year of the patient's age till he be twenty: beyond that period he directs ten grains to be given for the first day's consumption, gradually increasing the dose according to the effect. If the patient have not two stools a-day, he advises magnesia, or the *lixivia vitriolata sulphurea*, to be added to the hemlock mixture. By this method, he says, the peculiar symptoms of the disease are removed in the space of a week; nothing but a slight cough remaining. The use of hemlock, however, has by no means become universal in consequence of this publication, nor indeed has this remedy been found equally successful with others who have given it a fair trial.

The remedy generally most depended upon in this disease is change of air; but Dr. Gregory, professor of the practice of medicine in the university of Edinburgh, denies its efficacy. When the experiment is made, however, the patient, as soon as the disease is fully formed, ought to be removed to some other part of the country: but there is no occasion for going to a distant place; a mile or two, or frequently a smaller distance, will be sufficient; and in this new habitation, the frequency of the cough is found almost instantly to diminish in a most surprising degree. Yet after remaining there for some time, the cough will often become again more frequent, and the other symptoms increased. In this case, another change of air, or even a return to the former habitation, becomes necessary. Manifest benefit, it is said, has even been derived by changing a patient from one room of a house to another. But although change of air has thus been advantageous, it must also be remarked, that when it has been had recourse to at very early periods it has often done mischief, particularly by aggravating the febrile and inflammatory symptoms. If the disease be attended with fever, bleeding and other antiphlogistic remedies are proper. Dr. Buchan recommends an ointment made of equal parts of garlic and hog's lard applied to the soles of the feet; but if it have any effect, it is probably merely as an *emplastrum calidum*. It ought to be put on a rag and applied like a plaster. Opiates may sometimes be useful, but in general are to be avoided. They are chiefly serviceable where the cough is very frequent, with little expectoration. In these cases, benefit has sometimes also been derived from vitriolic ether, and sometimes from the tincture of cantharides; the latter of which some have joined with the bark.

Practitioners have been so often foiled in their attempts to cure this disease, and indeed they have had so much reason to suppose that large quantities of medicine have, in some cases, proved injurious rather than beneficial, that nothing is now attempted by judicious and conscientious physicians, beyond the mere palliation of occasional symptoms, and the aid given by means of antimonials to a frequent effort of nature to relieve the patient by vomiting. This practice is certainly of a high degree of importance, as well as the use of wine where the patient is much weakened. If any medicine particularly merits attention, it is perhaps the *vinum antimonii tartarisati*. The excellence of this remedy is not limited to its use as an emetic, in which character it relieves whenever the paroxysms are unusually urgent. Its powers as a relaxant and antispasmodic are also very material in the intervals; and it should be administered, in the quantity of one-fourth or one-sixth of the vomiting dose, three or four times a-day. Opiates, given on particular occasions, are highly proper, provided *too great* a determination to the skin is not occasioned by them.

We are told that an almost instantaneous termination has, on some occasions, been put to this disease, by exciting a high degree of fear, or by inducing another febrile contagion; but the effects of both are too uncertain and too dangerous to be employed in practice.

PERUVIAN BARK. See Cinchona.

PERUVIA'NUS CORTEX; the Peruvian bark. See Cinchona.

PERVIGI'LIUM (from *per*, much, and *vigilo*, to watch); watchfulness, or the want of sleep, an unfavourable symptom in fevers. See Vigilance.

PES, in botany, a foot; the eighth degree in the Linnæan scale for measuring the parts of plants: from the elbow to the basis of the thumb, or twelve Parisian inches.

PES ALEXANDRI'NUS. See PYRETHRUM.

PES CATI. See GNAPHALIUM.

PES COLUMBI'NUS. See GERANIUM COLUMBINUM.

PES LEO'NIS, a name for the herb ladies-mantle. See ALCHEMILLA.

PESSARY *(pessarium*, from *ϖεσσω*, to *soften)*, an instrument that is introduced into the vagina to support the uterus when disposed to prolapse. The ancients prepared them of medicinal ingredients, with a view to their astringent and strengthening effect on the parts, and they were formed in long cylindrical shapes so as to be retained in the vagina. At present they are considered, and most properly so, as mere mechanical helps. Their different forms may be seen in plate X. and their descriptions under the article INSTRUMENTS. The objections to the use of these instruments seem to be the following: If the pessary introduced be too small, it will soon be forced away by the first fit of coughing or straining; and if too large it will become so painful as not to be endured. The utmost attention is necessary, therefore, to adapt the pessary, when resorted to, exactly to the dimensions of the part and the elasticity which the vagina may possess. It is also of consequence that it should be made of the lightest materials, such as cork wood; those of box or ivory being much too heavy to be retained. See PROLAPSUS UTERI.

PESTILENT WORT. See PETASITES.

PE'STIS, the plague; a genus of disease in the class *pyrexia* and order *exanthemata* of Cullen, who defines it "a typhus, very highly contagious, attended with extreme debility." He says that contentions have arisen among physicians concerning the character of the plague, which are easily reconciled, so that the characteristic signs which occur in every case of the plague may be given with perspicuity. The varieties of this disease are owing to its degrees of violence: hence the species have been distinguished into the *pestis benigna*, *vulgaris*, *Ægyptiaca*, &c. but with no great propriety. Dr. Cullen indeed never saw this disease; but from the accounts of other authors, he is of opinion, that the circumstances peculiarly characteristic of it, especially of its more violent and dangerous states, are, 1. The great loss of strength in the animal functions, which often appears early in the disease. 2. The stupor, giddiness, and consequent staggering, which resembles drunkenness, or the head-ach and various delirium, all of them denoting a great disorder in the functions of the brain. 3. Anxiety, palpitation, syncope, and especially the weakness and irregularity of the pulse, denoting a considerable disturbance in the action of the heart. 4. Nausea and vomiting, particularly the vomiting of bile, which shews an accumulation of vitiated bile in the gall-bladder and biliary ducts, and from thence derived into the intestines and stomach; and which denote a considerable spasm, and loss of tone in the extreme vessels on the surface of the body. 5. The buboes and carbuncles, which denote an acrimony prevailing in the fluids; and lastly, the petechiæ, hæmorrhages, and coliquative diarrhœa, which denote a putrescent tendency prevailing in a great degree in the mass of blood. To these we may add from Sir John Pringle, one which, though perhaps less frequent than the others, yet seems worthy of notice. It is this: that in the plague there is an extraordinary enlargement of the heart and liver. In nine dissections of persons dead of the plague at Marseilles, this extraordinary enlargement of the heart was observed in all of them, and of the liver in seven.

In his very elaborate work on the plague, by Dr. Russel, a very full history is given of the various forms and varieties of this disease. He makes particular observations on the following symptoms, which, in addition to the pestilential eruptions, he considers as the most important concomitants of plague, *viz.* fever, delirium, coma, impediment or loss of speech, deafness, muddiness of the eyes, white tongue, state of the pulse, respiration, anxiety, pain of the heart, inquietude, debility, fainting, convulsions, appearances of the urine, perspiration, vomiting, looseness, and hæmorrhagy; and he concludes these remarks with some observations on the occurrence of the plague with pregnant women. To point out more distinctly the stable varieties of the disease, he arranges the pestilential cases which fell under his observation at Aleppo under six classes: and he concludes his description with a very minute and particular account of the pestilential eruptions appearing under the form either of buboes, carbuncles, or other exanthemata. The presence of the two first, he observes, either separately or conjunctly, leaves the nature of the distemper unequivocal. But fatal has been the error of rashly pronouncing a distemper not to be the plague from their absence. Buboes affected the inguinal, axillary, parotid, maxillary, and cervical glands; but the first were the most commonly affected, and the two latter seldom observed to swell, without either the parotid swelling at the time or soon after. Of the carbuncles, Dr. Russel describes five different varieties. The other exanthemata, which he observed sometimes, though less frequently, attending the plague, were petechiæ, a marbled appearance of the skin, an erysipelatous redness, streaks of a reddish purple or livid colour, vibices or weals, and large blue or purple spots, the *maculæ magnæ* of authors. In some cases, an extraordinary concurrence of eruptions took place, which was chiefly observed among children under ten years of age.

From a consideration of the symptoms which characterise the *true plague*, Dr. Cullen concludes, that it is owing to a *specific contagion*, often suddenly producing the most considerable debility in the nervous system or moving powers, and a general putrescency in the fluids. Dr. Russel also considers the disease as being universally the consequence of what may be called *pestilential contagion;* and has judiciously repelled the objections which have been brought against this doctrine.

Here we must refer to all those methods of preventing and removing the incipient contagion of putrid fevers, which have been so fully enumerated under the articles TYPHUS, FUMIGATION, &c. Dr. Cullen is persuaded that the disease never arises in the northern parts of Europe, but in consequence of being imported from some other country. The magistrate's first care, therefore, ought to be to prevent the importation; and this may generally be done by a due attention to bills of health, and to the proper performance of quarantines.—With respect to the latter, he is of opinion, that the quarantines of persons may with safety be much less than forty days; and if this were allowed, the execution of the quarantine would be more exact and certain, as the temptation to break it would be in the like proportion avoided. With respect to the quarantine of goods, it cannot be perfect unless the suspected goods be unpacked, duly ventilated, and other means be employed for correcting the infection they may carry; and if all this be properly done, it is probable that the time commonly prescribed for quarantine may be also much shortened.

A second measure in the way of prevention is required, when an infection has reached and prevailed in any place, to prevent that infection from spreading into others. This can only be done by preventing the inhabitants or the goods of any infected place from going out of it till they have undergone a proper quarantine.

The third measure, and which ought to be employed with great care, is to prevent the infection from spreading among the inhabitants of a place in which it has arisen. And in this case, a great deal may be done by the magistrate. 1. By allowing as many of the inhabitants as are free from infection, and are not necessary to the service of the place, to go out of it. 2. By discharging all assemblies, or unnecessary intercourse of the people. 3. By ordering some necessary communications to be performed without contact. 4. By making such arrangements and provisions as may render it easy for the families remaining to shut themselves up in their own houses. 5. By allowing persons to quit houses where infection appears, upon condition that they go into lazarettoes. 6. By ventilating and purifying, or destroying, at the public expence, all infected goods. 7. By avoiding hospitals, and providing separate apartments for infected persons.

The fourth and last part of the business of prevention respects the conduct of persons necessarily remaining in infected places, especially those obliged to have some communication with persons infected. Those obliged to remain in places infected, but not to have any near communication with the sick, must avoid all near communication with other persons or their goods; and it is probable, that a small distance will serve, if, at the same time, there be no stream of air to carry the effluvia of persons or goods to some distance. Those who are obliged to have a near communication with the sick, ought to avoid any of the debilitating causes which render the body susceptible of infection, as a spare diet, intemperance in drinking, excess in venery, cold, fear, or other depressing passions of the mind. A full diet of animal food is also to be avoided, because it increases the irritability of the body, and favours the operation of contagion; and indigestion, whether from the quantity or quality of the food, contributes very much to the same.

Besides these, it is probable that the moderate use of wine and spirituous liquors, moderate exercise, and the cold bath, may be of use; tonic medicines also, of which the Peruvian bark is deservedly accounted the chief, may likewise be used with some probability of success. If any thing is to be expected from antiseptics, Dr. Cullen thinks camphor preferable to any other. In general, however, every one is to be indulged in the medicine of which he has the best opinion, provided it is not evidently hurtful. Whether issues be useful in preserving from the effects of contagion, is a matter of doubt. Dr. Russel, in his treatise, enters very fully into the consideration of the means of prevention, both with respect to quarantines, lazarettoes, and bills of health. He is of opinion that the present laws on these subjects are in many respects defective; and he thinks, that a set of new regulations would have the best chance of a deliberate and impartial discussion in the senate, if the enquiry were taken at a time free from all apprehension of immediate danger.

Dr. Cullen considers the indications of cure in the plague, the same as those in fever in general, but that they are not all equally important. The measures for moderating the violence of reaction, which operate by diminishing the action of the heart and arteries, have seldom, he thinks, any place here, excepting that the antiphlogistic regimen is generally proper. Some physicians have recommended bleeding, and Sydenham even seems to think it an effectual cure; but Dr. Cullen supposes, that for the most part it is unnecessary, and in many cases might do much hurt. Dr. Russel, however, who on this subject speaks from experience and actual observation, is of a different opinion. With most of his patients, a single bleeding was employed with advantage; and even where the sick under his inspection were bled oftener than once, he did not find that the low state was thereby hurried on. Purging has also been recommended; and in some degree it may be useful in drawing off the putrescent matter frequently present in the intestines; but a large evacuation this way may certainly be hurtful.

The moderating the violence of reaction, as far as it can be done, by taking off the spasm of the extreme vessels, is a measure, in Dr. Cullen's opinion, of the utmost necessity in the cure of the plague; and the whole of the means formerly mentioned, as suited to this indication, are extremely proper. The giving an emetic, at the first approach of the disease, would probably be of great service; and it is probable, that, at some other periods of the disease, emetics might be useful, both by evacuating bile abounding in the alimentary canal, and by taking off the spasm of the extreme vessels. Indeed Baron Ash, and some other of the Russian practitioners, represent the early and repeated use of emetics as the only effectual mode of curing the disease.

From some principles with respect to fever in general, and with respect to the plague in particular, Dr. Cullen is of opinion, that after the exhibition of the first vomit, the body should be disposed to sweat; but this sweat should be raised only to a moderate degree, though it must be continued for twenty-four hours or more if the patient bears it well. The sweating is to be excited and conducted according to the rules laid down under

Synocha; and must be promoted by the plentiful use of diluents rendered more grateful by vegetable acids, or more powerful by being impregnated with some portion of neutral salts. To support the patient under the continuance of the sweat, a little weak broth, acidulated with the juice of lemons, may be given frequently, and sometimes a little wine if the heat of the body be not considerable. If sudorific medicines are judged necessary, opiates will be found most effectual and safe; but they should not be combined with aromatics, and probably may be more effectual if joined with a portion of emetics and of neutral salts. But if, notwithstanding the use of emetics and sudorifics in the beginning, the disease should still continue, the cure must turn upon the use of means for obviating debility and putrescency; and for this purpose tonic medicines, especially the Peruvian bark, and cold drinks, are the most suitable. The most proper treatment of the buboes and carbuncles which occur in this disease, is spoken of under the article Bubo, Pestilential.

PE'TALA, petals; a term in botany, signifying those fine coloured leaves that compose the flowers of all plants. Hence plants are distinguished into *monopetalous*, whose flower is in one continued petal or leaf; *tripetalous*, *pentapetalous*, and *polypetalous*, when they consist of three, five, or many flower-leaves.

PETASI'TES (πετασιτης; from πατασος, a *hat*, so named because its leaves are shaped like a hat), the butter-bur, or pestilent-wort. It is the *Tussilago petasites* Linn. The roots of this plant were formerly recommended as aperient and alexipharmic; and though now forgotten, they possess considerable activity. They have a strong smell, and a bitterish acrid taste, of the aromatic kind, but disagreeable.

PETE'CHIÆ (from the Italian *petechio*, a fleabite, because they somewhat resemble the bites of fleas), deep red or purple spots that occasionally appear in contagious diseases. See Typhus, Pestis, Scorbutus, &c.

PETECHIA'LIS FEBRIS, the spotted fever, or the *petechial* fever. It is the low or putrid fever, attended with purple spots.

PETI'OLUS, or Petiole, in botany, the footstalk of a leaf.

PETRA'PIUM (from *petra*, a rock, and *apium*, parsley; so called because it grows in stony places). See Petroselinum Macedonicum.

PETRIFACTION (from *petra*, rock, or stone, and *facio*, to make), in physiology, a name given to that spontaneous change which natural bodies undergo in the bowels of the earth, or exposed to the action of mineral springs, &c. In such cases they are vulgarly said to be turned into stone; and indeed the supposition is not an improbable one, although most writers on the subject deny that there is, in such cases, any real transmutation of the substance so converted; but only allow, that particles of stone, which before floated in the water, lodge and are precipitated in the pores of such substances, so as, in time, to leave very little besides the appearance of a stone. There is frequently seen a superficial incrustation of stony particles upon the surfaces of some bodies, as salts accidentally shoot upon and adhere to them, but in this case the substance itself remains unaltered. Cronstedt has excluded petrifactions from any place in the body of his System of Mineralogy, but takes notice of them in his appendix. He distinguishes them by the name of *Mineralia Larvata*, and defines them to be "mineral bodies in the form of animals or vegetables." The most remarkable observations concerning them, according to Mr. Kirwan, who differs in some particulars from Mongez, are as follow: 1. Those of shells are found on or near the surface of the earth; those of fish deeper; and those of wood deeper still. Shells in substances are found in vast quantities, and at considerable depths. 2. The substances most susceptible of petrifaction are those which most resist the putrefactive process; of which kind are shells, the harder kinds of wood, &c.; while the softer parts of animals, which easily putrefy, are seldom met with in a petrified state. 3. They are most commonly found in strata of marl, chalk, limestone, or clay; seldom in sandstone, still more seldom in gypsum; and never in gneiss, granite, basaltes, or schoerl. Sometimes they are found in pyrites, and ores of iron, copper, and silver; consisting almost always of that kind of earth or other mineral which surrounds them; sometimes of silex, agate, or cornelian. 4. They are found in climates where the animals themselves could not have existed. 5. Those found in slate or clay are compressed and flattened.

PETRO'LEUM, or Oleum Petræ, rock-oil, a fluid bitumen or mineral oil, exuding from the clefts of rocks, or from the earth, or found floating on the surface of waters, in different parts of Europe, and more plentifully in the warmer countries, similar, in its general properties, to the oils extracted by distillation from pit-coal, amber, and other solid bituminous bodies. The more fluid *petrolea* have been distinguished by the name of *Naphtha;* and the thicker, by those of *Pissasphaltum*, and *Pisseltum*. Their general virtues are those of stimulants, externally, in nervous complaints, and as diuretics. The college have retained the *Bitumen Petroleum* of Linnæus. The different species of petroleum now in use are the following:—1. *Petroleum flavum*, the Italian or yellow petroleum. This is of a yellow colour, less fluid than the white sort, in smell less penetrating, less agreeable, and more nearly allied to that of the *oil* of amber. 2. *Petroleum album*, white petroleum. It is nearly colourless, almost as fluid and limpid as water, of a strong penetrating smell, not disagreeable, somewhat resembling that of the rectified oil of amber. 3. *Petroleum Barbadense*, Barbadoes tar. It is of a reddish black colour, and a thick consistence, approaching to that of common tar. It is found in several of the American islands, but is chiefly obtained from Barbadoes. 4. *Petroleum vulgare*, common rock-oil, or red petroleum. This is of a blackish red colour, of a thicker consistence, and a less penetrating and a more disagreeable smell than either the white or the yellow sorts.

PETRO'SA OSSA, in anatomy, a name given to the fourth and fifth bones of the cranium, called also *ossa temporum* and *ossa squamosa;* the substance of which, as their first and last names express, is squamose and very hard.

PETROSELI'NUM (from *πετρα*, a *rock*, and *σελινον*, *parsley)*, *Petroselinum vulgare*, or *Apium hortense*, common parsley; the *Apium petroselinum* Linn. *Apium foliis caulinis linearibus, involucellis minutis.* Class, *Pentandria.* Order, *Digynia.* Both the root and seeds of this plant are directed by the London College for medicinal use. The roots have a sweetish taste, accompanied with a slight warmth, and a flavour somewhat resembling that of the carrot. The seeds taste warmer and more aromatic than any other part of the plant, and they also manifest considerable bitterness. The roots are considered aperient and diuretic, and have thence been employed in nephritic pains and obstructions of urine. The seeds are aromatic and carminative, but are seldom prescribed in the present practice.

PETROSELI'NUM MACEDO'NICUM, *Apium petræum*, or *Petrapium;* Macedonian parsley. This plant is the *Bubon Macedonicum* of Linnæus. It is similar in its effects to the common parsley, but weaker and less grateful. The seeds entered the once celebrated compounds called *mithridate* and *theriaca Andromachi.*

PETROSELI'NUM VULGA'RE. See PETROSELINUM.

PETROSI'LEX, a species of coarse flint, of a deep blue or yellowish-green colour. It is interspersed in veins through rocks; and from this circumstance derives its name.

PETRO-SALPINGO-STAPHILI'NUS. See LEVATOR PALATI.

PETU'NSE, one of the two substances whereof porcelain or china-ware is made. The petunse is a coarse kind of flint or pebble, the surface of which is not so smooth when broken as that of our common flint.

PEUCE'DANUM (*πευκεδανον*, from *πευκη*, the *pine-tree;* so called from its leaves resembling those of the pine-tree), called also *Marathrum sylvestre*, *Marathrophyllum*, *Pinastellum*, and *Hænialcum porcinum;* Hog's-fennel, Horse's-tongue, or Sulphur-wort. The plant thus called in the Pharmacopœias is the *Peucedanum officinale; foliis quinque-partitis, filiformibus, linearibus* Linn. The root is the part employed in medicine. It has a strong fetid smell, somewhat inclining to that of sulphur, and an acrid, unctuous, bitter taste. If wounded in the spring or autumn, particularly in the former season when the root is most vigorous, it yields a considerable quantity of yellow juice, which soon dries into a solid gum-resin, that retains the taste and strong smell of the root. This, as well as the root, is recommended in nervous and hysterical affections.

PEUCE'DANUM OFFICINA'LE; the systematic name of the hog's-fennel. See PEUCEDANUM.

PEUCE'DANUM SILA'US; the systematic name of the meadow-saxifrage. See SAXIFRAGA VULGARIS.

PEWTER, a factitious metal used in making domestic utensils, &c. The basis of the metal is tin; which is converted into pewter by mixing at the rate of an hundred weight of tin with 15 pounds of lead and six pounds of copper. Besides this composition, which makes the strongest pewter, there are other kinds, compounded of tin, regulus of antimony, bismuth, and copper, in several proportions. But the common pewter is that in which lead is in very large proportion, and therefore the use of this compound metal for plates, dishes, drinking pots, &c. is of course dangerous, the lead being extremely easy of solution not only in the weak acids, but also in the animal fats almost constantly brought into contact with them in our food.

PEYER'S GLANDS, *glandulæ Peyerianæ*, certain glands of the intestines. See BRUNNER'S GLANDS.

PEYRONE (Francis de la), for a long time practised surgery at Paris with such distinguished eclat, that he obtained for himself the appointment of first-surgeon to Louis XV. He procured to his profession those honours which had the effect to quicken its progress, and those establishments which contributed to extend its benefits. The Royal College of Surgery at Paris was founded by his means in 1731, and encouraged by his munificence. At his death, which happened at Versailles the 24th of April, 1747, he bequeathed to the society of surgeons in Paris, two-thirds of his effects, his estate of Marigni, which was sold to the king for 200,000 livres, and his library. He also left to the society of surgeons at Montpellier two houses situated in that town, with 100,000 livres for the purpose of erecting there a chirurgical amphitheatre. He appointed the same society universal legatee for the third of his effects; and all these legacies contain clauses, whose sole object is to promote the public good, and the perfection and improvement of surgery.

PEZI'ZA AURI'CULA; the systematic name of the elder fungus. See AURICULA JUDÆ.

PHAGEDÆ'NA (*φαγεδαινα*, from *παγω*, to *eat)*, an equivocal term, sometimes taken in a latitudinous sense, for every ulcer which *eats away* the sound parts which are contiguous, and then called *ulcus depascens.* Some use it more limitedly, for a deep tumid ulcer which destroys the flesh underneath, as well as the neighbouring parts. Sometimes it is described as only destroying the skin; and, at others, it signifies a particular species of ulcer, called *herpes exedens.* See HERPES.

In his treatise on morbid poisons, two distinct species of phagedæna have been described by Dr. Adams: one denominated " a sloughing with ulceration, and each in succession;" the other, ulceration, kept up by the irritation of the secreted pus. The first of these is the kind of ulceration known to occur in hospitals, to patients in a state of debility, on whom extensive operations have been performed. The constitution being predisposed, and the morbid poison floating in the atmosphere getting access to their wounds, a most formidable phagedænic ulceration, of the species we are now describing, arises, difficult to conquer, and frequently rendering necessary a repetition of the operation.

Phagedænic ulcerations upon the penis are ranked by Celsus among the cancers. Thus, in his section, " *Concerning the cure of a cancer in the penis*," and that immediately following, " *Of the cure of the phagedænic ulcer in the penis*," he says:—" In what we have hitherto described, there is still no gangrene; to which, as in the other parts, so more especially here, ulcers are liable. It begins with *a blackness.* If this seizes the prepuce, a probe must be immediately put under it, and an incision made; then the extremities are to be laid hold of with a vulsella, and whatever is corrupted must be cut away, and even some of the sound part taken off, and the place cauterized. Whenever any part is burned, the next step is to apply lentils; afterwards, when the sloughs have cast off, the cure is the same with that of common ulcers. But if a gangrene has seized the penis itself, some of the escharotic medicines must be sprinkled upon it, chiefly that which is composed of lime, chalcites, and orpiment. If medicines fail of success, here also whatever is corrupted is to be cut out with a knife, in such a manner as that some of the sound part be taken with it. This rule is as universal as the former, when a gangrened part is cut away, that the wound must be cauterized."

The same writer describes "a certain *blackness, which gives no pain, but spreads*, and, if we do not resist it, makes its way to the bladder, and cannot be cured afterwards. But if it be at the end of the glans, near the urinary pipe, a small probe should be introduced into that first, to prevent its closing; and then the actual cautery must be applied to the ulcer. But if it has penetrated deep, whatever is tainted must be cut off. For the rest, it must have the same treatment with other gangrenes."

According to Wiseman—"*Phagedæna*, strictly so called, is an ulcer with *swelled lips*, that eats the flesh and neighbouring parts in the bottom and edges of the ulcer. It differs from the *herpes*, because that *always begins in the skin*, with little moisture: *this* always affects the *flesh*, and abounds with matter."

The distinction of phagedæna into two distinct species is clearly ascertained by Dr. Adams; who, remarking on Celsus, and on the general opinions of that accurate writer, says, "What I particularly wish to remark here is his description and division of phagedæna into *two species*. The first is the common phagedæna, for which he advises the actual cautery. The other he describes as beginning with a *blackness*, or slough, and, if not prevented, spreading to the bladder, in which stage no assistance can be given." The first species is by no means uncommon. Wiseman's cases are in point, as well as the instance related by Dr. Donald Monro, in the London Medical Transactions, but particularly the latter.

In the phagedæna producing black sloughs, there can be no doubt but the bark, and, in most cases, opium should be resorted to; the former especially, in large and repeated doses, so that the constitution may be invigorated as quickly as possible, and enabled to resist the progress of the ulceration before it becomes so extensive as to destroy the patient. The internal exhibition of musk with volatile ammonia, as is the practice in some mortifications, may also prove essentially useful. In all endeavours of this kind, the state of the pulse will afford a sufficient criterion: for the disease is, in fact, a species of mortification, differing chiefly from a common sphacelus in its disposition to affect parts not previously inflamed, and spreading rather superficially than to a great depth. In the local treatment, antiseptic applications, such as the fermenting poultice, are of use; and so is a mixture of equal parts of Venice turpentine and the old compound tincture of myrrh, applied upon lint. Instances have occurred, in which a solution of opium, in the proportion of a drachm to a pint of water, has been of singular service. In the phagedæna attended "with rottenness and putrefaction," by which is evidently meant that species which we are now considering, Wiseman's instructions are, in some respects at least, worth our remembering, however their severity may deter us from adopting them. These, as we have already remarked, relate to the application of *detergents*, as ung. Ægyptiac. hydrarg. nitrat. rub. &c. also *caustic*, and actual cautery.

If the experience of that writer afforded any sanction to the use of such means, especially of the latter, it is to be supposed, the good effected by them must have arisen from the new action brought on being sufficient to counteract the diseased action, and thus to arrest the progress of the disease; and, indeed, where the consequences are of so threatening a nature, there seems no reason why modern practitioners should hesitate even to resort to caustic and actual cautery.

Of the other species of phagedæna, the treatment is endless, in so far as even the most approved of our remedies barely escape the imputation of inefficacy. "As long as the constitution retains its susceptibility, and the pus the property of the poison," says Dr. Adams, "the irritating cause will be constantly present, and ulceration or absorption, with purulent discharge, will continue without interruption, and with such rapidity often, as to prevent the formation of the adhesive lamina, or to absorb it as fast as it is formed." The doctor thinks, that, in these cases, mercury has been much too generally approved, and promiscuously employed, and that an injudicious perseverance in the use of it has, especially in the *crude state* of a wound, in very many instances *produced phagedæna*.

On this subject, Dr. Adams concludes: 1. "That mercury is a remedy we are justified in trying in all cases of ulceration that resist common topical applications, and restorative remedies, particularly if unattended with slough. 2. That where ulceration is *unattended with a callous edge and base*, mercury should be exhibited with greater caution, and the *mercurial salts*, for the most part, preferred. 3. That the *secondary ulcers* of some morbid poisons yield to less mercury than their *primary* ones. 4. That, in some instances, where mercury has been freely exhibited before the appearance of secondary ulcers, it has not prevented them. Yet, in these same cases, when secondary ulcers have appeared, they have yielded to a much slighter mercurial irritation than was ineffectually raised to prevent them. 5. That blotches, or ulcers, which appear after the cure of secondary ulcers, seem, in the manner in which they yield to mercury, to bear the same analogy to secondary ulcers, as secondary ones do to primary. 6. And lastly, that if a primary ulcer, whether of the sloughing or true phagedæna, should, at first, refuse to yield to mercury, we may be justifiable in attempting it a second time, with great caution, either when we conceive the disease kept up by habit, or so far familiarised to the constitution, that the novelty of the mercurial stimulus may be sufficient to excite a new action, however temporary."

PHAGEDÆNICS, sharp applications that destroy fungous flesh.

PHA'LANX (from φαλαγξ, a *battalion)*; the small bones of the fingers and toes, which are distinguished into the first, second, and third phalanx.

PHA'LARIS CANARIENSIS (φαλαρις; from φαλος, *white*, *shining*, so named from its white shining seed, and *canariensis*, from its being the principal food of the canary-birds), the canary-grass. The seeds are the common food of canary-birds. In the Canary islands the inhabitants grind it into meal, and make a coarse sort of bread with it, which is very wholesome and nutritious.

PHA'LLUS ESCULE'NTUS; the systematic name of the morel fungus. See Morel.

PHA'RMACY (φαρμακεια, from φαρμακον, a *medicine*, or *drug)*; the art of preparing, preserving, and compounding, substances, for the purposes of medicine. This art has been heretofore commonly divided into two branches, namely, *Galenical* and *Chemical*. But for this division there is no foundation in nature; and accordingly processes in one Pharmacopœia referred to the head of Chemical, are in another referred to the head of Galenical. There can be no doubt, that even the most simple pharmaceutical preparations are to a certain extent chemical; and hence this division, founded on prejudice, and supported merely by a veneration for antiquity, is now banished from almost every modern Pharmacopœia.

Pharmacy has also been divided into *theoretical* and *practical*; the first, consisting not merely of speculative opinions, but of a knowledge of facts and principles, tending to explain the *rationale* of processes; the latter, comprehending the mere manual labour employed in processes. The former of these may therefore be justly styled *Scientific Pharmacy*; and there can be no doubt, that an acquaintance with it is essentially necessary to the physician as well as the apothecary: for without it he must often err in the forms of preparations and compositions which he employs; and must be often deceived in the effects resulting from compositions, when he infers their properties from the known powers of the ingredients in their separate state.

The theory of pharmacy, therefore, is the same with that of chemistry; as are also the operations, which belong to this head of enquiry, only in so far as they are made subservient to the medicinal art, distinct from that which is purely chemical. The objects of pharmacy, indeed, are much more limited than those of chemistry; the latter comprehending, in the utmost latitude of the word, almost every substance in nature; while pharmacy regards only such bodies in the vegetable, animal, and mineral kingdoms, as, by their effects on the human frame, tend to preserve health, or to restore it when lost.

To the general head of *Pharmaceutical operations*, belong: 1. The collection and preservation of vegetable substances, or, as they have been more quaintly named, *simples*. 2. The determination of the weight and bulk of medicinal substances, their mechanical division, selection of parts, and subsequent intermixture; which involve the processes of pulverisation, trituration, filtration, &c. explained under their proper heads. 3. The apparatus; which differs in nothing but in its limited extent, from that detailed under Chemistry. The application of this involves the processes of distillation, evaporation, crystallisation, exsiccation, &c. To the officinal part of pharmacy indeed belongs an apparatus, more peculiarly its own, and of which some delineations are given in pl. XI.

Fig. 1. 2. 3. are mortars of metal, marble, and earthen ware, with their respective pestles. Fig. 4. A levigating stone and muller, both consisting of polished porphyry or other siliceous stone. Fig. 5. A compound sieve. *a*. The lid. *c*. The body containing the sieve. *b*. The receiver. Fig. 6. A funnel. Fig. 7. A hooked glass rod. Several of these rods may be hung round the edge of a funnel, to prevent the filtering substances from adhering too closely to its sides. Fig. 8. A compound syphon. *a*. *b*. *c*. The tube. *f*. *g*. The mouthpiece for setting the liquor in motion. *d*. A vessel to receive the fluid. *e*. A board for supporting the syphon. Fig. 9. A board perforated with holes for supporting funnels. Fig. 10. A separatory. The fluids to be separated are introduced through the orifice A, which is then closed with a stopper. The one neck is then to be shut with the finger, and the phial is to be inclined to the other side. As soon as the fluids have separated by means of their specific gravity, the finger is to be removed, and the whole of the heavier fluid will run through the lower neck, before any of the lighter escapes. Fig. 11. and 12. Glass graduated measures; the cylindrical one for large, and the conical one for small, quantities. Fig. 13. 14. 15. 16. Evaporating vessels of different shapes. Fig. 17. A metallic still. *c*. *d*. *e*. *f*. The body. *a*. *b*. *e*. *f*. The lower portion of the body, which hangs within the aperture *d*, of the furnace, by the projecting part *a*. *b*. *d*. *g*. *c*. The head of the still. *d*. *c*. A gutter which goes round the bottom of the head, for conveying any vapours which may be condensed there, into the spout *h*, which conveys away the vapour and the fluid condensed in the head into the refrigeratory. Fig. 18. A refrigeratory, or worm-tub, which is filled with cold water. *e*. *f*. A spiral metallic pipe which passes through it. The spout *h*, of the still is inserted within the upper orifice *e*; therefore the vapours which escape from the head of the still enter it, and are condensed in their passage towards *f*, the lower termination of the pipe from which the distilled fluid runs, and is received into proper vessels. Fig. 19. A vessel for boiling inflammable fluids, lately invented. *a*. *b*. *c*. *d*. The body of the vessel. *d*. *e*. *f*. A long spout proceeding from it, calculated for preventing any risk of boiling over. *g*. A short spout for pouring out. The vessel should not be filled above *h*. *f*. and the long spout *d*. *e*. *f*. should be placed so as to be as little heated as possible. When the fluid begins to swell and boil up, both from the great increase of surface, and from part of it running up the cooler spout *d*. *e*. *f*. the ebullition will be checked, and all danger of running over be prevented. Fig. 20. Is a vessel of tinned or cast iron, for boiling decoctions.

Some substances can be employed for the purposes of medicine in the state in which they are presented to us by nature. But considering the great number of medicines which are in use, this may be said to be the case with a few only. By much the greatest part of them must undergo some preparation at least, before they can be conveniently exhibited in the cure of diseases.

A great variety of preparations may be formed by the addition of fluid matters. In different medicines there are many active matters capable of being dissolved. Each of these active matters may be dissolved by different menstrua. Besides this, the medicines formed by any menstruum will be much diversified by the method in which it has been applied. The active parts of drugs that are principally capable of being dissolved are, the saline, mucilaginous, oily, balsamic, and resinous. The menstrua chiefly employed are, water, spirit, wine, and vinegar. From these, by different methods of application, are formed infusions, decoctions, tinctures, and many other forms of medicine. The number of preparations, then, is a sufficient ground for concluding that the directions falling under this head must be numerous. See DECOCTION, TINCTURE, &c. The efficacy of all medicines obtained by the application of fluid matters, will greatly depend upon the menstrua being properly adapted to the ingredients from which active powers are to be extracted. Thus, water is best fitted for dissolving saline and mucilaginous matters. Spirit, on the other hand, is the proper menstruum for oily, balsamic, and resinous substances. Wine and vinegar in some degree combine the solvent powers of the two other menstrua. They are often preferable to water, as covering nauseous tastes, heightening the colour, and giving a stronger impregnation; and to spirit, as not being so highly stimulant. Hence we see the necessity for determining the choice of the menstruum, by means of which any of these liquid preparations are to be formed.

The medicines which are intended for external use are numerous, admit of considerable variety, and the rules applicable to the different forms intended for internal use will not apply to them. They consist of fomentations, ointments, lotions, plasters, and many others, which are noticed under their several names.

Besides the preparation of medicines, pharmacy includes also their composition, which indeed may be pointed out as one grand branch of the art. The advantages aimed at in this are no less obvious than those which may be derived from preparation. Medicines, by being united, often entirely change their nature, and acquire active powers which none of them before possessed. Many active substances, which are of such a nature that they could not without imminent danger be exhibited by themselves, will, from a very slight addition, become safe and efficacious medicines. Where substances employed as medicines possess a very high degree of activity, they must often be used in doses so very small, that if they were to be taken entirely by themselves, they could neither be conveniently exhibited, nor accurately divided. But, from a variety of additions, which will have no tendency either to alter or impair their virtues, these inconveniences may with the greatest facility be obviated. It is then sufficiently evident, that the combining together substances employed for medical purposes, is productive of advantages. However, it is by no means to be imagined, that composition will in every case be attended with good consequences. From the same principles on which it is sometimes of service, it will in other cases have a manifestly bad effect. That good effects may be obtained from medicines, it is on some occasions necessary that they should be employed in a very concentrated form. In such a state every addition will have a manifest tendency to weaken their power. Besides this, even the most active medicines will often, by a very slight and trifling addition, be rendered totally inert. And further, it is by no means uncommon to find two medicines which will readily unite together, and, when united, will form a very useful composition; but, upon the addition of a third, which would even have readily joined with either taken separately, the former union will not only be destroyed, but the purposes of composition entirely frustrated. It is not therefore to be imagined, that in order to obtain a safe and efficacious medicine, nothing further is requisite than to jumble together a number of active ingredients. In order to obtain the advantages which may be derived from composition, without being exposed to the inconveniences which it may occasion, many circumstances must be attended to. The rules to be observed in composition will entirely respect two particulars, the possibility of combination and the advantages to be derived from it. Combination may often appear proper when, from the chemical qualities of the substances, it cannot be effected; and here we see the indispensable necessity which every medical man is under of acquiring a perfect knowledge of chemistry. It may often, on the other hand, be effected with the utmost facility, when it would be quite useless. Hence, either in examining or contriving any new composition, both particulars claim attention.

The possibility of combination, and the effects of mixture, can be determined only from an acquaintance with the chemical affinities of bodies. By means of mechanical mixture indeed, a momentary union may, perhaps, in some cases be effected; but in many others, particularly if the bodies thus united be in a fluid state, it will only be momentary. The advantages of composition, however, cannot be expected without a union in some degree permanent, and this is only to be obtained when the matters mixed together are capable of being united without any decomposition, in a state of proper solution.

The adaptation of pharmaceutical remedies to different states of disease, belongs to the head of PRESCRIPTION. The various articles introduced into any composition must be intended with one of three views, either to co-operate, to correct, or to give a proper form to the intended remedy. By prosecuting these different enquiries in the best and most authentic Pharmacopœias of the present day, we can alone expect to attain to that elegance in prescription, which will unite agreeable simplicity with safety, convenience, and efficacy.

It will be a useless repetition to extend this article to the minutiæ of pharmacy, which more naturally fall under the several heads to which they belong in the alphabetical arrangement.

PHARMACOPŒ'IA (from φαρμακον, a *medicine*, and ποιεω, to *make)*, a dispensatory, or book of directions for the composition of medicines approved of by medical practitioners, or published by authority. About the middle or the latter end of the fifteenth century, Nicolaus Præpositus of Tours wrote a *General Dispensatory*, which was the first that appeared in Europe. The compositions in it were principally taken from the works of Meluc, and from Nicolaus de Salerno. The first *Pharmacopœia* which was published by authority was that of Valerius Cordus, under the sanction of the senate of Norimberg, anno 1524.

The ancient practice of naming medicines from their inventors, or supposed virtues, has been long exploded; yet it has been customary to describe both simple substances and their preparations or compositions by what are generally termed officinal names, in contradistinction to the present systematic names of the same substances. But their officinal names are in fact the old systematic names, which were unaccountably retained for the denomination of medicinal substances, after the improvements in natural history and chemistry rendered the introduction of a new nomenclature into these sciences necessary.

Attempts have been made, both in this country and in Germany, to introduce the language of chemistry into pharmacy; but these, however useful, were but feeble and incomplete. The task has been partially effected, in the Pharmacopœias of the Colleges of London and Dublin; but, as Dr. A. Duncan justly observes, the honour of being the first to compose a Pharmacopœia in the pure and unmixed language of science, belongs indisputably to the Royal College of Physicians of Edinburgh. It is extremely probable, that to this innovation many objections may be made; but it is also probable that these will rather apply to the necessary imperfections of a first attempt, than to the principle itself, the propriety of which can scarcely be doubted, when we consider, that materia medica and pharmacy are but an application of natural history and chemistry to a particular purpose. If the general principle be admitted, it naturally follows, that the names of all substances employed in medicine, should be the same with the names of the same substances, according to the most approved systems of natural history and chemistry, and that the titles of compound bodies should express as accurately as possible the nature of their composition.

Considerable difficulties, however, occur, in attempting to form a nomenclature in strict conformity with these principles, the most apparent of which are set forth by the author last mentioned, to whom the medical world are indebted for a Pharmacopœia the most truly scientific and complete in all its parts of any hitherto extant, under the title of "*The Edinburgh New Dispensatory.*"

PHA'RYNX (φαρυγξ; απο τȣ φερειν, because it conveys the food into the stomach); a muscular and glandular bag; the outer surface of which is closely joined to the inner surface of all that space which is at the bottom of the mouth, behind the posterior nares, uvula, and larynx, and which reaches from the cuneiform process of the os occipitis all the way to the œsophagus. It is a continuation of the pharynx. This space is bounded posteriorly by the muscles which cover the bodies of the first vertebræ of the neck, and laterally by the superior portions of both the internal jugular veins and of both the internal and carotid arteries, by the spinal apophyses of the os sphenoides, by the extremities of the apophyses petrosæ, by the os sphenoides immediately above the internal alæ of the apophyses pterygoides, and by the neighbouring portion of both pterygoid muscles.

From these limits and adhesions of the pharynx we may nearly determine its figure. It may be compared to the wide part of a covered funnel, of which the œsophagus is the narrow part or tube; or it may be called the *broad end of the œsophagus*, that and the pharynx, taken together, being compared to a trumpet. The pharynx may be divided into three parts: one superior, which is the arch of the pharynx; one middle, which is the body or great cavity; and one inferior, which is the bottom, narrower portion, or sphincter. We are likewise to observe in it three openings; that of the arch, toward the nares; that of the body, toward the mouth; and that of the bottom, toward the œsophagus.

The arch is the broadest part of the pharynx; and ends on each side in an angle or point, toward the jugular fossulæ of the basis cranii. Afterwards the great cavity contracts a little toward the sides, all its other dimensions continuing the same; and behind the larynx it is again enlarged on each side, a very small space being left between it and the cricoid cartilage. The extremity of the lower portion is very narrow, and joins the basis of the cartilage just named.

The pharynx consists partly of several distinct fleshy portions, which are looked upon as so many different muscles so disposed as to form a large cavity; and partly of a membrane which lines the inner surface of this whole cavity, and is a continuation of that of the nares and palate.

This membrane is wholly glandular; and it is thicker on the superior and middle portions of the pharynx than on the bottom or lower portion. Immediately above the first vertebra, it forms several longitudinal rugæ very thick, deep, and short; and we generally find therein a collection of mucus in dead bodies. In the great cavity there are no rugæ, the membrane adhering, both there and in the upper part, very closely to the muscles. At the lower part, where it is thinnest, it covers likewise the posterior part of the larynx; and is very loose, and formed into irregular folds. It runs in a little on each side between the edges of the pharynx.

Though almost all the muscular or fleshy portions of which the pharynx is composed, concur in the formation of one continued bag or receptacle, they are nevertheless very distinguishable from each other, not only by their different insertions, from which they have been denominated, but also by the different directions of their fibres. They may be looked upon as three digastric muscles; the middle tendons of which lie backward in one longitudinal line, which in some subjects appears plainly, like a linea alba.

The lowest of the muscular fibres make a complete circle backward between the two sides of the basis of the cartilago cricoides. This circle is the beginning of the œsophagus, and has been thought by some to form a distinct muscle, called *œsophagus*. Besides the muscles which form the body of the pharynx, there are several other small ones connected with it; but of these sufficient descriptions have been given under their proper names.

The particular uses of these muscles are very difficult to be determined. It is certain that those of the middle and lower portions of the pharynx serve chiefly for deglutition. Those of the upper portion, and some of those of the middle portion, may, among other functions, be useful in modifying the voice, agreeably to the opinion of Santorini and others.

PHASE'OLUS VULGA'RIS (*φασηολος*, from *φασηλος*, a *little ship* or *galliot*, which its pods were supposed to resemble); the systematic name of the kidney-bean. See Bean, kidney.

PHELLA'NDRIUM AQUA'TICUM (*φελλανδριον*, from *φελλος*, the *cork-tree*, and *ανδριος*, *male)*, so called because it floats upon the water like cork; the systematic name of the water-fennel. See Fœniculum aquaticum.

PHIMO'SIS (*φιμοσις*, from *φιμοω*, to *bind up)*, a thickened state of the prepuce, by which it is confined before the glans, so that it cannot be drawn behind it. In some people there is a constitutional phimosis from the natural straitness of the prepuce. Sometimes it arises from the matter secreted by the odoriferous glands, at the root of the glans, becoming acrid; sometimes from an anasarcous swelling of the scrotum and penis; but most frequently from the irritation of venereal virus.

The cure must depend upon the nature of the cause producing the disease. If the symptoms be inflammatory and of no long continuance, fomenting the parts frequently with warm emollient decoctions, or bathing them in warm milk, and then applying emollient poultices, or keeping the diseased parts constantly moist with a cold astringent solution, and turning the penis upwards and supporting it against the belly, commonly give relief. If the inflammation has arisen from a venereal cause, part of the fluid ought frequently to be injected, by means of a syringe, between the prepuce and glans, so as to wash off any matter which may there be concealed; but if the inflammation still continues to increase, blood-letting is necessary, both general and local. The veins of the penis are sometimes advised to be opened with a lancet; but this is unsafe on account of the nerves. Leeches may be applied; but care must be taken, in venereal cases, lest the bites of these animals, by absorbing venereal matter, turn into chancres. Along with the remedies already advised, gentle laxatives, low diet, and abstinence, ought to be prescribed. But if, after a due perseverance in these means, it is found that they have had little effect in removing the disorder, or perhaps that the symptoms are constantly increasing, and that chancres are confined under the prepuce; in that case it is necessary to *slit open the prepuce*, which is best done by a sharp-pointed bistoury, concealed in a grooved directory. This is to be introduced between the prepuce and glans till the director is found by the finger to have reached the upper or back part of the prepuce. The operator is now to keep the director firm with one hand, while with the other he pushes forward the knife, till its point passes through the prepuce; then drawing the instrument towards him, he cuts the prepuce through its whole length.

The operation being performed, the parts are to be washed and cleaned with warm water, and the sore dressed with a little soft lint, and a compress of linen laid over it. The whole may be retained by a small bag properly adapted, and secured by two straps to a bandage put round the body. This bag may be left open at the under end, to allow the patient to make water, without removing the dressings; but if this be found impracticable, the dressings may be removed with little inconvenience. If the glans be much inflamed and excoriated, care should be taken to insert lint spread with emollient ointment between the glans and prepuce, otherwise troublesome adhesions are apt to ensue. It is evident, that when this disease is of the venereal kind, the sore will not readily heal till the poison be eradicated from the constitution.

In some cases of phimosis the preputium is so remarkably long, and the contraction so much confined to the point, that a circular incision is preferable to a longitudinal one; and it is easily effected, by separating such a portion as may be found necessary, of the whole circumference of the prepuce. The wound ought to be allowed to bleed freely; after which a pledget spread with simple ointment is to be applied, and an emollient poultice laid over the whole.

PHLEBO'TOMY (*φλεϐοτομια*, from *φλεψ*, a *vein*, and *τεμνω*, to *cut)*; the opening of a vein. See Bleeding.

PHLEGM (*φλεγμα*, from *φλεγω*, to *burn* or to *excite)*, a term which, in the old chemistry, means only water; but, in the common acceptation of the word, it denotes a thick and tenacious mucus secreted in the lungs and brought up by coughing.

PHLEGMA'SIA (*φλεγμασια*, from *φλεγω*, to *burn)*; an inflammation.

PHLEGMA'SIA DO'LENS, a disease noticed by some of the French writers, under the name of *L'enflure des jambes et des cuisses de la femme accouchée;* whilst others have called it *dépôt du lait*, from its supposed cause. By the Germans it is also called the *œdema lacteum*, under the latter interpretation.

Dr. Denman says, this puerperal swelling of the inferior extremities does not seem to depend upon the kind of labour the patient may have had, or on any evident peculiarity of the constitution, or on rank in life, as the rich and poor are alike subject to it; or on any mode of treatment in the state of childbed. Nor does any appearance during pregnancy denote a disposition to it, the swelling of the inferior extremities at that time being a totally different complaint; but the whole disease seems to arise from some circumstance that occurs after the delivery of the patient. It is also remarkable, that it has happened to those who had an abundance, as those who had a scarcity, of milk; or those who did, or those who did not, give suck; and sometimes, though rarely, in abortions, when no milk was secreted, which seems at once to cut short the opinion of a *dépôt du lait*.

Before the appearance of any swelling, or of pain in the limb, women become very irritable, and grievously depressed in their spirits, without any apparently sufficient reason, complaining only of transient pains in the region of the uterus, and from these only the approach of the disease has frequently been foretold. After a short time they are seized, often very suddenly, with an extremely acute pain in the calf of the leg, extending to the inside of the heel, and then, observing the course of the lymphatics, stretching up to the ham, along the internal part of the thigh to the groin, occasioning a slight soreness over the lower part of the abdomen. Then also the inguinal glands are affected; sometimes the external, which are perceptibly enlarged, indurated, and painful, and sometimes the internal, or both, and probably also, judging from the symptoms, those which lie at the bifurcation of the vessels at the loins. Except that the limb is not discoloured, nor the lymphatics inflamed, and marking their course by a redness of the skin, the first effects very much resemble those of the absorption of poisonous matter from the lower part of the limb. The whole surface becomes insufferably tender to the touch, especially where the glands are seated; yet without any other apparent change, except that the skin is glossy and of a deadly paleness; and a certain degree of chlorotic paleness is spread over the whole body, every vein seeming to be scantily supplied with blood. When the pain has continued about twenty-four hours, the limb swells, and the pain is usually abated in proportion to its increase; but, from the moment of the attack, all power of acting with the limb is lost, every attempt to move it giving great torture, and a disposition to faint. There are, however, many varieties in the manner of attack, but the glands and lymphatics are the parts first affected. In some cases the access of the disease is slower, and the symptoms less violent; and in these the pain is not only less severe, but diffused over the limb, instead of being fixed on particular parts, and the swelling scarcely to be observed.

This disease happens at no precise time after delivery. Dr. Denman has observed it to come on at various periods, from the fifth or sixth day to the third or even fourth week, but most commonly between the fifth and twelfth day. Whenever it does happen, the whole constitution is speedily and greatly affected by it. The pulse is extremely quick, and generally feeble; the heat of the body is much increased, the tongue is white and clammy, and the countenance pale and dejected; the urine, which is voided in small quantities, is thick and of a muddy colour; which symptom gradually lessens as the disease abates. The patient is costive; the fæces being of a pale colour and clayey consistence: and the uterine discharges, whatever their quantity, have an offensive smell and unnatural appearance. These last, however, do not always continue through the course of the disease, but, on enquiry, will be found to have existed at, or some days before, its attack.

Either or both the legs may be affected, together or successively. When the latter happens, the disease having remained for a certain time in one leg, and the symptoms being abated, the other has been suddenly and unexpectedly seized. Then the symptoms may recur with equal violence, and go through a similar course. But this is not by a translation of the disease from one limb to the other; the leg first affected remaining in the same state, and observing the same progress, as before the affection of the second. When only one leg is affected, there are, in some cases, occasional exacerbations of the disease, after apparently considerable amendment; and these may render it necessary to change the order of treatment, or even to return to that which was proper at the commencement.

After eight or ten days' continuance, according to its lenity or violence, the more urgent symptoms abate, though in many cases very slowly; the debility and oppression sometimes remaining for several weeks, as the constitution is more or less vigorous. Though all the other symptoms be removed, the swelling may, and generally does, remain for many weeks, or even months; and, in some very bad cases, the limb has never been reduced to its primitive size, or recovered its wonted powers.

The constitution seems to be very much disturbed and enfeebled at the beginning of the disease, and unequal to the due performance of its common functions, yet after a certain time it seems to become local; for the patients recover their health, and often menstruate regularly; but even this change has seldom afforded the expected relief to the affected limb.

Though this disease is not usually dangerous, Dr. Denman says it often creates much alarm to the patient and her friends, and always occasions much suffering. He attributes this disease to the *absorption of vitiated matter from the uterus*, which causes the swelling of the inguinal glands. If this absorbed matter had not been interrupted by the gland, and thus prevented from spreading over the whole body, he thinks this disease would have been infinitely more dangerous than it is; and his opinion is certainly strengthened, not only by the common consequences of acknowledged poisons when absorbed, but by many similar complaints frequently met with in practice; as in the swelling of the inferior extremities of men, when the prostate gland is affected; in one or both legs, when the uterus is diseased; in the arm, when the axillary glands are enlarged; and in many other cases. But the changes in the uterine discharges which precede this disease are not, it is apprehended, like the changes produced by the retention of coagula, or of small portions of the placenta or membranes, but they are consequent to an unhealthy state or morbid action of the uterus.

Having formed this opinion of the cause of this phlegmasia, and reasoning by analogy of its effects, in the method of treatment, without at all aiming to cure it in the first instance, Dr. Denman takes the symptoms for his guide, and endeavours to relieve these by all the means in his power. As the sense of extreme weakness and excessive irritability are the most prominent and distressing, the patient is to be well supported by cordial medicines, and by a liberal use of wine; not restraining her to any precise quantity, but leaving her at liberty to judge what that shall be, by the degree of depression which she feels. Opiates are also to be given, to abate and soothe the general irritability of the habit, and, together with these, such medicines as promote the secretion by the skin and kidneys. For these purposes he usually prescribes the following:

℞ Aq. ammon. acetat. ℥ss.
Syr. papaver. alb.
Spir. nuc. mos. ā ʒii.
Aq. menth. sativ.
Aq. puræ, ā ℥ss.
M. f. haustus quarta vel sexta quaque hora sumendus.

If this fail to procure ease, a few drops of tinct. opii may be added, especially to the draught taken at bedtime, and the quantity of aq. ammon. acetat. may be increased, or pure ammonia may be given in some cases of great depression.

To the swelled limb he applies some camphorated liniment; or some of the expressed oil of mace, softened down to a proper consistence with a sufficient quantity of oil; and to either of these may be added from five to ten grains of powdered opium. By such means relief is usually obtained, though not much permanent benefit; and Dr. Denman thinks these preferable either to spirituous or to hot fomentations, which, without producing more advantage, are apt to bring on profuse sweating and faintness.

The doctor doubts the propriety of resorting, in this stage of the disease, to local bleeding with leeches, and blisters to the enlarged glands, as the most effectual means of speedily curing the disease by removing the glandular obstruction. If his opinion of the cause of the disease be just, the hasty dispersion of the swelling of the glands, if it could be effected, would ultimately prove a very great disadvantage, by allowing the absorbed virus to escape; and this pervading the whole body, a disease primarily local would become a general one of the most dangerous kind.

The great tumult raised on the first attack of the disease being appeased, the quantity of wine and opiates may be lessened, or exhibited less frequently; but in this we are to be guided by the degree of debility and irritation that remains.

When the health is somewhat restored, the swelling of the leg is rather to be considered as chronic, and all reasonable endeavours may be used to disperse it. It is necessary then to support the swelled limb by a slight flannel bandage drawn gradually tighter, and to use different stimulating applications, and sometimes small quantities of the unguentum hydrargyri; whilst calomel, cicuta, decoctions of sarsaparilla, or the preparations of iron, are exhibited internally.

PHLEGMA'SIÆ; inflammations. These constitute the second order in the class *pyrexiæ* of Cullen's nosological arrangement. They are characterised by pyrexia, with topical pain and inflammation; the blood after venesection exhibiting a buffy coat. See INFLAMMATION.

PHLE'GMON (φλὲγμονη, from φλεγω, to *burn*); an inflammation of a bright red colour, with a throbbing and pointed tumour tending to suppuration. It is a species of the *phlogosis* of Cullen. See INFLAMMATION.

PHLOGISTIC SYSTEM. The first person who adopted a separate principle of inflammability, by which he attempted to explain, not only the action of fire, and the combustion of bodies, but many of the most remarkable phenomena in chemistry, was Becher. This philosopher considered it as an element, and, like his two others, of the nature of earth; for which reason he termed it his second or inflammable earth. At length Stahl determined this notion of the inflammable principle more accurately, and gave it the name of *phlogiston*. But he differed from Becher, with respect to the nature of this substance, which he asserted to be a sulphureous principle. It exists, he says, in all the bodies of the three kingdoms, in a greater or less proportion; water, simple earths, and salts, excepted.

According to Stahl, it is phlogiston alone that constitutes the combustible part in inflammable bodies, "*est solum ad ignis motum accommodatum, creatum et aptum: est ignis corporens, vel ipsa præcise propria materies ignis.*" Phlogiston nevertheless does not itself, without being combined with other bodies, form fire, "*sed avolat et dissipatur in tenuitate insensibili, sive facit dum taxat ignem valde expansum et inconspicuum, scilicet calorem;*" but, also, this volatilisation and dissipation cannot take place without the access of other matter, especially water and air. After phlogiston has combined in a greater or less proportion with the other natural bodies, it changes their external, and, chiefly, their chemical, properties. Its action is most conspicuous upon metals, sulphur, colours, and odoriferous matters.

But no sooner was chemistry enriched with new facts, than it was found that Stahl's theory of phlogiston could not explain every phenomenon. Chemists, therefore, endeavoured to render it more definite, and, at the same time, more general in its application. But in these definitions there exists the utmost disagreement; and almost every author of that period differs on this subject. We might here state the leading opinions of these theorists, but as the system itself may be considered as having undergone an utter subversion, and its only powerful champion, the great and eminent Dr. Priestley, has paid the debt of nature, such a task would be worse than superfluous. Suffice it then to say, that the adherents to the phlogistic system, endeavoured to account for most of the known phenomena in chemistry on the foregoing principles, and to this their loose and indefinite theory certainly afforded great facility. But the futility of most of these explanations is manifest, as soon as we insist upon a strict conformity with the established principles of the mutual action of bodies upon each other, and demand an exact account of the weight and measure of the bodies made use of in experiments. There are many things in nature which we cannot explain, and which will always remain obscure. It is therefore unreasonable to reject a system because it is unable to remove the veil which hides the cause of many appearances. The antiphlogistians do not indeed arrogate to themselves this merit; but their system deserves the preference which is granted to it by almost all the naturalists of the present age, since it explains most of the phenomena explicitly, uniformly, and with the minutest circumstances, appears more conformable to the simple path of nature, and draws all inferences from matters of fact, without requiring the aid of subtle arguments and strained conclusions.

PHLOGI'STON (φλογιϛος, from φλογιζω, to *burn)*, the inflammable principle of the older chemists. Stahl gave this term to a principle, which he imagined was pure fire, or the matter of fire fixed in combustible bodies, intending to distinguish it from fire in action, or in a free state. See PHLOGISTIC SYSTEM.

PHLOGO'SIS (φλογωσις, from φλογοω, to *inflame)*. See INFLAMMATION.

PHLYCTÆ'NÆ (φλυκταιναι, *small bladders)*, small pellucid vesicles, that contain a serous fluid. See SKIN. Linnæus and Vogel use this term as synonymous with *hydatis;* but very improperly.

PHLYZA'CIUM (φλυζακιον, from φλυζω, to be *hot)*, a pustule on the skin excited by acrimony or heat. See PUSTULE and SKIN.

PHŒ'NIX DACTYLI'FERA (φοινεξ, from *Phœnicia*, its native soil); the systematic name of the date-tree. See DACTYLUS.

PHOSPHATES, or PHOSPHATS, salts formed by the union of the phosphoric acid with different bases. Thus we have the *phosphats of ammonia, of lime,* &c. These salts are fusible, before the blow-pipe, into a globule of glass. They are soluble in nitric acid, from which they are precipitated by lime-water. Most of them do not afford phosphorus when heated with charcoal.

The principal phosphates are those of soda, potash, ammonia, magnesia, barytes, and strontia. They are prepared by saturating the carbonates of these bodies with phosphoric acid, and proceeding in the manner directed for the preparation of sulphates. Phosphate of mercury is precipitated by mingling a solution of phosphate of soda, and nitrate of mercury. Phosphate of copper is formed in a similar manner, by letting fall a solution of phosphate of soda into a solution of nitrate of copper. Phosphate of iron is precipitated by mixing a solution of phosphate of potash with a solution of sulphate of iron. Phosphate of lead and phosphate of bismuth are produced by dropping a solution of phosphate of soda into nitrate of lead or bismuth. Phosphate of tin or zinc is formed in a similar manner.

PHOSPHITES, salts formed by the combination of the phosphorous acid with different bases. Thus we have the *aluminous phosphite, ammoniacal phosphite,* &c. Phosphites detonate with oxigenated muriate of potash. When heated in the open air they yield a phosphorescent flame. The phosphites of potash, soda, ammonia, or lime, may be prepared by dissolving the respective carbonates in phosphorous acid, and proceeding as with phosphates. Phosphite of barytes and strontia are produced by mingling together phosphorous acid, and barytic or strontia water. Phosphite of magnesia is obtained by mingling phosphite of potash or soda with sulphate of magnesia. Phosphite of alumine may be produced by saturating phosphorous acid with alumine.

PHOSPHORETS, or PHOSPHURETS; the combinations of phosphorus not oxygenated, with different bases; as, *phosphoret of copper, phosphoret of iron,* &c. The following modes of preparing phosphorated mercury and phosphorated lime, from Mr. Accum, may serve as examples. The former may be prepared by dissolving phosphorus by trituration in a mortar, in as little oil of cloves as possible, and then uniting this mixture to mercury, by a continual agitation. Long glass cylinders, filled with this compound, become luminous when shaken in the dark. This is a simple spontaneous combustion of minutely divided phosphorus.

To make the phosphoret of lime, take an earthen or glass tube, a foot long, and half an inch in diameter, closed at one end; put into this tube about half an ounce of phosphorus, cut into small pieces, and dried from adhering water; then fill the tube with small bits of fresh burnt lime of the size of split peas; stop the opening of the tube loosely with a chalk stopper, to prevent the access of air; then heat to redness *that part of the tube which contains the lime*, by means of charcoal; when the lime may be supposed to be ignited, apply heat to the part containing the phosphorus, so as to sublime it, and to bring the vapour of it into contact with the heated lime. The lime and phosphorus will unite and form a mixture of a reddish-brown colour, which is phosphoret of lime. This preparation has the property of making fire rise out of water, when a small bit is dropt into it.

The phenomenon is owing to a decomposition of water, at the common temperature, which will be more fully treated on under the article PHOSPHORATED HIDROGEN GAS. If a glass tube be made use of for preparing phosphoret of lime, that part of the tube which is heated (which may conveniently be done by passing it through a perforated crucible or chafing-dish, filled with ignited charcoal) should be coated with clay, or loam, in order to secure it from breaking during the process.

PHOSPHORIC ACID. When phosphorus is united to oxigen the result is an acid, which varies according to the quantity of oxigen which joins to the phosphorus. Phosphorus saturated with oxigen forms *phosphoric* acid. Mr. Accum gives the following account of the properties of phosphoric acid: It is capable of existing in a dry and crystallised state. When solid, and placed in contact with a small quantity of water, it dissolves, and affords a ponderous transparent fluid, void of odour. When exposed to heat it is rendered viscous; it gradually becomes more consistent, and loses its transparency. Lastly, when urged by a violent heat, in a silver or platina crucible, it melts into a transparent glass, which again attracts moisture when exposed to the air, and becomes converted into liquid phosphoric acid. When melted in an earthen crucible the acid acts upon it and fuses into a glass, which is *not soluble in water*, and exhibits *no signs of acidity*. It has a strong attraction for all the alcalies, and likewise for the earths. It acts only on a small number of metallic substances.

1. To obtain phosphoric acid the bones of adult animals are generally made use of. For that purpose, dilute in a spacious glass jar, one pound of sulphuric acid with six or eight pounds of water; then add gradually, and with constant stirring, one pound and a half of finely pulverised bones burnt to whiteness. An effervescence will take place. When this has ceased, leave the whole on a gentle sand-bath for a few hours, taking care to stir it frequently, and to supply the loss of water which happens by evaporation. After it has been suffered to remain undisturbed, strain the whole through a cloth, and wash the residual matter repeatly in water till it passes tasteless. The fluid thus obtained contains the phosphoric acid, contaminated with lime, and may be evaporated in a Wedgwood's or glass basin, to any wished-for consistence.

Mr. Accum says, the phosphoric acid obtained in this manner is not pure, but contains a considerable quantity of lime. To obtain it in its pure state, carbonate of ammonia must be added until no more precipitate falls down, the precipitate is carbonate of lime, which must be separated by filtration; the fluid being then evaporated to dryness, leaves phosphate of ammonia. This is exposed to heat in a china cup, till all the ammonia is disengaged, which may be known by the mass frothing no longer, but flowing quietly. On cooling, it congeals into a transparent vitreous substance, called glacial acid of phosphorus, which attracts moisture, and is soluble in water.

2. Phosphoric acid may likewise be obtained by the rapid or complete oxigenation of phosphorus, by burning it in oxigen gas.

3. *Scheele* has contrived a method of converting phosphorus into phosphoric acid without combustion; namely, by the action of nitric acid. In this operation, a tubulated glass retort must be half filled with pure nitric acid, and a gentle heat applied. A small piece of phosphorus being then introduced through the tubulure will be dissolved with a rapid effervescence, and a quantity of red vapour will be disengaged. The addition of phosphorus in small pieces must be continued until the last piece added remains undissolved in the boiling acid. The piece of phosphorus which produces no further change in the acid is then to be taken out, and the fire raised to drive over the remainder of the nitric acid. The phosphoric acid will then be found in the retort, partly in a concrete and partly in a liquid form. In this process a decomposition of the nitric acid takes place, the phosphorus at the temperature of the heated acid attracts its oxigen, and becomes converted into phosphoric acid; and the nitrogen becomes free, and flies off in the gazeous state.

PHOSPHOROUS ACID; an acid procured by burning phosphorus slowly. In this way it does not become completely saturated with oxigen, but forms an acid differing from the phosphoric. Phosphorous acid is liquid, transparent, and of considerable density. It has an unpleasant taste, and emits an alliaceous and disagreeable odour when rubbed, and especially if warmed. When heated more strongly, part of it is volatilised in the form of a white vapour which is very acute, penetrating, and luminous in the dark. It is much more volatile than phosphoric acid; and always contains a greater or less quantity of phosphorus.

To obtain phosphorous acid, it is merely required to expose phosphorus to the air: the phosphorus by this means undergoes a slow combustion, and is gradually changed into phosphorous acid. To effect this in a commodious manner, sticks or pieces of phosphorus may be placed on the inclined side of a glass funnel, whose neck is received in a phial containing a little distilled water, and its base covered, but not closely. A tube, or small pieces of glass are put into the neck of the funnel, in order to prevent the phosphorus from falling through into the phial, and to give a free passage to the air of the vessel displaced by the phosphorous acid. Care must be taken that the sticks of phosphorus touch each other as little as possible. Phosphorous acid with alcaline, terrene, or metallic bases, forms salts called PHOSPHITES.

PHO'SPHORUS (*φωσφορος*, from *φως*, *light*, and *φερω*, to *carry*); one of the most combustible substances we are acquainted with. It is a flesh-coloured or yellowish semi-transparent substance, of the consistence of wax, but brittle during frost. In atmospheric air it is luminous at common temperatures, without emitting heat. It has a rough disagreeable taste, and its odour resembles that of garlic. Its specific gravity, according to Mr Accum, is 2.033, water being 1.000. Phosphorus crystallises in laminæ, in needles, or elongated octahedra. Exposed to the light, it becomes covered with a crust, which is first white, next orange, and at last red. It becomes liquid at a temperature of 99° Fahr. It takes fire spontaneously and burns rapidly in the open air at 122° Fahr. with a brilliant white flame, and becomes converted into phosphoric acid. It is volatilised at 554° Fahr. It is soluble in caustic alkalies by the assistance of heat. Expressed and essential oils take up a small quantity, and are rendered luminous. Sulphuric ether, nitric ether, and ardent spirit, dissolve it sparingly in the cold. It combines with lime, strontia, barytes, sulphur, and with metals. It is soluble in hidrogen gas, and decomposes nitric acid, and metallic solutions. It acts strongly, and frequently like poison, on living animals.

For some time phosphorus was made in very inconsiderable quantities, and by a tedious and disagreeable process, consisting in evaporating considerable quantities of urine, and decomposing them by various means. The following processes now employed are more easy and expeditious.

1. According to Giobert's method, phosphorus may be obtained very economically and without any offensive preparation. It consists in pouring a concentrated solution of nitrate of lead, by a little at a time, into a quantity of urine until no more cloudiness is produced by a further addition of the solution. The mixture is then to be diluted with soft water, and suffered to stand undisturbed; when the precipitate has fully subsided, the clear fluid is to be separated. The precipitate is

then formed into a paste with charcoal powder, and the mass is to be dried gradually in an earthen pan, and submitted to distillation. According to this process, the phosphoric acid of the urine unites to the lead of the nitrate of lead, and the nitric acid joins to the ammonia and soda of the urine, whence phosphate of lead and nitrate of soda and ammonia are formed. The former being insoluble falls to the bottom, and the latter salt remains in the super-natant fluid. On adding charcoal to the phosphate of lead, and exposing it to a high temperature, the union is again broken; the phosphoric acid becomes decomposed, its oxigen unites to the charcoal and forms carbonic acid gas, which flies off during the distillation; the phosphorus appears in its simple state, and the metal is left behind in the retort together with the super-abundant quantity of charcoal.

2. Another method is that of Nicola. In this we are directed to take a quantity of bones of adult animals, burn them to whiteness in an open fire, and reduce them to a fine powder. Upon three pounds of this, put into a matrass, there may be poured two pounds of concentrated sulphuric acid; and four or five pounds of water must be afterwards added by degrees, to assist the action of the acid. During the whole process, the operator must place himself and the vessel, so that the fumes of the mixture may be blown from him. The whole is then to be left in a gently heated sand-bath for about twelve hours or more, taking care to supply the loss of water which happens by evaporation. The next day a large quantity of water must be added, the clear liquor afterwards decanted, and the rest strained through a cloth or sieve. The residuary matter is to be edulcorated by repeated affusions of hot water till it passes tasteless. The water which has been used to wash out the adhering acid is mixed with the before-decanted or strained liquor, and the whole fluid is gradually evaporated in a flat earthen basin to the consistence of syrup. It is then to be mixed with an equal weight of charcoal powder, and submitted to distillation in an iron or earthen retort. Instead of applying a receiver, the neck of the retort may be immersed in a basin of water to a small depth, and the phosphorus as it comes over will fall in drops to the bottom. Mr. Accum observes, that, in this process, the sulphuric acid unites with the calcareous earth of the bones, and forms sulphate of lime; and the phosphoric acid of the bones becomes disengaged, and remains dissolved in the liquor. The charcoal at an elevated temperature takes the oxigen from this acid, and carbonic acid gas is formed, and phosphorus passes over.

Phosphorus obtained in either of these ways is of a dirty blackish colour, and soiled with a certain quantity of charcoal and half-burnt phosphorus, which gives it a foul appearance. In order to purify it, it must be put into a piece of chamois leather and closely tied up in it. The whole is then immersed in a vessel of boiling water; the phosphorus melts, and may be pressed through the leather, taking care to keep it under the water. Mr. Accum, however, thinks it better to purify phosphorus by a second distillation.

In order to form phosphorus into sticks necessary for its convenient use, a funnel with a long neck may be used, the lower orifice of which is closed with a cork; the funnel is then to be filled with water and phosphorus put in it, and this being plunged into boiling water, the heat communicated to the funnel melts the phosphorus, which runs into the neck and acquires that form. The funnel is then removed into a vessel of cold water, and when it is thoroughly cooled, the cork is taken out and the phosphorus thrust out of its mould with a piece of wood, and then preserved in water.

But M. Pelletier has invented another method, which is as follows:—Take a few tubes of any length, the apertures of which are of such a size that they can be exactly closed with the extremity of the finger. Melt the phosphorus in boiling water, and apply to it one of the ends of the tube, while you hold the other in your mouth; make a short inspiration that the phosphorus may ascend a little way in the tube; stop the inspiration when the phosphorus has risen a sufficient height, and close the extremity of the tube with the fore-finger, and immerse it in a basin of cold water. The phosphorus will soon become fixed, and by a slight shake may be separated from the tube.

The combustibility and luminous property of phosphorus have given birth to various amusing experiments, with which however we have no concern. The earliest account we have concerning the medical use of this substance, is in the seventh volume of Haller's Collection of Theses, relating to the history and cure of diseases. The original dissertation is entitled, *De Phosphori Loco Medicamenti adsumpti virtute medica, aliquot casibus singularibus confirmata, Auctore J. Gabi Mentz.* There are three cases of singular cures performed by means of phosphorus narrated in this thesis; but as the work is in the library of many medical men in this country, it is not deemed necessary to translate those cases fully. It may be proper to premise, however, that the history of these facts and cures was sent to Dr. Gabi Mentz by his father.

Dr. Mentz indeed appears to have been one of the first practitioners who tried this formidable remedy internally. Drs. Morgenstern and Hatman seem both to have afterwards employed it. Twelve cases are related on this interesting subject by Dr. Hooper. They are translated from a thesis which is very little known in this country;—the inaugural dissertation of Dr. Wolff, who graduated at Gottingen in the year 1791. This writer states, that the cases are extracted from the private diary of his father, a physician of eminence in Poland, who practised physic with great success and reputation for upwards of thirty years. Dr. Hooper thinks them sufficiently interesting to awaken the attention of the practitioners of this country to the effects of phosphorus as a medicine; for, says he, "a medicine of greater powers cannot be named, if the facts which have been related are correctly true." Nor does he doubt but trials will soon be made with it. He hopes, however, they will be made with caution, and under as favourable circumstances for the reception of such a powerful stimulus as the nature of the diseases in which it is to be given will admit of. The following particulars concerning this subtile remedy will serve as a salutary caution against the too free exhibition of it in any instance.

The dangerous consequences which may follow the injudicious administration of phosphorus, are impressed on the mind by the relation of some cases and experiments which are mentioned by Wackard, in the fourth part of his miscellaneous writings (Vermischte Medicinche Schrifften, von M. A. Wackard). The latest publication on the subject of its internal exhibition is a letter by M. Alphonso Leroi, printed in the only volume of Memoirs which the Society of Emulation at Paris has yet published. One of the first experiments which M. Leroi made was upon himself: he swallowed three grains of phosphorus with some theriaca. It is a wonder, he says, that he was not killed by it; for phosphorus does not require more air than is commonly contained in the stomach, in order to take fire, and burn in such a manner as to have eaten through that organ. "For two hours," the professor observes, "I found myself extraordinarily incommoded. I drank frequently little draughts of cold water. After some hours had elapsed the uneasiness ceased. My urine was high coloured; but the following day my muscular force was doubled, and I felt an insupportable venereal irritation. I afterwards gave this remedy to the young man whose case is related in the Gazette de Santé for the 29th of August, 1779. It was truly owing to phosphorus that his life was saved in a most malignant fever, in which the prostration of strength was so great as not to leave any other resources but this remedy." The author then proceeds to inform us, that he has frequently employed phosphorus since that time. He at first prescribed it in the form of a lohoch. It is always difficult to pulverise it; but this difficulty he overcame in the following manner: he put the phosphorus into warm water, and agitated it violently: it divides itself like oil into a great number of little globules; and, if cold water be now added, it is precipitated to the bottom in the form of a powder. Of this powder one or two grains are to be taken, and rubbed with a little sugar, a drop or two of oil, and some yolk of an egg. A quarter of a grain every day is quite sufficient to produce great effects.

At other times, he says, he has given it in a mixture of oil, syrup, and some aromatic distilled water. He asserts, that Kunkel gave phosphorus internally, in England, in the form of pills, which were luminous; and he informs us, that he himself has found out the manner of composing them, but they require so nice a manipulation, that he has entrusted the secret only to Messrs. Pelletier, the brothers, being warned by his own experience of the mischief which arises from giving it improperly prepared. Each pill contains the eighth of a grain of phosphorus. These are endowed with a soporific and calming property. Professor Leroi has frequently employed them in cases of rheumatism, in a great number of nervous diseases, pituitous diseases, and in many acute and chronic complaints. It will be some encouragement to those who may employ this remedy, that Mr. Leroi, in many trials made by himself, and others under his observation, never found it hurtful in any one case.

PHOTOPHO'BIA (φωτοφωϐια, from φως, *light*, and φοβεω, to *dread)*; such an inability to endure the light, that the eye can scarcely bear its irritating rays. Such patients generally wink, or close their eyes in light, which they cannot bear without exquisite pain, or confused vision. The proximate cause is too great a sensibility in the retina. The four following species are described by Dr. Hooper: 1. *Photophobia inflammatoria*, or dread of light from an inflammatory cause, which is a particular symptom of the internal opthalmia. 2. *Photophobia*, from the disuse of light, which happens to persons long confined in dark places, coming out into a strong light, or sun-shine. In that case the pupil contracts with pain, and the eye cannot bear the light. 3. *Photophobia nervea*, or a nervous photophobia, which arises from an increased sensibility of the retina and optic nerve. This is said to be a symptom of the hydrophobia; and it occurs also in many other disorders, both acute and chronic. 4. *Photophobia* from too great light, as the constant looking at the sun, or at the strong light of modern lamps, or the vivid flame of a furnace.

PHOTO'PSIA (φωτοψια, from φως, *light*, and οψις, *vision)*, lucid vision; an affection of the eye in which the patient perceives luminous rays, ignited lines, or corruscations. This is a very common circumstance even where there is no material defect in vision.

PHRE'NES (from φρεν, the *mind*, because the ancients imagined it was the seat of the mind); the diaphragm. See DIAPHRAGM.

PHRENIC NERVE (*nervus phrenicus*, from φρενες, the *diaphragm)*, the diaphragmatic nerve. This arises from a union of the branches of the third, fourth, and fifth cervical pairs of nerves, on each side. It passes between the clavicle and subclavian artery, and then descends by the pericardium to the diaphragm.

PHRENI'TIS (φρενιτις; from φρην, the *mind)*, phrenzy or inflammation of the brain; a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ* of Cullen. The signs of an impending phrenitis are, immoderate and continual watchings; or if any sleep be obtained, it is disturbed with dreams and gives no refreshment: acute and lasting pains, especially in the hind part of the head and neck; little thirst; a great and slow respiration, as if proceeding from the bottom of the breast; the pulse sometimes small and slow, sometimes quick and frequent; a suppression of urine; and forgetfulness. The disease when present may be known by the following signs: the veins of the head swell, and the temporal arteries throb much; the eyes are fixed, sparkle, and have a fierce aspect; the speech is incoherent, and the patient behaves very roughly to the bystanders, with furious attempts to get out of bed, not indeed continually, but returning as it were by paroxysms; the tongue is dry, rough, yellow or black; there is a coldness of the external parts; a proneness to anger; chattering of the teeth; a trembling of the hands, with which the patient seems to be gathering something, and actually does gather the nap off the bed-clothes.

Persons of a hot and bilious temperament, and such as are of a passionate disposition, are apt to be affected with phrenitis. In the same danger are those who use much spice, or are given to spirituous liquors; who have been exposed more than usual to the sun, or obliged to undergo immoderate studies or watchings; who are subject to head-achs, or in whom some customary hemorrhages have been stopped. Or the disease may arise from some injury done to the head externally. Pringle observes, that the phrenitis, when considered as an original disease, is apt to attack soldiers in the summer season when they are exposed to the heat of the sun, and especially when asleep and in liquor. A symptomatic phrenitis is also more frequent in the army than elsewhere, on account of the violence done in all fevers when the sick are carried in waggons from the camp to an hospital, where the very noise or light alone would be sufficient, with more delicate persons, to raise a phrensy. From these and similar causes, a state of active inflammation, affecting some parts within the cranium, is produced: and there can be no doubt, that from this all the symptoms of the disease arise, and particularly that peculiar delirium which characterises it.

Every kind of phrenitis, whether idiopathic or symptomatic, is attended with a high degree of danger: and, unless removed before the fourth day, a gangrene or sphacelus of the meninges usually takes place, and the patient dies delirious. The following are the most fatal symptoms: a continual and furious delirium with watching; thin watery urine, white fæces, the urine and stools running off involuntarily, or a total suppression of these excretions; a ready disposition to become stupid, or to faint; trembling, rigor, chattering of the teeth, convulsions, hiccough, coldness of the extremities, trembling of the tongue, shrill voice, a sudden cessation of pain, with apparent tranquillity. The following are favourable: sweats, apparently critical, breaking out; a seeming effort of nature to terminate the disease by a diarrhœa; a large hemorrhagy from the nose; swellings of the glands behind the ears; hæmorrhoids.

It must appear, from what has been said of the theory of this disease, that the cure must entirely depend on obtaining a resolution of the inflammation. The objects, therefore, chiefly to be aimed at with this view, are:—1. The removal of such exciting causes as continue to operate. 2. The diminution of the momentum of the blood in the circulating system in general. 3. The diminution of impetus at the brain in particular: and, 4. The avoiding circumstances which tend either to accelerate the motion of the blood, or to give determination to the head.

Different modes may be used with these intentions; but here the most powerful remedies are to be immediately employed. Large and repeated bleedings are especially necessary; and these too taken from vessels as near as possible to the part affected. The opening the temporal artery has been recommended, and with good reason: but as the practice is attended with some inconveniences, perhaps the opening of the jugular veins may prove more effectual; with which, however, may be joined the drawing of blood from the temples and nape of the neck, by cupping and scarifying. It is also probable, that purging by drastic substances may be of more use in this than in other inflammatory affections, as it may operate by revulsion. For the same purpose also, warm pediluvia are a suitable remedy. The taking off the force of the blood in the vessels of the head by an erect posture is also generally proper. Blistering is also useful, but chiefly when applied to the scalp. In short, every part of the antiphlogistic regimen is here necessary, and particularly the admission of cold air. Even cold substances applied to the head have been found useful; and the application of such refrigerants as vinegar is certainly proper. Opiates are thought to be hurtful in every inflammatory state of the brain. On the whole, however, it must be remarked, that practitioners are very uncertain with regard to the means proper to be used in this disease; and the more so, as the symptoms by which the disease is commonly judged to be present, appear sometimes without any internal inflammation; and, on the other hand, dissections have shewn, that the brain has been inflamed, where few of the peculiar symptoms of inflammation had appeared before.

Dr. Moseley asserts that, in hot climates, phrenitis has been occasioned by an injudicious administration of the bark. The patient's food, throughout the disease, is to consist only of decoctions of farinaceous seeds in water, acidulated. It is further to be observed, that when an inflammation arises at the beginning of a fever, and it, as well as the general inflammation, continues, such fever is also to be attended to in the cure of the inflammation, and the treatment varied according to the violence of each.

PHTHIRI'ASIS (φθιριασις; from φθεις, a *louse)*, a disease vulgarly called the *lousy-evil;* in which several parts of the body generate lice, that often puncture the skin, and produce little sordid ulcers. Various remedies have been suggested, but the most cleanly and effectual is a weak solution of hydrarg. muriat. in water. A single washing with this is generally sufficient.

PHTHI'SIS (φθισις; from φθιω, to *consume)*, the pulmonary consumption; a genus of disease in the class *pyrexiæ*, and order *hæmorrhagiæ*, of Cullen. The species are: 1. *Phthisis incipiens;* incipient, without any expectoration of pus. 2. *Phthisis humida*, with an expectoration of pus. 3. *Phthisis scrophulosa*, from scrophulous tubercles in the lungs, &c. 4. *Phthisis hæmoptoica*, from hæmoptysis. 5. *Phthisis exanthematica*, from exanthemata. 6. *Phthisis chlorotica*, from chlorosis. 7. *Phthisis syphilitica*, from a venereal ulcer in the lungs.

The causes of phthisis, Dr. Cullen reduces to five heads. 1. An hæmoptysis. 2. A suppuration of the lungs in consequence of a pneumonia. 3. A catarrh. 4. An asthma; and, 5. Tubercles.

(1.) When a phthisis arises from an hæmoptysis, it is probable that it is occasioned by particular circumstances; and what these circumstances are, may not always be easily known. It is possible, that merely the degree of rupture, or frequently repeated rupture, preventing the wound from healing, may occasion an ulcer; or it is possible, that red blood effused, and not brought up entirely by coughing, may, by stagnating in the bronchiæ, become acrid, and erode the parts. But these hypotheses are not supported by any certain evidence; and from many observations we are led to think, that several other circumstances must concur in producing the disease from hæmoptysis.

(2.) The second cause of phthisis mentioned, is a suppuration formed in consequence of pneumonia. When a pneumonia, with symptoms neither very violent nor very slight, has continued for many days, it is to be feared it will end in a suppuration: but this is not to be determined by the number of days; for, not only after the fourth, but even after the tenth day, there have been examples of a pneumonia ending by a resolution; and if the disease has suffered some intermission, and again recurred, there may be instances of a resolution happening at a much later period from the beginning of the disease than that just now mentioned. But, if a moderate disease, in spite of proper remedies employed, be protracted to the fourteenth day without any considerable remission, a suppuration is pretty certainly to be expected; and it will be more certain still, if no signs of resolution have appeared, or if an expectoration which had appeared shall have again ceased, and the difficulty of breathing has continued or increased, while the other symptoms have been rather abated.

That in a pneumonia, the effusion is made which may lay the foundation of a suppuration, may be concluded from the difficulty of breathing becoming greater when the patient is in a horizontal posture, or when the patient can lie more easily on the affected side. That, in such cases, a suppuration is actually begun, may be inferred from the patient's being frequently affected with slight cold shiverings, and with a sense of cold felt sometimes in one, sometimes in another part of the body. We form the same conclusion also from the state of the pulse, which is commonly less frequent and softer, but sometimes quicker, than before. That a suppuration is already formed, may be inferred from there being a considerable remission of the pain which had before subsisted; while with this the cough, and especially the dyspnœa, continue, and are rather increased. At the same time the frequency of the pulse is rather increased, the feverish state suffers considerable exacerbations every evening, and by degrees a hectic fever in all its circumstances comes to be formed.

In this state of symptoms, we conclude very confidently, that an abscess, or, as it is called, a *vomica*, is formed in some part of the pleura, and most frequently in that portion of it investing the lungs. Here purulent matter frequently remains for some time, as if enclosed in a cyst; but commonly not long before it comes to be either absorbed and transferred to some other part of the body, or breaks through into the cavity of the lungs, or into that of the thorax. In the latter case it produces the disease called *empyema;* but it is when the matter is poured into the cavity of the bronchiæ that it properly constitutes the phthisis pulmonalis. In the case of empyema, the chief circumstances of a phthisis are indeed also present: but we shall here consider only that case in which the abscess of the lungs gives occasion to a purulent expectoration.

An abscess of the lungs, in consequence of pneumonia, is not always followed by a phthisis: for sometimes a hectic fever is not formed; the matter poured into the bronchiæ is a proper and benign pus, which frequently is coughed up very readily, and spit out; and though this purulent expectoration should continue for some time, if it be without hectic fever, the ulcer soon heals, and every morbid symptom disappears. This has so frequently happened, that we may conclude, that neither the access of the air, nor the constant motion of the lungs, will prevent an ulcer of these parts from healing if the matter of it be well-conditioned. An abscess of the lungs, therefore, does not necessarily produce the phthisis pulmonalis; and if it be followed by such a disease, it must be in consequence of particular circumstances which corrupt the purulent matter produced, render it unsuitable to the healing of the ulcer, and at the same time make it afford an acrimony, which, absorbed, produces a hectic fever and its consequences.

The corruption of the matter of such abscesses may be owing to several causes; as, 1. That the matter effused during the inflammation had not been a pure serum fit to be converted into a laudable pus, but had been joined with other matters which prevented that, and gave a considerable acrimony to the whole. Or, 2. That the matter effused and converted into pus, merely by long stagnation in a vomica, or by its connection with an empyema, had been so corrupted as to become unfit for the purpose of pus in the healing of the ulcer. These seem to be possible causes of the corruption of matter in abscesses, so as to make it the occasion of phthisis in persons otherwise sound; but it is probable that a pneumonic abscess especially produces phthisis when it happens to persons previously disposed to that disease, and therefore only as concurring with some other causes of it.

(3.) The third cause supposed to produce a phthisis is a catarrh; which, in many cases, seems in length of time to have the expectoration of mucus proper to it gradually changed to an expectoration of pus; and at the same time, by the addition of a hectic fever, the disease, which was at first a pure catarrh, is changed into a phthisis. But this supposition is, in the opinion at least of some physicians, liable to several difficulties. The catarrh is properly an affection of the mucous glands of the trachea and bronchiæ analogous to the coryza and less violent kinds of cynanche tonsillaris, which very seldom end in suppuration. And although a catarrh should be disposed to do so, the ulcer produced might readily heal up, as it does in the case of a cynanche tonsillaris; and therefore would not produce a phthisis.

Further, the catarrh, as purely the effect of cold, is generally a mild disease as well as of short duration; and, according to Dr. Cullen, there are at most but very few of the numerous cases of it, which can be said to have ended in a phthisis. In all these cases in which this seems to have happened, he thinks it probable, that the persons affected were peculiarly pre-disposed to phthisis; and the beginning of phthisis so often resembles a catarrh, that it may have been mistaken for such a disease. It often happens also, to increase the fallacy, that the application of cold, which is the most frequent cause of catarrh, is also frequently the exciting cause of the cough, which proves to be the beginning of a phthisis.

Many physicians have supposed that an acrimony of the fluids eroding some of the vessels of the lungs is a frequent cause of ulceration and phthisis; but this appears to Dr. Cullen to be a mere supposition. He acknowledges, that in many cases an acrimony subsisting in some part of the fluids is the cause of the disease; but observes, that it is at the same time probable, that this acrimony operates by producing tubercles, rather than by any direct erosion.

But notwithstanding these objections, experience affords numerous examples of cases in which a disease long subsisting under the form of catarrh has at last degenerated into phthisis, and proved fatal from supervening hectic fever. It must, however, at the same time be allowed, that catarrh, degenerating into a chronic state after subsisting for many years, has of itself often proved fatal without inducing phthisis.

(4.) If phthisis does not frequently follow catarrh, it is still more rarely a consequence of asthma. Innumerable examples are unquestionably afforded of that disease subsisting for many years without any symptom whatever of phthisis as a consequence to it. But at the same time, there are unquestionable examples of phthisis deriving its origin from asthma; which, however, probably happens only in cases where a peculiar state of the lungs at the same time takes place; but without the concurrence of asthma, this state would not of itself have been sufficient for inducing the affection.

(5.) Of all the causes formerly mentioned, phthisis most frequently arises from tubercles. These may exist, however, without inconvenience, till they begin to disturb the functions of the lungs by their size and number; or till some degree of inflammation be excited, either by accidental causes, or by certain changes that take place within their substance; for as yet we know but little of their true nature. These little tumors vary in their consistence; in some they are composed of a pulpy substance, and in others approach more to the nature of scirrhus. They are most commonly formed in consequence of a certain constitutional predisposition; but whatever is capable of occasioning a morbid irritability of the lungs seems also to be capable of generating them. Thus the spasmodic asthma frequently ends in tubercles and consumption; and it is not unusual for millers, stone-cutters, and others, to die consumptive, from their being so constantly exposed to dust, which in these cases probably acts by producing similar concretions: and Dr. Kirkland observes, that scythe-grinders are subject to a disease of the lungs from particles of sand mixed with iron-dust; which, among themselves, they call the *grinder's rot*. Tubercles, however, in by much the greater number of instances, have their source from a scrophulous disposition; and they may likewise sometimes be owing to the sudden repulsion of cutaneous eruptions, or of the matter of exanthemata, &c.

The persons who are most liable to consumption are those of a fair complexion, fine and soft skin, florid cheeks, and a slender make; with high cheek-bones, hollow temples, long neck, shoulders standing out like wings, narrow chest, and a remarkable prominence of the processes of the os sacrum. To these marks we may add, that of *sound teeth*, which as the disease advances, usually become of a milky white colour, and more or less transparent. Persons of the above description often remain for a long time without feeling any other inconvenience than some oppression at the breast in moist weather, or in hot apartments. Their breathing is easily hurried, sometimes by the slightest motion; and they become languid, paler, and thinner. All this time, however, they feel no heat or painful sensation in the breast. As the evil increases, the patient begins to be attacked with a slight, frequent, and dry cough, which is most troublesome in the night-time. But this, by proper care, is often relieved, and the patient remains in this state for a considerable time; and even for many years, if he be sensible of his danger, and careful to guard against it by a suitable manner of living. More commonly, however, we find the cough increasing, and sometimes accompanied with more or less catarrh. This is usually ascribed to cold; and but too generally neglected till the disease become alarming by its obstinacy and its effects. This may be considered as the *beginning*, or first period, of the disease. During this stage, the cough is sometimes dry from the first; and sometimes, when it begins in the form of a catarrh, is attended with more or less expectoration of mucus.

When the cough begins in the form of a catarrh, and appears to be occasioned by an increased secretion of a thin saltish mucus irritating the membrane of the trachea, all judicious practitioners agree in recommending an attention to regimen, the free use of diluting liquors, bland emulsions, small doses of nitre, the taking away a few ounces of blood if there be much inflammation, the inhaling the steams of warm water by means of a machine contrived for that purpose, and the occasional use of such a dose of tinct. opii camph. as will be sufficient to allay the irritation of the bronchiæ, and to promote a gentle moisture on the skin. These methods will generally be found to be efficacious, especially if the patient's chamber be of a moderate temperature, and he carefully avoid exposure to a cold, damp, or raw air, till the complaint be removed. In cases in which the cough has been obstinate, and the inflammatory symptoms considerable, great advantages may be derived from the warm bath, the heat of which does not exceed 92°. When this is had recourse to, the patient should remain in it only a very few minutes, and go soon afterwards to bed; but not with a view to force a sweat by an increased weight of bed-clothes, as is too often injudiciously practised.

Patients of a consumptive habit, who have had an attack of this kind at the beginning of winter, are particularly liable to a return of the complaint during the continuance of the cold season, on the slightest occasion, and with greater violence. A relapse is therefore to be carefully guarded against; and nothing will be found to do this more effectually than the use of socks and a flannel under-waistcoat. The use of flannel has been condemned by some medical writers as increasing the insensible perspiration; but in the present case, to say nothing of some others in which it may be useful, it will in general be found to have the best effects. It will prevent a too great determination to the lungs, and should not be left off till the arrival of warm weather.

Sometimes the cough is occasioned by an immediate inflammation of some part of the lungs, from some of the usual causes of inflammation; and when this happens, no time is to be lost in removing it. To do this will, perhaps, require more than one bleeding, together with a strict attention to a cooling plan of diet, diluting drinks, the inhalation of warm steams, and if convenient the use of the warm bath; but above all, the speedy application of a large blister as near as may be to the supposed seat of the inflammation. The cough, in this case, will often remain after the original complaint is abated. A prudent use of opiates at bed-time, either by themselves or combined with gummy and mucilaginous medicines, will then generally be useful as a sedative and antispasmodic.

In this, as well as in the catarrhal cough just now mentioned, many practitioners are too eager to administer the Peruvian bark, with the view, as they term it, of *bracing up* the patient; but this never fails to increase the cough, and of course to do great and very often irreparable mischief. And here it will not be foreign to our subject to observe, that a symptomatic cough, which has its rise not from catarrh, or from any immediate inflammation of the lungs, but from their sympathy with the stomach, has sometimes laid the foundation of phthisis, from its having been mistaken, and of course improperly treated. It is owing to some affection of the stomach, which it is perhaps not easy to define; and sometimes bilious symptoms are concomitant. When this happens to be the case, it cannot easily be mistaken; but we sometimes find it occurring singly, and in general attacking persons of a sedentary life. Dr. Stoll of Vienna, who has noticed this cough, has very properly given it the name of *tussis stomachica.* This, so far from being relieved by bleeding, constantly grows worse after it, especially if the evacuation be considerable in quantity. The oily remedies seldom fail to exasperate this cough, which at first is dry, frequent, and often extremely violent, but which seldom fails to give way to gentle emetics, and the occasional use of mild cathartics. The cough, as in other cases, often continues from habit after the cause that gave rise to it has been removed, and may then be checked by opiates.

When the disease has been neglected, or our attempts to remove it in the beginning have failed, both of which circumstances but too frequently happen, the patient begins to complain of a soreness, and of slight lancinating pains shooting through the breast, sometimes in the direction of the mediastinum, and sometimes confined chiefly to one side. The soreness is pretty constant, and much increased by the cough. The pain in the side often prevents the patient from lying on the side affected; and this inability of lying, except on one side, frequently occurs even when no such pain is felt. In this stage of the disease, flushing heats are felt in the palms of the hands and soles of the feet; the breathing is short and laborious; and it is not long before the patient begins to expectorate a thin and frothy phlegm, at first in small quantities, coughed up with difficulty, and some pain of the breast; and now and then streaked with blood: this may be considered as the *inflammatory period* of the disease, to which succeeds the *suppurative stage.* In the latter, the expectoration becomes more copious and purulent, the breath proportionably offensive, and the exacerbations of the hectic fever more considerable: an increased quickness of the pulse comes on about the middle of the day; but the most considerable paroxysm of the fever is at night, and at first continues till towards morning, commonly till three or four o'clock, when it terminates in a sweat which usually begins upon the breast. As the disease advances, these sweats become more profuse, and sometimes come on almost as soon as the pulse begins to quicken, but without affording any relief to the patient. During the exacerbations, we observe a circumscribed redness of the cheeks, while the rest of the face is pale, and appears as if it were not clean washed. The costiveness that commonly accompanies the beginning of the disease is usually succeeded by a diarrhœa; the spitting lessens, and all the purulent matter seems to be carried downwards. The wasting of the fat and the loss of nourishment occasion the nails to curve inwards, the hair to fall off, and the eyes to sink in their sockets. In the mean time, the legs commonly swell; till at length death closes a scene which is melancholy to all but the patient himself, who in general continues sensible to the last moment, and even then indulges a vain hope of prolonging a miserable existence. In some cases, and that not unfrequently, a delirium comes on towards the close of the disease.

The hectic fever that attends this and some other chronic diseases, is evidently the effect of acrimony, and most commonly of pus absorbed and carried into the circulation,—as we have shewn under the article Hectic. In these different periods of the disease, the curative indications are sufficiently obvious. To prevent the formation of fresh tubercles; to obviate the inflammation of those already formed; to promote their resolution; to allay morbid irritability, the cough, and other troublesome symptoms; and, above all, to check the tendency to the hectic state; are the views that every rational physician proposes to himself in the treatment of the genuine consumption. We know of no medicines that can exert their specific effects upon the lungs by dissolving tuberculous concretions; nor is it probable, from what we know of the animal economy, that any such will ever be discovered. Yet medicines that operate in a general manner upon the system, may, by promoting absorption, and diminishing the determination to the lungs, tend to disperse tubercles, or to prevent their formation. There are not wanting instances of wonderful recovery, in cases where the evil was supposed to be beyond the power of physic; and in some, where nature was left to herself; so that a physician who has observed the various and powerful resources nature has within herself, will be very cautious how he asserts that a disease is incurable.

The most formidable effects of ulcerated lungs are the absorption and consequent hectic. It seems evident that, in many cases, death is brought on by this, rather than by the lungs themselves being rendered unfit for the purposes of respiration. So that if we can obviate the effects of the absorption, diminish the preternatural determination to the lungs, and fulfil the other general indications just now mentioned, we may very often enable nature to recover herself. The Peruvian bark is, perhaps, the most commonly employed of any, and often confided in as an ultimate resource in these cases. But besides this, the acid of vitriol, the balsams, and frequent bleedings, have each had their partisans. The use of blisters and issues, opiates, a milk and vegetable diet, exercise and change of air, are pretty generally recommended by all. Concerning the bark, Default long ago observed, that it had been productive of great mischief in consumptive cases; and Dr. Fothergill remarks, that the bark is so far from curing the hectic fever arising from diseased lungs, that, according to the best of his observation, it not only takes up that time which might probably have been better employed in the use of other medicines, but for the most part aggravates the disease beyond remedy. Indeed this has been the opinion of several other attentive observers; and especially if the hectic be accompanied with any degree of inflammatory diathesis.

Dr. Fothergill, however, observes, that there are two causes of consumption, which often produce symptoms so similar to those of the genuine phthisis, as sometimes to have led him to make use of the bark, in apparent tendencies to a genuine pulmonary consumption, with advantage. One of these causes is, the suckling of children longer than is consistent with the mother's ability. This case frequently occurs among the middling and lower classes of females, of constitutions naturally delicate and tender. In such a state of weakness, some slight cold brings on a cough, which increases gradually, till at length it produces the true pulmonary consumption. Here the bark given early, in moderate doses, and merely as a tonic remedy, is often of excellent use. Another cause is, any weakening discharge, either from abscesses, the greater operations of surgery, a copious and constant *fluor albus*, or similar enfeebling evacuations. That the bark is, for the most part, of use in these cases, when the lungs are not inflamed, is indubitable; and if they be so affected, but not beyond a certain degree, it is also efficacious in preventing the progress of the consumption.

In phthisical complaints, succeeding such situations, a prudent trial of the bark seems necessary. Small doses of the decoction, or of the tincture, joined, by a previous mixture with mucilage of gum-arabic, with the saline mixture; or with such other additions as the physician thinks proper, may be given. But if, as too often happens, the breath becomes more tight and oppressed, the cough dry, the pulse more quick and hard, and especially if slight transitory pains or stitches about the thorax are more frequently complained of, a perseverance in the use of the bark will increase the disease.

The diluted *vitriolic acid*, though in many instances a highly useful remedy, is often exhibited in consumptive cases with no less impropriety than the bark. This medicine, from its astringency, is obviously improper in the inflammatory state of the disease. But in the latter stage, when a general tendency to putrefaction takes place, it is serviceable in resisting that disposition; it restrains the colliquative sweats; and if the lungs be not injured past reparation, it is allowed to be a very useful auxiliary.

Various are the opinions concerning the efficacy of *Hotwell-water* in this disease. Dr. Fothergill says, he has seen many persons recover from pulmonary diseases after drinking these waters, whose cure seemed to be doubtful from any other process; and he thinks this circumstance, added to the general reputation this spring has obtained in phthisical cases, affords sufficient inducement to recommend the trial of them in the early stages of such complaints. It is, however, before the approach of a confirmed phthisis, that patients ought to repair to Bristol, if they would be benefited.

A *sea voyage* has been much recommended in the cure of this disease. The benefit of exercise has also been strongly urged by many writers; but, however salutary when properly used, it certainly ought to be regulated with discretion. Dr. Dickson declares himself of opinion, that riding on horseback in consumptive cases is most commonly hurtful, without such regulations as in general have been little regarded. For instance, he has known a person who, by a ride of an hour or two in the morning, was very much recruited, and who, at another time, in the afternoon or evening, without undergoing more bodily motion, has returned faint and languid, and apparently worse. This observation on the same person has been so frequently made, as to point out clearly the times when this exercise shall not do hurt in consumptive cases. In this disease, the pulse, however calm in the morning, becomes more frequent in the afternoon and night, attended with heat and other feverish symptoms. Exercise, therefore, at this time, can only add to the mischief of the fever. For this reason he prudently recommends to all hectic persons, especially to those who shall travel to distant places on account of a better air, or the benefit expected from any particular water, that their travelling should be slow, confined to a very few hours, and only in the morning.

Exercise on horseback seems to be chiefly beneficial in those cases where consumption is a secondary disease. For example, in the nervous atrophy; in the hypochondriacal consumption; or when it is the effect of long-continued intermittents, or of congestions in any of the abdominal viscera. The gentle motion of a coach has been often found of great utility in pulmonary complaints. Its efficacy seems to depend chiefly on its increasing the determination to the surface of the body. The nausea which this motion excites in some persons is also an effect of this increased determination; and it has therefore been found beneficial in hæmoptysis. The good effects of sea voyages to Madeira, or Lisbon, in consumptive cases, depend more upon the constant and uniform motion of the ship, than upon any particular impregnation of the sea air; although this, from its coolness and purity, may likewise be of great use, especially in the hot months, when sea voyages are generally undertaken by consumptive patients. The ancients were no strangers to this remedy; and amongst the Romans, it was no unusual thing for consumptive persons to sail to Egypt. Pliny observes, that this was done not for the sake of the climate, but merely on account of the length of the voyage. Dr. James Carmichael Smyth, of London, has published an account of the effects of *swinging*, employed as a remedy in the pulmonary consumption and hectic fever. He contends, that sea air, instead of being advantageous, is constantly prejudicial to hectic and consumptive patients, and even to those who have a tendency to such complaints. He attempts to establish a distinction between exercise and motion. By exercise, he understands muscular action, or the exertion of the locomotive powers of the body either alone or combined. This he represents as increasing the force and frequency of the heart's contraction, the velocity and momentum of the blood, the quickness of breathing, the heat, the irritability, and the transpiration of the whole body. By motion, in contradistinction to exercise, he means such motion as is not necessarily accompanied with any agitation or succussion of the body, and which is totally independent of any muscular exertion. The effects of this, both on the heart, the lungs, and indeed on the system in general, he considers as of the sedative kind; thus it suspends the action of coughing, and lessens the frequency of the pulse. He is, therefore, led to conclude, that the motion given by swinging might be of equal, if not greater, service than the motion of sailing. Though experience in many cases has seemed to confirm this; yet, we are sorry to add, that his observations have by no means been confirmed by others, who have had recourse to this mode of cure.

The best-adapted diet in consumptive cases is milk, particularly that of asses: however, there are constitutions in which this salutary nutriment seems to disagree. In fact, the patient's taste should be consulted. A moderate use of animal food, where the salted and high-seasoned kinds are avoided, is not to be denied. Jellies of isinglass or calves' feet are very suitable. Shell-fish, particularly oysters, are also useful; as well as snails swallowed whole, or boiled in milk.

Repeated bleedings, in small quantities, are considered in consumptive cases as highly advantageous: and in particular circumstances they undoubtedly are so;—for instance, when the constitution apparently abounds with blood; when the fluid drawn off is extremely sizy; when there is much pain in the breast; and venesection is followed by an abatement of every symptom. In these cases, bleeding is certainly proper, and ought to be repeated so long as it seems to be attended with advantage. In very delicate constitutions, however, even where the pulse is quick, with some degree of fulness, and the blood last drawn considerably sizy, it may not prove equally serviceable.

In the treatment of phthisis, Dr. Simmons strongly recommends a frequent repetition of vomits. If any remedy be capable of dispersing a tubercle, he believes it to be this. The affections of the liver, that sometimes accompany pulmonary complaints, give way to repeated emetics sooner than to any other remedy. In several cases where the cough and the matter expectorated, the flushing heats, loss of appetite, and other symptoms, threatened the most fatal event; the complaints were greatly relieved, and in others wholly removed, by the frequent use of emetics. It will, however, be found, that the earlier in the disease emetics are had recourse to, the more likely they will be to do good and the less likely to do harm. The cases in which emetics may be reckoned improper, are commonly those in which the disease is rapid in its progress; or in that stage of it when there is great debility, with profuse colliquative sweats. The choice of emetics in these cases is by no means a matter of indifference. Carduus or camomile tea, warm water, &c. acting by their bulk, excite nausea, and relax the tone of the stomach, and of course are improper. The operation of antimonials is not confined to the stomach. These produce evacuations by stool, and a disposition to sweat; and are therefore still more exceptionable. The mildness and excellence of ipecacuanha as an emetic, are well known; but in these cases, Dr. Simmons has often employed *vitriolated copper*, concerning the effects of which we meet with some groundless assertions in several medical books. The operation of this is confined to the stomach; it acts almost instantaneously, and its astringency seems to obviate the relaxation that is commonly supposed to attend the frequent use of emetics. It should be administered in the morning, and in the following manner:

Let the patient first swallow about half a pint of water, and immediately afterwards the vitriol dissolved in a cupful of water. The dose of it must be adapted to the age and other circumstances of the patient, and may be varied from two grains to ten, fifteen, or twenty. As some persons are much more easily puked than others, it will be prudent to begin with a small dose: not that any dangerous effects will be produced by a large one, for the whole of the medicine is instantly rejected; but if the nausea be violent, and of long continuance, the patient may perhaps be discouraged from repeating it. In general, the moment the emetic has reached the stomach, it is thrown up again. The patient must then swallow another half pint of water, which is likewise speedily rejected: and this is commonly sufficient to remove the nausea.

Besides the use of internal remedies in pulmonary affections, physicians have often prescribed the steams of resinous and balsamic substances to be conveyed into the lungs. The vapour of camphor, or of the *æthereal spirit of vitriol*, dropt into warm water, has likewise been used in these cases. The inhaling of fixed air has also been spoken of as an useful practice. Dr. Simmons has seen all of these methods tried at different times; but without being able to perceive any real advantages from them in the suppurative stage of the disease, where they might be expected to be of the greatest use; and in the beginning he has often found the two first to be too stimulating. He therefore preferred the simple vapour of warm water, drawn from the *inhaler*, invented by Dr. Mudge. Another remedy recommended by some as a specific in consumptions remains to be mentioned: this is the *earth-bath*, an account of which will be found under that article.

With regard to the drains, such as blisters, issues, and setons, that are so frequently recommended in pulmonary complaints, there is less danger of abuse from them than from the practice of venesection. The discharge they excite is not calculated to weaken the patient much; and the relief they have so often been found to afford, is a sufficient reason for giving them a trial. Blisters, as is well known, act in a twofold manner; by obviating spasm, and producing revulsion: issues and setons act chiefly in the latter of these two ways; and in this respect their effects, though less sudden and less powerful at first, are more durable from the continuance of the discharge they occasion. It is perhaps hardly necessary to remark, that, if much service is to be expected from either of these remedies, they should be applied early in the disease. Dr. Mudge, who experienced the good effects of a large scapulary issue in his own person, very properly observes, that the discharge in these cases ought to be considerable enough to be felt. But it is seldom possible for us to prevail on the delicate persons, who are most frequently the victims of this disease, to submit to the application of a caustic between the shoulders. The discharge produced by a seton is by no means inconsiderable; and as in these cases there is generally some inflammatory stitch, some part of the breast that is more painful or more affected by a deep inspiration than the rest, a seton may be introduced, in many cases, with some prospect of advantage. See Seton.

PHU (φου; from *phua*, Arab.) See Valeriana Major.

PHYGE'THLON (φυγεθλον; from φυω, to *grow)*; a red and painful tubercle which often arises about the anus, and if badly treated becomes fistulous.

PHYLLA'NTHUS E'MBLICA; the systematic name of the Indian tree from which the emblic myrobalan is obtained. See Myrobalanus.

PHYLLI'TIS (φυλλιτις; from φυλλον, a *leaf;* so called because the leaves only appear). See Scolopendrium.

PHY'MA (φυμαι; from φυω, to *produce)*, a name for tubercles formed in any external part of the body.

PHYSA'LIS ALKEKE'NGI (φυσαλις, from φυσαω, to *inflate)*; so called because its seed is found in a kind of bladder, and *alkekengi* (ALKAKANGI, Arab.) the *halicacabus* or winter-cherry; the systematic name of the winter-cherry. See Alkekengi.

PHYSCO'NIA (φυσκωνια; from φυσκων, a *big-bellied fellow)*, a physcony, or enlargement of the abdomen. It is a genus of disease in the class *cachexiæ*, and order *intumescentiæ*, of Cullen; known by a tumor occupying chiefly one part of the abdomen, increasing slowly, and neither sonorous nor fluctuating. The species are: 1. *Physconia hepatica.* 2. *Splenica.* 3. *Renalis.* 4. *Uterina.* 5. *Ab ovario.* 6. *Mesenterica.* 7. *Omentalis.* 8. *Visceralis.* Cusson makes fifteen species. This disease may arise from a variety of causes, as from a swelling of the liver, spleen, kidneys, uterus, omentum, ovarium, mesentery, intestines, &c. and sometimes it arises merely from fat. In the former cases, as the viscera are generally scirrhous and indurated, the disease is for the most part incurable; neither is the prospect much better where the disease is occasioned by a great quantity of fat.

PHY'SETER MACROCE'PHALUS (φυσητηρ; from φυσαω, to *inflate*, so named from its action of blowing and discharging water from its nostrils; and *macrocephalus*, μακροκεφαλος, from μακρος, *long*, and κεφαλη, the *head;* from the length of its head), the whale producing ambergrise. See Ambragrisea.

PHYSICIAN; an appellation exclusively given to those persons who exercise the medical profession, under the sanction of a diploma granted by an university, after a regular course of study. Many surgeons and apothecaries, who have received liberal educations, and practise the healing art on scientific principles, are entitled to their proper distinction in society; but not having obtained the degree which constitutes a *doctor of medicine*, they cannot with justice and propriety trench on the privileges of the latter, though it is much too frequently the case in particular instances.

When we consider the almost boundless acquisitions to be made in the different branches of natural knowledge, as well as in the practical acquaintance with that complicated machine in which the human mind acts the most conspicuous part; when we reflect on the various requisites to form the character of a good physician, and the great trust reposed in him by all ranks of society; it will not appear surprising to the cool observer, that, in this honourable profession, the number of its adepts should be equally diversified by their talents, their claims to public favour, and their modes of conduct. In speaking of the duties of a physician, Dr. Willich observes, that a man who maintains this important station in society, ought, besides a competent share of knowledge, to possess a humane and sympathising, though intrepid, disposition of mind. He must be candid on all occasions; without any studied reserve, but circumspect in his declaration to the patient; and, where danger is to be apprehended, nothing should deter him from concealing the probable termination of the case from parents, or the nearest relations. Nor will a physician of a liberal and enlightened mind hesitate to explain the reasons, or causes, which induce him to prescribe certain medicines in preferance to others perhaps differing from those of his predecessors. And if he cannot, on the spur of the moment, determine himself respecting the most proper treatment, instead of prescribing conformably to the common routine of business, or copying a recipe from his memorandum-book, he will frankly inform the patient of the difficulty attending his complicated disease, and give the most appropriate directions for arranging every part of his diet and regimen. Thus he cannot fail of acquiring confidence and credit; while he enjoys the pleasing satisfaction that he has acted consistently with his conscience, and the dignity of his profession.

Dr. Willich censures " the *man of business*, who, entering the sick-room, will previously direct his attention to the curtains, pictures, chairs, &c. instead of examining with the most scrutinising attention the expressive countenance of the patient, whose life perhaps depends on the *first* criterion, thus neglected." He condemns the asking a few superficial questions, " hastily feeling the pulse," and, as it were by inspiration, writing a " most elaborate and mysterious prescription," the work of ten, or at the farthest fifteen, minutes! Such is said to be the practice of those routine physicians, who degrade their profession into a *trade;* which is comparatively less respectable than that of the lowest mechanic! The same writer thus points out the circumstances which he thinks deserving minute attention in the *first examination of a patient.*

" In order," says he, " to obtain a clear and complete view of *chronical diseases,* for which a physician is generally consulted after the patient himself, and afterwards the apothecary, have exhausted their stock of medicinal remedies, it will be requisite to proceed *more systematically,* and to enquire into the following particulars: 1. The duration of the disease. 2. The age of the patient. 3. His external form and constitution of body. 4. His usual occupations, trade, or rank in life. 5. Whether married or single. 6. Climate; native country; and local situation with respect to dwelling. 7. Domestic circumstances and employment, if connected with the disorder. 8. Disposition of mind; character; mode of thinking; if influenced by political or religious views. 9. Extent of his mental capacity, or cultivation of mind. 10. Favourite pursuits. 11. Usual intercourse, or society. 12. Particular habits or customs. 13. Modes of living, with respect to food and drink. 14. Local or external affections. 15. His peculiar temperament.

" When these preliminary enquiries have been cautiously instituted, without intruding on the patient; or appearing too officious to his relations; the systematic practitioner will next endeavour to ascertain the following data, leading to a more intimate knowledge of the disease: 1. The countenance of the patient. 2. His situation and posture in bed, or gait in the room. 3. His previous state of health. 4. The remedies and physicians he has employed on former occasions. 5. Idiosyncrasy, or peculiarity of constitution. 6. Instinctive propensities. 7. The prevailing character of diseases at the time, whether of an infectious, epidemic, or endemic nature.

" Lastly, in order to discover the exact deviation from a natural or healthy state, none of the following points ought to be disregarded; though it should be impracticable to pay the most scrupulous attention to each, at the *first* interview: namely, 1. The internal and external sensations of the patient. 2. The commencement and progress of the disease. 3. The pulse. 4. The breathing. 5. Muscular energy. 6. The appearance of the head and hair. 7. The throat and neck. 8. Deglutition, or swallowing. 9. The chest. 10. The abdomen. 11. Appetite for eating or drinking. 12. The back, or vertebræ. 13. Deformities. 14. Vision, and the eyes, eye-lids, region about the eyes, and lachrymal glands. 15. The skin, with respect to its colour and elasticity. 16 The nails. 17. The organ of smelling. 18. The prevalent taste in the mouth; appearance of the tongue and palate, together with the lips. 19. The organs of hearing. 20. State of the bowels, whether lax or costive. 21. Urine. 22. Insensible perspiration. 23. Expectoration. 24. Nausea, retching, or vomiting. 25. The circulation of the blood. 26. The organs peculiar to the sex, and their functions. 27. Periodical evacuations designed by nature. 28. Sleep.

" Besides these general points, which relate to every individual, an experienced enquirer will adapt his questions to the particular age, sex, and condition, of the patient:—thus, children and young mothers; the nervous and hysteric; the hypochondriac and melancholic; each will suggest to his mind a different course for ascertaining the nature, seat, and origin of the disease. The result of this examination constitutes the difference between the empiric and the rational physician: the former cures *symptoms,* not unlike the sagacious old woman who has studied *Culpepper's Herbal;* but the chief object of a medical philosopher, is the removal of *disease,* without neglecting the mitigation of painful symptoms; provided they originate from natural, not incidental causes; or in other words, if they are connected with the state and progress of disordered functions."

These remarks of Dr. Willich may serve to direct the inexperienced physician in what relates to the mere medical treatment of those who fall under his care, but they by no means extend to the various moral and relative duties which no less indispensably belong to the medical character. These last, however, form too extensive a field for us to engage in; for which reason we refer the reader to the excellent work of the late Dr. Gregory " On the Duties and Qualifications of a Physician," and to the more recent one of " Medical Ethics," by the late Dr. Percival.

PHYSICS (*φυσικη*, from *φυσις, natural),* in general, the science of all material beings, or whatsoever concerns the system of this visible world. In a more limited and improper sense, the term *physic* is popularly applied to the science of *Medicine.*

PHYSIOGNO'MIA (*φυσιογνωμια*; from *φυσις, nature,* and *γινωσκω,* to *know); Physiognomy,* or the art of knowing the disposition of a person from the countenance. This has had great celebrity of late, in consequence of the ingenious and highly ornamented publications of Lavater, whose disciples, however, have been rather the admirers of fine engraving, than sincere converts to his opinions. The features of the soul, it seems, have, more recently, been discovered, by Dr. Gall, quite on the opposite side of the head; and *Craniology,* with perhaps equally just pretensions, is the whim of the present day.

PHYSIOLOGY *(physiologia, φυσιολογια;* from *φυσις, nature,* and *λογος,* a *discourse);* the science which treats of the actions and powers of an animated body. Dr. Cullen, in treating of the physiology of the human body, first considers the solid matter of which our bodies are composed, and which he calls the *simple solid.* Here he differs remarkably from Boerhaave; for the latter, following the doctrines of the chemists, asserted, that the original stamina of the human body are fibres composed of earthy particles cemented together by a kind of glutinous matter. This cementation is denied by Dr. Cullen, who very justly observes, that nothing can be deduced from the chemical analysis of these solids, unless we were able to recompose them from the principles to which they are reduced by chemical operations.—All that we can know, therefore, with regard to our solid parts, is, that they are formed of water, and a certain matter concreting along with it. The brain is that part of the human body which is first formed; and therefore, he is of opinion, that it is the principal or chief organ, upon which the welfare of the body depends. The original stamina of the body, he also supposes to be fibrous; and differs from other physiologists, who suppose it totally to consist of cellular texture. This last, he thinks, is super-added to the fibres. How the nutritious matter is applied to the fibres, in order to extend them in length, or to form a cellular texture on their surface, he declares himself unable to explain. "It is probable, however," says he, "that for a certain time, at its first beginning, the growth of animal bodies proceeds in the same manner as that of vegetables: but it is evident, that, at a certain period in the growth of animals, a different economy takes place; and that afterwards the growth seems to depend on an extension of the arteries, in length and wideness, by the blood propelled into them. It may be supposed that this extension of the arteries is applied to every fibre of the body; and that, by the extension of these, it gives an opportunity for the application and accretion of the nutritious matter, to the growth therefore of the fibre itself, and to the growth of cellular texture on its surface. Perhaps the same extension of the arterial system gives occasion to the secretion of fluids, which, poured into the cellular texture already formed, according to the disposition of these fluids to concrete more or less firmly, gives the different degrees of hardness or density to be observed throughout the body.

By this extension of the arterial system, the several parts of the body are gradually evolved, some of them sooner, others later, as by the constitution of the original stamina, or after-occurrences, they are severally put into such conditions as render them less exposed to the impetus of the blood, and fitted to receive a greater quantity of it. But as the parts by these causes first evolved, will increase the most in the density of their solid parts, they will therefore more and more resist their former growth; and by the same resistance will determine the blood, with more force and in greater quantity, into the parts then not so far evolved. Hence the whole system will be at length evolved; and every part of the solids will, in respect of density and resistance, be in balance with every other part, and with the forces to which they are severally exposed.

The extension of the arteries depends upon the resistances which occur to the free transmission of the blood through them; and further, from a resistance in the veins. For as a considerable portion of the blood does not commonly pass into the smaller branches of the arteries, but must pass very entirely into the veins; so these, by their capacity constantly diminishing as they approach nearer to the heart, and by their coats being of a density and firmness sufficient to prevent further dilatation, considerably resist the free passage of the blood from the arteries into them.

While these resistances continue, the arteries, and with them almost every fibre of the body, must be extended at every systole of the heart, and with this extension the growth of every part will proceed; but as every part, by its receiving an addition of solid matter, becomes more dense and rigid; so it is less easily extended, and perhaps less readily receives an accretion of new matter than before. Hence it is, that the more the body grows, it admits of any additional growth the more slowly; and unless the extending powers increase in the same proportion with the increasing density of the solids, there must be a period at which these two powers will balance each other, and the growth will proceed no further. But as it is evident, that the bulk and weight of the heart, and probably therefore its force, does not increase with the increasing bulk of the body, and that the action of the heart is the principal extending power in the system; it is also plain, that the extending power does not extend in the same proportion with the increasing density of the solids; and therefore that these two powers will, at a certain period, come to balance each other.

But not only is the force of the heart thus constantly diminishing with respect to the resistance of the arteries, but, though this force were still subsisting, it has, from other causes, less effect in extending the arteries. The blood is more confined in the arteries, and extends them further in proportion to the resistance of the veins; and this resistance in the veins, and extension of the arteries depending upon it, will be more or less according to the respective density of these two sets of vessels. But it appears, from the experiments of Sir Clifton Wintringham, that the density and firmness of the veins with respect to their corresponding arteries, is much greater in young animals than in old ones: and thence it appears, that, during the growth of animals, the arteries are acquiring an increase of density in a greater proportion than the veins are at the same time; and therefore, that the resistance in the veins with respect to the arteries must be constantly diminishing; that the veins will therefore receive a greater proportion of blood; that in the same proportion the arteries will be less extended; and lastly, that the diminished resistance in the veins concurring with the diminished force of the heart, will the sooner bring the increasing rigidity of the arteries, and therefore of every fibre in the body, to be in balance with the extending powers; at least so far as to prevent their producing any further growth.

This account of the change of the resistance in the arteries and veins, with respect to one another, is agreeable to phenomena, which shew, that the arteries are larger, and contain more blood in proportion to the veins, in young animals than in old; that arterial hæmorrhages occur most frequently in young persons; and that congestions in the veins, with hæmorrhages, or hydropic effusions depending upon them, occur most frequently in old age.

It is probable, that the resistance both of arteries and veins goes on increasing, while the force of the heart is not increased at the same time: but it appears also, that from the diminishing force of the heart, and the compression which the smaller vessels are exposed to from the distension of the larger, the action of the muscles, and other causes, the number of small vessels, and therefore the capacity of the whole system, is constantly diminishing so much, that the heart may still for some time be sufficient for the circulation of the blood. But while the resistances in the vessels are constantly increasing, the irritability of the moving fibres and the energy of the brain are at the same time constantly diminishing; and therefore the power of the heart must at length become unequal to its task, the circulation must cease, and death ensue.

The unavoidable death of old persons is thus in part accounted for; but it is, however, still probable, that the same event proceeds chiefly from the decay and total extinction of the excitement or vital power of the nervous system, and that from causes very much independent of the circulation of the blood, and arising in the nervous system itself, in consequence of the progress of life. This seems to be proved by the decay of sense, memory, intellect, and irritability, which constantly takes place as life advances beyond a certain period.

Thus the nervous system is represented by Dr. Cullen as the substratum or fundamental stamina of the whole body; and indeed, as the author explains it, our whole frame is so made up of nerves, that the body may be said to contain nothing else. The nervous system he divides into four parts. 1. The medullary substance contained in the cranium and vertebral cavity; the whole of which seems to consist of distinct fibres, but without the several fibres being separated from each other by any evident developing membranes. 2. Connected with one part or other of the above substance are the nerves, in which the same medullary substance is continued; but here more evidently divided into fibres, each of which is separated from the others by an enveloping membrane derived from the pia mater. 3. Parts of the extremities of certain nerves in which the medullary substance is divested of the enveloping membranes from the pia mater, and so situated, as to be exposed to the action of certain external bodies, and perhaps so framed, as to be affected by the action of certain bodies only. These he calls the *sentient extremities* of the nerves. 4. Certain extremities of the nerves, so framed as to be capable of a peculiar contractility, and in consequence of their situation and attachments, to be, by their contraction, capable of moving most of the solid and fluid parts of the body. These he calls the *moving extremities of the nerves;* they are commonly called *moving* or *muscular fibres.* The proof of this last position is given in these words:

"The inherent power (or contractility of the muscles) is supposed to be more vigorous, moveable, and permanent, in certain muscular fibres than in others. The inherent power, or the contraction dependent upon it, can be excited by certain applications, made either to the muscles themselves, or to the nerves connected with them; and in either case, the effects of such application are so exactly the same as to allow us to conclude, that the matter of the nerves and of the muscular fibres is of the same kind. The muscular fibres are sensible to various impressions, and are otherwise organs of the sensations of consciousness. From this also it is presumed, that the muscular fibres consist of the same matter which is the subject of sense in other parts of the nervous system. From the two last and other considerations, we think it probable, that the muscular fibres are continuations of the medullary substance of the brain and nerves, as before alleged. Though the muscular fibres consist of the same kind of matter as that in the nerves, the latter shew no contractility, because they have not the peculiar organization of the former."

Some physiologists, particularly Haller, have endeavoured to prove, that the muscles have a power of motion independent of that which they receive from the nerves; these our author refutes by some experiments which prove, that both of them continue for an equal length of time, and that when the nerve is irritated, the muscle contracts, even after death, in the same manner as though the muscular fibres themselves were irritated.

Dr. Cullen next endeavours to shew, that the force of cohesion and of the muscular fibres are the same. His words are, "As the force of cohesion in the muscular fibres of living animals is much greater than in those of dead ones, it is probable from this and other considerations, that the cause of muscular contraction is an increase only of that same power which gives the contractility of the simple solids, and of other inanimate elastics."

If this is true, it will also explain why the force of cohesion in muscular fibres is greater than that of the medullary fibres in any other part of the nervous system, though both kinds of fibres consist of the same kind of matter. The power above mentioned he conjectures to be an elastic fluid, the motions of which are excited in the nerves, and by their means accumulated in the muscles. The excitement of the fluid in some measure is what is properly called *life,* at least as far as that is corporeal; and its *collapse,* or some diminution of its motion, produces sleep, fainting, &c. or if the collapse is total and irrecoverable, death itself.

With regard to this nervous power, Dr. Cullen absolutely denies that it is secreted from the blood. "The most common opinion," says he, "is, that the brain is a secretory organ, which secretes a fluid necessary to the functions of the nervous system; that this fluid is alternately exhausted and recruited, and thereby gives occasion to the alternate states of sleeping and waking. But this supposition is attended with many difficulties. 1. It is probable that the nervous fluid existed in the animal embryo before the action of the heart, or any secretory function, could take place. 2. In animals which during the winter suffer a temporary death, when, by heat, they are again restored to life, the vital power of the solids is restored before the fluidity of the blood. 3. The nervous fluid subsists in the nerves and muscular fibres long after they are separated from the brain, and often when cut into small parts. 4. Though it be true that the brain is a secretory organ, the fluid may be destined to another purpose; and, so far as we understand that purpose, the fluid fit for it must be unfit for the purposes of sense and motion. 5. There is no appearance, in any part of the nervous system, of provision made for an occasional accumulation of the secreted fluid; nor is there any evidence of its actually taking place. 6. The phenomena of sleep and waking do not correspond with such a supposition; as sleep often takes place when the secreted fluid must be copiously present, and waking can be protracted when the fluid is exhausted much beyond its usual measure. 7. Both states are induced by many causes which can hardly be supposed to act upon a secretion.

"A certain compression of the brain can produce a state of the system resembling sleep: but that state is in some respects different from that of ordinary sleep; and it does not by any means appear, that natural and ordinary sleep depends upon any compression of the brain.

"As it is therefore probable that sleep and waking do not depend upon a different quantity of the matter of the nervous fluid for the time present in the system, or upon any causes interrupting its motion, while the condition of the matter remains the same, we are disposed to believe, that those states of sleep and waking depend upon the nature of the nervous fluid itself, capable of becoming more or less moveable; that it is chiefly in the brain susceptible of these different conditions; and that especially by its condition there, it has its more general effects on the system."

Speaking afterwards of the *nutrition of the body*, he says, "From the fibrous parts being evidently, in most instances, parts of the nervous system, and from the gradual formation of the fœtus, in which the nervous system is first formed, we think it probable, that the whole of the fibres in the different parts of the body, are a continuation of the nerves; and this again will lead to the conclusion, that the nourishment of the soft and homogeneous solids every-where is conveyed to it by the nerves.

"This supposes also, what is otherwise probable, that the cortical part of the brain, or common origin of the nerves, is a secretory organ, in which the gluten of the blood being freed from all saline matter before adhering to it, becomes fit for the nourishment of the solids, and being poured in a sufficiently diluted state upon the organ of the nerves, it is filtrated along the fibres of these, and is thus conveyed to every staminal fibre of the system. We suppose, at the same time, that the medullary, or what may be called the *solid matter of the nerves*, is, in the living body, constantly accompanied with a subtile elastic fluid, which fits them for being the organs of sense and motion, and which probably is also the means by which the nutritious fluid is carried on in the substance of the nerves from their origin to their extremities."

By this system, the blood and its circulation, instead of being the principal or vital function, as it was reckoned by Hervey and others, becomes so exceedingly secondary in the animal economy, that it answers little other purpose besides the nutrition of the body. It has been objected, however, that this fluid is, somehow or other, of the utmost consequence; since a stoppage of the circulation, or a wound in the large vessels about the heart, proves instant death, without waiting for any consumption of the body by reason of its want of nourishment. This our author explains by reminding us, that the vessels must necessarily be in a certain state of distension, in order to the mobility of the nervous fluid. The evacuation of all the blood causes an irretrievable collapse of the vessels, and consequently of the nervous fluid; upon which death immediately takes place.

It would be mere repetition here to enter into any particular disquisition concerning the manner in which the different functions of the animal economy are performed. These may be seen under their proper heads, or they may be traced as they occur in the writings of Haller. What we have already taken notice of will be sufficient to make Dr. Cullen's theory of diseases quite intelligible.

PHYSOCE'LE (φυσοκηλη; from φυσα, *wind*, and κηλη, a *tumor)*; that species of hernia, whose contents are distended with flatus.

PHYSOCE'PHALUS (φυσοκεφαλος; from φυσα, *wind*, and κεφαλη, the *head)*; an emphysema of the head. See PNEUMATOSIS.

PHYSOME'TRA (φυσομετρα; from φυσαω, to *inflate*, and μετρα, the *womb)*; a tympany of the uterus. It is a genus of disease in the class *cachexiæ*, and order *intumescentiæ*, of Cullen; who defines it, a light elastic swelling of the hypogastrium, from flatulent distension of the womb. It is a rare disease, and where it does exist, seldom admits of a cure.

PHYTOLA'CCA DECANDRIA (φυτολακκα; from φυτον, a *plant*, and λακκα, *gum-lac*; so called because it is of the colour of lac), the systematic name of the American night-shade; *solanum recemosum Americanum*. In Virginia and other parts of America, the inhabitants boil the leaves, and eat them in the manner of spinach. They have a slight anodyne quality like our lettuce, and the juice of the root is violently cathartic. The Portugueze formerly used to mix the juice of the berries with their red wines, in order to give them a deeper colour; but it was found to hurt the flavour. This fraud was represented to his Portuguese majesty, who ordered all the stems to be cut down yearly before they produced flowers, so as to prevent any future adulteration. This plant has been used as a cure for cancers, but to no purpose.

PHYTOLO'GIA (φυτολογια; from φυτη, an *herb*, and λογος, a *discourse)*; phytology, or that part of the science of natural history which treats on plants.

PI'A MATER *(pia mater*, the natural mother; so called because it embraces the brain as a good mother enfolds her child); a thin membrane, almost wholly vascular, that is firmly accreted to the convolutions of the cerebrum, cerebellum, medulla oblongata, and medulla spinalis. It is of a much softer and finer substance than the dura mater, to which it is connected only by the veins which open into the sinuses. See CEREBRUM. It is composed of two laminæ, of which the external one is named *tunica arachnoidea*, from its resemblance to a cobweb. They adhere closely to each other at the upper part of the brain; but are easily separable at the basis, and through the whole length of the spinal marrow.

The tunica arachnoidea is a remarkable thin and transparent membrane, having no vessels, that can be injected, entering into its composition. It is spread uniformly over the surface of the brain, inclosing all the circumvolutions, but without entering in between any of them; while the pia mater forms a great number of plicæ, duplicatures, and septa, which not only cover the brain in general, but insinuate themselves into all the folds and circumvolutions, and between the different strata of the cerebrum and cerebellum, and are likewise continued into the different cavities.

The two laminæ of the pia mater are connected by a cellular substance, which accompanies them through their whole extent, except at some places of the basis of the cerebrum, &c. where, the internal lamina continuing its insertions, the external remains uniformly stretched over the prominent parts, the interstices of which are entirely separated from the other lamina, without any cellular substance between them. These separate portions of the external lamina have made it be looked upon as a third membrane of the brain, distinct from the pia mater.

PI'CA (*pica*, from the bird called a pie; which is said to be subject to this disposition), a desire of unusual things both to eat and drink; the patient being soon tired of one thing and wanting another, particularly things that are accidentally smelled. Dr. Cullen places this genus of disease in the class *locales*, and order *dysorexiæ*, and defines it a desire of eating things not fit for food. It is most common in pregnant women and chlorotic girls, and, it is said, in men who labour under suppressed hæmorrhoids. It is, therefore, chiefly to be combated by the removal of the primary affection. It may, however, be observed, that peculiar longings occurring in certain diseases, as, for example, in fevers, often point out a natural cure. The indulgence of such appetites to a moderate degree is seldom productive of any inconvenience, and often followed by the best consequences. Hence there are some practitioners who think that such craving should very generally be indulged; particularly when the patient can assign no reason whatever for such particular longings, but is merely prompted by an uncommon and inexplicable desire.

As a variety of pica, we may perhaps consider that tropical one to which Dr. Chisholm has given the name of *Cachexia Africana*, a disease to which the negroes, and particularly those newly imported, are much subject. It is named by the French *mal d'estomac;* and, from a constant symptom which attends it, *dirt-eating*, by some. Negroes also, who have been some time in the West Indies, are subject to this disease, but not so frequently as among the former. Morbid changes take place throughout the alimentary canal, in consequence of the vitiated state of the gastric juice and impeded digestion; a morbid acidity prevails; and a symptom arises from this cause, which, with some, has given name to the disease,—a habit of eating chalk, dirt, or whatever will obtund acrimony.

PICE'A (of the Gr. πιτυς, *pitch);* the common or red fir or pitch-tree. The cones, branches, and every part of this tree, afford the resin called frankincense. See THUS.

PICHU'RIM. See PECHURIM.

PICKLE, a kind of brine or liquor, which is generally prepared of salt and nitre, with the occasional addition of spices, or aromatic herbs, for the preservation and seasoning of flesh-meat. The name of pickle is also given to any vegetables, as cabbage, preserved by the use of vinegar. Dr. Cullen considers these as having no other quality but that of vinegar. See CONDIMENTA.

PI'CRIS ECHIOIDES (πικρις; from πικρος, *bitter*, and *echioides*, εχιοιδης, from εχιον, from εχις, *a viper*, and ειδος, *resemblance);* the systematic name of the common ox-tongue. The leaves of this plant are frequently used as a pot-herb by the country people, who esteem it good to keep the bowels open.

PI'CTONUM COLICA, a variety of the *colica spasmodica* of Cullen. It is occasioned by lead, or the fumes of lead, taken into the system by accidental means, as from the vapour or handling of white lead paint. See COLICA PICTONUM.

PIG-NUT, EARTH-NUT, or GROUND-NUT, the bulbous root of the *Bunium bulbocastanum* Linn. Pig-nuts are so called because pigs are very fond of them, and will dig to some depth for them. They are of a dirty brown colour, a little bigger than a hazel-nut, and flavoured like the chesnut. They are sweetish to the taste, and are said to possess a styptic quality, on which account they are deemed serviceable in laxity of the kidneys; but they have no material medical properties.

PIGME'NTUM (from *pingo*, to paint), pigment. This name has been given by anatomists to a mucous substance found in the eye, which is of two kinds: 1. *The pigment of the iris*, or that which covers the anterior, and gives the beautiful variety of colour in the eyes of different persons. 2 *The pigment of the choroid membrane.* This is a black or brownish mucus, which covers the anterior surface of the choroid membrane, contiguous to the retina, and the interior surface of the ciliary processes. It is easily discovered in a dissection of the eye.

PILES. See HÆMORRHOIDS.

PILE-WORT. See CHELEDONIUM MINUS.

PI'LI (from πιλος, *carded wool);* hairs. See HAIR.

PILOSE'LLA (from *pilus*, hair, because its leaves are hairy), the *auricula muris, myosotis*, or mouse-ear; the *Hieracium pilocella* Linn. This common plant contains a bitter lactescent juice, which is slightly astringent. The roots are more powerful than the leaves, but neither are much used in this country.

PI'LULÆ (from *pila*, a ball); pills. This form of medicine is well adapted for those substances that operate in small doses, and that are offensive in taking, or so heavy that they are not easily suspended in, or mixed mechanically with, any fluid. Pills dissolve the most difficultly, and produce the most gradual and lasting effects, of any other form. This, in some cases, is a disadvantage, in others an advantage. Emetics, if they are retained long in the stomach, usually pass off by stool; but tonics are proper in this form.

When the mass is to be divided into pills, a given weight of it is rolled out into a cylinder of a given length, and of an equal thickness throughout, and is then divided into a given number of equal pieces with a knife; or, by means of a simple machine of late invention, this may be still more accurately and quickly done. These pieces are then to be rounded between the fingers; and, to prevent them from adhering, they are covered either with starch or powder of liquorice. In Germany, the powder of lycopodium is much used.

But gold or silver leaf does not dissolve in the stomach; and these will often prevent the pills from dissolving, therefore they should never be used.

What cannot be included in four or five pills, for one dose, is not fit for this form. The term pilula, in our pharmacopœias, is given to several compounds, most of which will be found under some one of the principal ingredients.

PI'LUS (from πιλος, *wool carded)*; the short hair which is found all over the surface of the human body. See CAPILLUS.

PIME'NTO (*Ramienta*, pepper, Span.), Jamaica pepper, or all-spice: *Amomum pimenta*; the *Myrtus pimenta* of Linnæus. *Myrtus floribus trichotomo-paniculatis, foliis oblongo-lanceolatis.* Hort. Kew. Class, *Icosandria.* Order, *Monogynia.* All-spice, which was first brought over for dietetic uses, has been long employed in pharmacy as a succedaneum for more costly oriental aromatics. It is moderately warm, of an agreeable flavour, somewhat resembling that of a mixture of cloves and nutmegs. The pharmacopœias direct an aqueous and spirituous distillation to be made from these berries; and the Edinburgh College orders also the *oleum essentiale piperis Jamaicensis.*

PI'MPERNEL, a name by which the anagallis arvensis is sometimes called. See ANAGALLIS.

PI'MPERNEL, WATER. See BECABUNGA.

PIMPINE'LLA (*quasi bipinella* or *bipenula*, from the double pennate order of its leaves); also called *Pimpinella alba*, and *Pimpinella nostras*, by authors. Several species of this were formerly used officinally; but the roots which obtain a place in the materia medica of the Edinburgh Pharmacopœia, are those of the *Burnet saxifrage*, the *Pimpinella saxifraga* Linn. *Pimpinella; foliis pinnatis, foliolis radicalibus subrotundis, summis linearibus.* Class, *Pentandria.* Order, *Digynia.* These roots have an unpleasant smell; and a hot, pungent, bitterish taste. They are recommended by some medical writers as a stomachic. Employed in the way of a gargle, they have been found useful for dissolving viscid mucus, and stimulating the tongue when that organ has become paralytic.

PIMPINE'LLA ALBA; a variety of the *pimpinella magna.* The root of this is indifferently used with that of the greater pimpinella, called *radix pimpinellæ nigræ.* See also PIMPINELLA.

PIMPINE'LLA ANISUM; the systematic name of the anise plant. See ANISUM.

PIMPINE'LLA ITALICA. The root which bears this name in some foreign pharmacopœias, is that of the *Sanguisorba officinalis* Linn. It has long fallen into disuse in this country.

PIMPINE'LLA MAGNA; the systematic name of the greater pimpinella. See PIMPINELLA NIGRA.

PIMPINE'LLA NIGRA, the *Pimpinella magna* Linn. The root of this plant has been lately extolled in the cure of erysipelatous ulcerations, tinea capitis, rheumatism, and some other diseases; but further trials are necessary to establish its reputation.

PIMPINE'LLA NOSTRAS. See PIMPINELLA.

PIMPINE'LLA SAXIFRAGA; the systematic name of the *Burnet saxifrage.* See PIMPINELLA.

PINASTE'LLUM (from *pinus*, the pine-tree; so called because its leaves resemble those of the pine-tree), hog's-fennel. See PEUCEDANUM.

PI'NEA, the stone-pine, *Pinus pinea* Linn. The young fruit of this plant is eaten in some countries in the same manner as almonds are here, either alone, or mixed with sugar. They are nutritive, demulcent, and laxative, but have no valuable medicinal properties.

PINEAL GLAND (called *pineal* from *pinea*, a pine-apple, from its supposed resemblance to that fruit), *Glandula pinealis*, or *Conarium*; a small heart-like substance, about the size of an ordinary pea, irregularly round, and sometimes of the figure of a pine-apple, situated behind the thalami nervorum opticorum above the tubercula quadrigemina. It is fixed like a small button to the lower part of the thalami, by two very white medullary pedunculi, which, at the gland, are very near each other, but separate almost transversely toward the thalami. It seems to be mostly of a cortical substance, except near the footstalks, where it is somewhat medullary. The footstalks are sometimes double, as if they belonged to the two anterior tubercles. This body adheres very closely to the plexus choroides, by which it is covered; and it therefore requires some dexterity to separate the pineal gland, without altering its situation, or breaking the pedunculi. This gland was formerly supposed to be the seat of the soul; but it has been often found to contain grit, or gravel. An account of a singular tumor, situated on this gland, may be found in the Trans. of the London Soc. for Med. and Chir. Improvement, by Dr. Blane.

PINE-APPLE. See ANANAS.

PINE THISTLE. See CARLINA GUMMIFERA.

PINEAU (Severin du); an eminent French surgeon, who died at Paris in 1619. He was a native of Chartres, and first surgeon to the king of France. He was very skilful in lithotomy; and left behind him, 1. A Discourse concerning the Extraction of the Stone in the Bladder, published in 1610, in 8vo. 2. A Treatise *De Virginitatis Notis*, printed at Leyden 1641, in 12mo. This last performance, however, is exceptionable on the score of morality.

PINE'US PURGANS. See RICINUS MAJOR.

PINGUE'DO (from *pinguis*, fat), fatness. See FAT.

PINGUI'CULA (from *pinguis*, fat, so called because its leaves are fat to the touch), called by the different names of *Viola palustris*, *Liparis*, *Cucullata*, and *Dodecatheon Plinii*; butter-wort, or Yorkshire sanicle: the *Pinguicula vulgaris* Linn. The remarkable unctuosity of this plant, has caused it to be applied to chaps in the skin, and as a pomatum for the hair. Decoctions of the leaves, in broth, are used by the common people in Wales as a purge.

PINHO'NES INDICI. See RICINUS MAJOR.

PINK, INDIAN. See SPIGELIA.

PI'NNA NASI, the same as ALÆ NASI, which see.

PINNATA FOLIA (from *pinna*, a feather), in botany, a term applied to such leaves of plants whose leaflets are connected to the side of the leaf-stem, as in the rose, vetch, jasmine, &c.

PINTOR (Peter), born at Valencia in Spain, in the year 1420, was physician to Alexander VI. whom he followed to Rome, where he practised with great success. He has left behind him two performances of considerable merit: 1. *Aggregator Sententiarum Doctorum de Curatione in Pestilentia,* printed at Rome 1499, in folio. 2. *De Morbo Fœdo & Occulto his Temporibus affligenti,* &c. printed at Rome 1500, in 4to, black letter; a book extremely scarce, unknown to Luisini and Astruc, and which traces the venereal disease to the year 1496. Pintor died at Rome in 1503, aged eighty-three years.

PI'NUS ABIES; the Norway spruce-fir, which affords the pix Burgandica. See Burgundy pitch.

PI'NUS BALSAMEA; the systematic name of the tree which affords the Canada-balsam. See Balsamum Canadense.

PI'NUS LARYX; the systematic name of the tree from which are obtained agaric and Venice turpentine. See Agaricus albus, and Terebinthina Veneta.

PI'NUS PICEA; the systematic name of the silver fir. See Terebinthina communis.

PI'NUS PINEA; the systematic name of the stone pine-tree. See Pinea.

PI'NUS SYLVESTRIS; the systematic name of the Scotch fir. See Pix liquida.

PI'PER (*πιπερι*, or *πιπερις*, from *πεπτω* to *concoct*, because by its heat it assists digestion); pepper. See Pepper.

PI'PER ALBUM. See Piper nigrum.

PI'PER CAUDATUM. See Cubebæ.

PI'PER CUBEBA; the plant from which the berries called cubebs are procured. See Cubebæ.

PI'PER HISPANICUM. See Piper Indicum.

PI'PER INDICUM; called by the different names of *Capsicum, Piper Brazilianicum, Piper Guineense, Piper Calecuticum, Piper Hispanicum, Piper Lusitanicum;* Cayenne pepper, or Guinea pepper. See Capsicum. This pepper is obtained from the *Capsicum annuum; caule herbaceo, pedunculis solitariis* Linn. Class, *Pentandria.* Order, *Monogynia.* It is an aromatic of the most stimulant kind.

PI'PER JAMAICENSE. See Pimento.

PI'PER LONGUM, or *Macropiper,* long pepper; the *Piper longum* of Linnæus. *Piper foliis cordatis petiolatis sessilibusque.* Class, *Diandria.* Order, *Trigynia.* The berries are gathered while green, and dried in the sun; when they change to a blackish or dark grey colour. They possess precisely the same qualities as the pimento, only in a weaker degree.

PI'PER LUSITANICUM. See Piper Indicum.

PI'PER MURALE. See Illecebra.

PI'PER NIGRUM, or *Melanopiper;* black pepper, a species obtained in the East Indies. It is produced from the *Piper nigrum* Linn. *Piper foliis ovatis septemnerviis glabris, petiolis simplicissimis.* Class, *Diandria.* Order, *Trigynia.* Its virtues are similar to those of peppers in general. The black and white peppers are both obtained from the same tree, the difference depending on the preparation they undergo, and their degrees of maturity.

PIPERI'TIS (from *piper*, pepper, so called because its leaves and roots are biting, like pepper, to the taste); a name for *Dittander.* See Nasturtium hortense.

PISIFO'RME OS; the *pisiform bone.* It is the fourth bone of the first row of the carpus. See Carpus.

PISMIRE. See Formica.

PISS-A-BED. See Taraxacum.

PISSASPHA'LTUS (*πισσασφαλτος*, from *πισσα*, *pitch*, and *ασφαλτος*, *bitumen*), the thicker kind of rock-oil. See Bitumen.

PISTA'CHIO NUT; an oblong pointed nut, about the size of a common filbert, having a kernel of a pale green colour, covered with a yellow or greenish skin. This nut is the produce of a large tree, the *Pistacia vera; foliis imparipennatis; foliolis subovatis recurvis* Linn. Pistachio nuts have a sweetish unctuous taste, resembling that of sweet almonds. Like the latter, they afford an oil, and may be formed into an emulsion with mucilage.

PISTA'CIA LENTISCUS; the systematic name of the tree which affords the mastic. See Mastiche.

PISTA'CIA NUX (*πιϛακια*, supposed to be a Syrian word). See Pistachio nut.

PISTA'CIA TEREBINTHUS; the systematic name of the tree which yields the Cyprus turpentine. See Chio turpentine.

PISTA'CIA VERA, the systematic name of the tree which affords the pistachio nut. See Pistachio nut.

PISTI'LLUM, or Pointal, in the Linnæan system of *botany;* the female organ of generation in plants. It consists of three parts, the *Germen,* which is the rudiment of the fruit accompanying the flower, but not yet arrived at maturity; the *Style,* which is the part that serves to elevate the stigma from the germen; and the *Stigma,* which is the summit of the *pistillum,* and covered with a moisture for the reception of the pollen. The *pistillum* is of equal consequence in the sexual system, as the stamen or male part; for if either be removed, the flower is barren.

PITCH, *pix sicca;* inspissated tar. See Pix liquida. It has the same properties as tar, and is sometimes used as an ingredient in detergent plasters. It has also been given in pills as a remedy for the piles. See Hæmorrhoids.

PITCH, BURGUNDY. See Burgundy pitch.

PITCH, JEWS'. See Bitumen Judaicum.

PITCH-TREE. See Picea.

PITUITA'RIA GLANDULA, the pituitary gland; a small spongy body lodged in the sella turcica, between the sphenoidal folds of the dura mater. It is a singular kind of substance, and seems to be neither medullary nor glandular. On the outside it is partly greyish and partly reddish, but white within. It is transversely oval or oblong; and on the lower part, in some subjects, it is divided by a small notch into two lobes, like a kidney-bean. It is covered by the pia mater as by a bag, the opening of which is the extremity of the infundibulum; and it is surrounded by the small circular sinuses which communicate with the sinus cavernosi.

PITUITA'RIA MEMBRANA, the pituitary, or Schneiderian membrane. It is the mucous membrane that lines the nostrils and sinuses, and communicates with the nose. It is so called, because it secretes the mucus of those parts; to which the ancients assigned the name of *pituita*.

PITYRI'ASIS (*πιτυριασις*, from *πιτυρον*, *bran*, so named from its bran-like appearance), a genus in the second order, or scaly diseases, of Dr. Willan. The pityriasis consists of irregular patches of small thin scales, which repeatedly form and separate, but never collect into crusts, nor are attended with redness or inflammation, as in the lepra and scaly tetter. Dr. Willan distinguishes pityriasis from the *Porrigo* of the Latins, which has a more extensive signification, and comprehends a disease of the scalp, terminating in ulceration; whereas the former is, by the best Greek authors, represented as always dry and scaly. Their account of this appearance is conformable to experience; and the two varieties of it which they have pointed out may be denominated, *Pityriasis capitis*, and *Pityriasis versicolor*.

1. *Pityriasis capitis*, affecting very young infants, is termed by nurses the *dandriff*. It appears, at the upper edge of the forehead and temples, as a slight whitish scurf set in the form of a horse-shoe: on other parts of the head there are large scales, at a distance from each other, flat, and semi-pellucid. Sometimes, however, they nearly cover the whole of the hairy scalp, being close together, and imbricated. A similar appearance may take place in adults, but it is usually the effect of lepra, scaly tetter, or some general disease of the skin. Elderly persons have the pityriasis capitis in nearly the same form as infants: the only difference is, that this complaint in old people occasions larger exfoliations of the cuticle. When the hair is thin, or the head shaven, the scales may, with a little attention, be removed, by the use of soap and warm water, or by a slight alkaline lotion. To enforce this practice is particularly necessary: for if scales intermixed with sordes be permitted to cover the scalp for a length of time, pustules, containing an acrimonious lymph, are formed under the incrustation, and the true porrigo often supervenes, which is a disease of the scalp terminating in suppuration.

2. The *pityriasis versicolor* chiefly affects the arms, breast, and abdomen. It is diffused very irregularly, and being of a different colour from that usual to the skin, it exhibits a singular, chequered appearance. The irregular patches, which are at first small, and of a brown or yellow hue, appear at the scrobiculus cordis, about the mammæ, clavicles, &c. Enlarging gradually, they assume a tesselated form; in other cases they are branched, so as to resemble the foliaceous lichens growing on the bark of trees; and, sometimes, when the discolouration is not continuous, they suggest the idea of a map, being distributed on the skin like islands, continents, peninsulas, &c. All the discoloured parts are slightly rough, with minute scales, which soon fall off, but are constantly replaced by others. This scurf, or scaliness, is most conspicuous on the sides, and epigastric region. The cuticular lines are somewhat deeper in the patches than on the contiguous parts: but there is no elevated border, or distinguishing boundary between the discoloured part of the skin and that which retains its natural colour. The discolouration rarely extends over the whole body. It is strongest and fullest round the umbilicus, on the breasts, and sides: it seldom appears in the skin over the sternum, or along the spine of the back. Interstices of proper skin-colour are most numerous and largest at the lower part of the abdomen and back, where the scales are often small, distinct, and a little depressed. The face, nates, and lower extremities, are least affected: the patches are found upon the arms, but mostly on the inside, where they are distinct, and of different sizes.

This is not a disease of the cuticle; for when that is abraded from any of the patches, the sallow colour remains as before in the skin or rete mucosum. This complaint is not attended with any internal disorder, nor with any troublesome symptom, except a little itching or irritation felt on getting into bed, and after strong exercise, or drinking warm liquors. In some cases there is a slight exanthema, partially distributed among the discoloured patches, and sometimes an appearance like the lichen pileus; but eruptions of this kind are not permanent, neither do they produce any change in the original form of the complaint. The duration of the pityriasis versicolor is always considerable. Dr. Willan has known it to continue for four, five, or six years. It is not limited to any age or sex. Its causes are not pointed out with certainty: patients have referred it to fruit taken in too great quantities; some, to eating mushrooms; others, to exposure to sudden changes of cold and heat. In some individuals, who had an irritable skin, and occasionally used violent exercise, the complaint has been produced, or at least much aggravated, by wearing flannel next to the skin. It is likewise often observed in persons who have resided for a long time in hot climates.

PIX BURGUNDICA. See BURGUNDY PITCH.

PIX LIQUIDA, tar; a thick oily fluid produced from the *Pinus sylvestris* of Linnæus. *Pinus foliis geminis rigidis, conis ovato-conicis longitudine foliorum subgeminis basi rotundatis.* Class, *Monœcia*. Order, *Monodelphia*. The tree is cut into pieces, which are inclosed in a large oven constructed for the purpose. Tar is, properly speaking, an empyreumatic oil of turpentine; and not only retains some of the stimulant properties of the latter, but acquires some others probably by the burning. From tar, as an ingredient in the *pilulæ piceæ* of the Pharm. Paup. Edin. Dr. Cullen says, he never perceived any remarkable good effects; neither from the *Ung. e Pice*, used in cutaneous and other ulcerations, has he known it to be superior to the ointments containing turpentine. On the contrary, applied, as some have proposed, to cancerous sores, it has always proved to be hurtfully irritating, as indeed might be expected.

Dr. Cullen, however, met with an empirical practice, with respect to tar, of a singular kind. He describes it thus: "A leg of mutton is laid to roast; and whilst it continues roasting, it is basted with tar instead of butter. Whilst the roasting goes on, a sharp skewer is frequently thrust into the substance of the mutton, to give occasion to the running out of a gravy; and with the mixture of tar and gravy to be found in the dripping-pan, the body is to be anointed all over for three or four nights successively; whilst, for the same time, the same body-linen is to be worn. This is alleged to be a remedy in several cases of lepra; and I have had one instance of its being employed in an *ichthyosis* with great success: but I have not had an opportunity of repeating the practice." Tar yields to water certain medicinal properties, formerly over-rated, but now too much neglected. For some account of this remedy, see Tar-water.

PIX SICCA. See Pitch.

PLACE'NTA (from πλακȣς, a *cake;* so called from its resemblance); the cake, or after-birth, adhering to the inner surface of the womb in pregnant women. It is a thick, soft, vascular mass, connected to the uterus on one side, and to the umbilical cord on the other. It differs in shape and size: it is thickest at the centre, and gradually becomes thinner towards the edges, where the membranes go off all round, making a complete bag or involucrum to surround the waters, funis, and child.

Its substance is chiefly vascular, and probably in some degree glandular. The ramifications of the vessels are very minute, which are unravelled by maceration, and, when injected, exhibit a most beautiful appearance, resembling the bushy tops of a tree. It has an external convex, and an internal concave, surface. The former is divided into a number of small lobes and fissures, by means of which its adhesion to the uterus is more firmly secured. This lobulated appearance is most remarkable when the cake has been rashly separated from the uterus; for the membrana decidua, or connecting membrane between it and the uterus, being then torn, the most violent and alarming hemorrhagies consequently ensue.

The internal concave surface of the placenta is in contact with the chorion, and that with the amnios. From its internal substance arise innumerable ramifications of veins and arteries, which inosculate and anastomose with one another; and at last the different branches unite, and form the funis umbilicalis.

The after-birth may adhere to any part of the internal surface of the uterus, as at the posterior and anterior, superior and lateral parts; and sometimes, though more rarely, part of the cake extends over the orifice of the uterus; from whence, when the latter begins to dilate, the most dangerous floodings arise. But the most common place of attachment is from the superior part of the cervix to the fundus.

Twins, triplets, &c. have the placentæ sometimes distinct and sometimes adhering together. When the placentæ adhere, they have generally the chorion in common; but each fœtus has its distinct amnios. They are commonly joined together, either by an intervening membrane, or by the surfaces being contiguous to one another; and sometimes the vessels of the one cake anastomose with those of the other.

The human placenta, according to Dr. Hunter, and others who believe that the child is nourished by a secreted liquor, is composed of two distinct systems of parts, a spongy or cellular, and a vascular substance; the spongy or cellular part, formed by the decidua, being derived from the mother, the more internal vascular part belonging entirely to the fœtus: but, according to those who are of opinion that a real circulation is carried on between the mother and the child, the placenta is chiefly composed of vessels which are connected by the common cellular substance.

Mr. John Hunter says, the placenta is certainly a fœtal part, and is formed on the inside of the spongy chorion, or decidua. How far the decidua reflexa is a uterine part, we do not know; if it is, then the ovum must be placed in a doubling of the coagulum, which forms the decidua: but if the ovum is attached to the inside of the decidua, then the decidua reflexa is belonging to the fœtus.

PLACENTATION, in botany, a term that denotes the disposition of the cotyledons at the time when the seed is beginning to grow. Plants in respect to *placentation*, are termed *Acotyledones*, without cotyledons, as in mosses; *Monocotyledones*, with a single cotyledon; *Dicotyledones*, having two cotyledons; and *Polycotyledones*, with many cotyledons.

PLANT, in botany, an organic vegetable body, consisting of roots and other parts. Whether capable either of sensation, or of spontaneous motion, is not yet fully ascertained. It attaches itself to other bodies, in such a manner as to derive nourishment from them, and to propagate itself by seeds. The constituent parts of plants are the roots, stems, branches, rind or bark, leaves, flowers, and seeds; which greatly vary, both in figure and size, according to the nature of particular trees, shrubs, &c. Their various appearances have induced botanists to divide the vegetable kingdom into orders, classes, genera, species, and varieties; for an account of which, see Botany.

According to the Linnæan system, plants take their denominations from the sex of their flowers in the following manner: 1. *Hermaphrodite plants* are such as upon the same root bear flowers that are all hermaphrodite, as in most genera. 2. *Androgynous*, male and female, such as upon the same root bear both male and female flowers, as in the class *Monœcia*. 3. *Male*, such as upon the same root bear male flowers only, as in the class *Diœcia*. 4. *Female*, such as upon the same root bear female flowers only, as in the class *Diœcia*. 5. *Polygamous*, such as either in the same individual plant, or in different individual plants of the same species, have hermaphrodite flowers, and flowers of either or both sexes, as in the class *Polygamia*.

All plants, however minute, are propagated by seed: and so easy is their cultivation, that in many instances they may be reared by parting their roots, or depositing layers, cuttings, &c. of the parent-stock, in such soils as are most congenial to their nature. Hence some botanists consider them as somewhat analogous to animals; a conjecture that is strongly corroborated by the regular circulation of the sap throughout all their parts; and by the sleep of plants, or the faculty which some possess of assuming, at night, a position different from that in which they appear during the day.

In the second volume of the Manchester Transactions, we find some *speculations on the perceptive power of vegetables by Dr. Percival*, who attempts to shew, by the several analogies of organisation, life, instinct, spontaneity, and self-motion, that plants, like animals, are endued both with the powers of perception and enjoyment. The attempt, though ingeniously supported, however, fails to convince. That there is an analogy between animals and vegetables is certain; but we cannot from thence conclude, that they either perceive or enjoy. Botanists have, it is true, derived from *anatomy* and *physiology* almost all the terms employed in the description of plants. But we cannot from thence conclude, that their organisation, though it bears an analogy to that of animals, is the sign of *a living principle*, if to this *principle* we annex the idea of *perception*. Yet so fully is our author convinced of the truth of it, that he does not think it extravagant to suppose, that, in some future period, perceptivity may be discovered to extend even beyond the limits now assigned to vegetable life. Corallines, madrepores, millepores, and sponges, were formerly considered as fossil bodies: but the experiments of count Marsigli evinced, that they are endued with life, and led him to class them with the maritime plants. And the observations of Ellis, Jussieu, and Peysonel, have since raised them to the rank of animals. The detection of error in long-established opinions concerning one branch of natural knowledge, justifies the suspicion of its existence in others which are nearly allied to it. And it will appear from the prosecution of an enquiry into the instincts, spontaneity, and self-moving power of vegetables, that the suspicion is not without foundation.

From plants we derive some of our most powerful remedies at present; and before the application of mineral productions, and their several combinations, to the purposes of medicine, they were most extensively employed by physicians.

PLANTAGO (from *planta*, the sole of the foot; so called from the shape of its leaves, or because its leaves lie upon the ground and are trodden upon), or *Plantago latifolia;* plantain. The *Plantago major* of Linnæus. *Plantago foliis ovatis glabris*, *scapo tereti*, *spica flosculis imbricatis.* Class, *Tetrandria.* Order, *Monogynia.* Till of late this plant was retained in the materia medica of the Edinburgh College, in which the leaves were mentioned as the pharmaceutical part. They have a weak herbaceous smell, an austere, bitterish, subsaline taste; and their qualities are said to be refrigerant, attenuating, and diuretic.

PLANTAGO LATIFOLIA. See PLANTAGO.

PLANTAGO MAJOR; the systematic name of the broad-leaved plantain. See PLANTAGO.

PLANTAGO PSYLLIUM; the systematic name of the branching plantain. See PSYLLIUM.

PLANTAIN. See PLANTAGO.

PLANTAIN-TREE. See MUSA PARADISIACA.

PLANTARIS (from *planta*, the sole of the foot, to which it belongs), the *tibialis gracilis* vulgo *plantaris* of Winslow, and *extensor tarsi minor* vulgo *plantaris* of Douglas. This muscle is situated on the leg. Its use is to assist the soleus; and it also pulls the capsular ligament of the knee from between the bones. It is sometimes, though seldom, found wanting on both sides. The plantaris arises, thin and fleshy, from the upper and back part of the root of the external condyle of the os femoris, near the inferior extremity of that bone, adhering to the ligament that involves the joint in its descent. It passes along the second origin of the soleus, and under the gemellus, where it sends off a long, slender, thin tendon, which comes from between the great extensors, where they join tendons; then runs down by the inside of the tendo Achillis. It is inserted into the inside of the posterior part of the os calcis, below the tendo Achillis.

PLA'NUM OS (*planus*, smooth or flat; applied to a bone whose surface is smooth or flat); a name formerly given to the papyraceous or orbital portion of the ethmoid bone.

PLASTER, or PLAISTER. See EMPLASTRUM.

PLASTER OF PARIS; a white powder, obtained by calcining gypsum. See GYPSUM. It is of essential service in the making of anatomical casts. See CAST. The powder was sprinkled on ulcers, by Mr. Home, under the expectation of its promoting a natural cure, by forming an artificial scab; but the experiment was not successful.

PLA'TINA (from the Span. *plata*, silver); a metal so named by way of comparison with silver, whose colour it imitates: or possibly from the river *Plata*, near which it is found. Hitherto no mine of platina has been discovered. It is found in nature only in a metallic state in small grains, combined with iron, copper, plumbago, &c. The largest mass which has yet appeared is one of the size of a pigeon's egg, in the possession of the Royal Society of Bergara. It is found in the parishes of Novita and Citaria, North from Choco in Peru, and near Carthagena in South America. Ulloa, in 1748, gave the first information concerning its existence, in the narrative of his voyage with the French academicians to Peru.

Platina, when purified from all extraneous mixture, is of a white colour, intermediate between that of silver and tin. It is the hardest of all metals. Its specific gravity being from 20.6 to 23, makes it by far the heaviest body known. It is hard, malleable, ductile, laminable like gold; but to what degree is not yet ascertained. Mr. Accum says he has seen platina drawn into a wire of smaller diameter than the two thousandth part of an inch. It is the most infusible of all the metals. It cannot be melted (in a considerable quantity at least) by the most violent heat of our furnaces, but may be fused by the heat of a burning lens, or by the assistance of oxigen gas. When pure, its parts may be made to combine, or weld, by hammering in a white heat; a property confined to this metal and iron. It suffers no alteration from the action of air; neither water, the earths, nor the salino-terrene substances, have any power of re-action upon it. Potass acts upon it at a high temperature. It is not oxidated when exposed red hot to the air, for a very long time. It may, however, be oxidated by the galvano-electric spark, and by nitro-muriatic acid. This acid dissolves it, and assumes first a yellow and afterwards a deep orange colour. The solution tinges animal substances with a dark colour, and may be decomposed by alkalies and by muriate and nitrate of ammonia, which have no effect on solutions of gold. No other acid exercises any action upon it. The oxid of platina, which is a triple compound, consisting of ammonia, muriatic acid, and platina, may be reduced by the action of a violent heat. Platina combines with phosphorus and sulphur with considerable facility. It unites with the greater number of the metals by fusion. Of these alloys, that with copper is the most valuable, as it is ductile, susceptible of a fine polish, and does not tarnish on exposure to air: the rest of these are very little known, it is therefore unnecessary to dwell on them particularly.

Mr. Richter directs, in order to purify platina, and render it malleable, the following process: Dissolve platina of commerce in nitro-muriatic acid, and let fall into this solution potass, until a precipitate begins to appear; then add a solution of sulphate of potass, till the whole is precipitated. Wash the precipitate till the water that passes do not change its colour on adding to it prussiate of potass. Dry the precipitate, and mix with it 1.5 times its weight of soda, free from its water of crystallisation; press it into a crucible, but not so as to fill it, heat it gradually, and raise the heat till it fuses.

No medicinal uses have as yet been assigned to this mineral.

PLATY'SMA-MYOIDES *(platysma*; from πλατυς, *broad*, μυς, a *muscle*, and ειδος, *resemblance)*, the *Musculus cutaneus* of Winslow, *Quadratus genæ vel Latissimus colli* of Douglas, and *Latissimus colli* of Albinus; also called *Detrahens quadratus*. It is a thin muscle on the side of the neck. It lies immediately under the skin, assists in drawing the skin of the cheek downwards, and when the mouth is shut, it draws all that part of the skin, to which it is connected below the lower jaw, upwards.

PLEDGET, a bolster, or flat compress of lint, applied to wounds, to receive the discharge.

PLE'NUS FLOS, in botany, a full flower; a term expressive of the highest degree of luxuriance in flowers. Such flowers, although the most delightful to the eye, are both vegetable monsters, and, according to the sexualists, vegetable eunuchs: the unnatural increase of the petals constituting the first; the consequent exclusion of the stamina, or male organs, the latter. The flowers with only one petal are not so subject to this. The following however, are instances: polyanthus, hyacinth, primrose, crocus, meadow saffron, and thorn-apple; though Kramer has asserted that a full flower with one petal is a contradiction in terms. In flowers with one petal, the mode of luxuriance, or impletion, is by a multiplication of the divisions of the limb or upper part; in flowers with more petals than one, by a multiplication of the petals or nectarium.

PLE'THORA (πληθωρα; from πλγθω, to *fill)*, a fulness of the blood-vessels, or a redundance of blood. See Fluids. Many diseases arise from this cause. An artery overcharged with blood is as incapable of producing a strong full pulse, as one that contains a deficient quantity: in both cases there will be a low and weak pulse. To distinguish rightly, the pulse must not be felt with one or two fingers on the carpal artery; but if three or four fingers cover a considerable length of the artery, and we press hard for some time on it, and then suddenly raise all these fingers except that which is nearest to the patient's hand, the influx of the blood, if there is a plethora, will be so rapid as to raise the other finger, and make us sensible of the fulness.

PLEURA (of the Gr. πλευρα), a membrane which lines the internal surface of the thorax, and covers its viscera. Each side of the thorax has its particular pleura, entirely distinct from the other, and making, as it were, two great bladders, situated laterally with respect to each other in the great cavity of the breast, in such a manner as to form a double septum or partition running between the vertebræ and the sternum, their other sides adhering to the ribs and diaphragm.

This particular duplicature of the two pleuræ forms the *mediastinum*. The two laminæ of which it is made up are closely united together near the sternum and vertebræ; but in the middle, and toward the lower part of the foreside, they are separated by the pericardium and heart. A little more backward, the œsophagus is covered by this membrane; and in the most posterior part, a triangular space is left between the vertebræ and the laminæ of the pleura, from above downward, which is filled chiefly by the aorta. Before the heart, from the pericardium to the sternum, the two laminæ adhere very closely; and there the mediastinum is transparent, except for a small space near the upper part, where the thymus is situated: so that in this place there is naturally no interstice or particular cavity. The pleura is plentifully supplied with arteries and veins from the internal mammary, and the intercostals. Its nerves, which are very inconsiderable, are derived chiefly from the dorsal and intercostal nerves. The surface of the pleura, like that of the peritonæum and other membranes lining cavities, is constantly bedewed with a serous moisture, which prevents adhesions of the viscera. The mediastinum, by dividing the breast into two cavities, obviates many inconveniences to which we should otherwise be liable. It prevents the two lobes of the lungs from compressing each other when we lie on one side, and consequently contributes to the freedom of respiration, which is disturbed by the least pressure on the lungs. If the point of a sword penetrates between the ribs into the cavity of the thorax, the lungs on that side cease to perform their office, because the air, being admitted through the wound, prevents the dilatation of that lobe, while the other lobe, which is separated from it by the mediastinum, continues to perform its functions regularly.

PLEURI'TIS (πλευριτις; from πλευρα, the membrane lining the lungs), pleurisy, or inflammation of the pleura; a species of pneumonia of Cullen. See Pneumonia.

PLEURODY'NIA (πλευροδυνια; from πλευρα, and οδυνη, *pain)*; a pain in the side, arising from a rheumatic affection of the pleura.

PLEURO-PNEUMO'NIA (πλευρο-πνευμόνια, from πλευρα, and πνευμονια, an inflammation of the lungs); an inflammation of the lungs and pleura at the same time.

PLE'XUS (from *plector*, to plait or knit), a net-work of blood-vessels. The union of two or more nerves is also called a plexus by anatomists.

PLE'XUS, CARDIACA. See Cardiac plexus.

PLE'XUS, CHOROIDES. See Choroid plexus.

PLE'XUS, ŒSOPHAGEAL. See Œsophageal.

PLE'XUS, PULMONIC. See Pulmonic plexus.

PLI'CA POLONICA (from *plico*, to entangle); a disease commonly distinguished by the adjective *Polonica*, as being peculiar to the inhabitants of Poland and Lithuania. In Dr. Cullen's nosology it forms the genus *Trichoma*. This disease consists of several blood-vessels running from the head into the ends of the hairs; which cleave together, and hang from the head in broad flat pieces, generally about an ell in length, but sometimes they are five or six yards long: one patient having more or less of these, up to twenty, and sometimes thirty. They are painful to the wearer, and odious to every spectator. At the approach of winter an eruptive fever happens to many in these countries: the eruptions principally infest the head, and when at the height, an ichorous humour flows from them. In this state they are too tender to admit of being touched, and the matter running down the hairs, mats them together: the skin by degrees breaking, the ramifications of the capillary vessels, following the course of the hair, or prolonged out of the skin, are increased to a vast length.

Mr. Coxe, who gives a short account of this disease, in his Travels, attempts likewise to give the physical causes of it. Many different causes, he says, have been supposed to concur in rendering the plica more frequent in those regions than in other parts. It would be an endless work to enumerate the various conjectures with which each person has supported his favourite hypothesis. The most probable are those assigned by Dr. Vicat: the first cause is the nature of the Polish air, which is rendered insalubrious by numerous woods and morasses, and occasionally derives an uncommon keenness, even in the midst of summer, from the position of the Carpathian mountains; for the southern and south-easterly winds, which usually convey warmth in other regions, are in this chilled in their passage over their snowy summits. The second is unwholesome water; for, although Poland is not deficient in good springs, yet the common people usually drink that which is nearest at hand, taken indiscriminately from rivers, lakes, and even stagnant pools. The third cause is the gross inattention of the natives to cleanliness; for experience shews, that those who are not negligent in their persons and habitations, are less liable to be afflicted with the plica than others who are deficient in that particular. Thus, persons of higher rank are less subject to this disorder than those of inferior stations; the inhabitants of large towns, than those of small villages; the free peasants, than those in an absolute state of vassalage; the natives of Poland Proper, than those of Lithuania. Whatever we may determine as to the possibility that all or any of these causes, by themselves, or in conjunction with others, originally produced the disorder; we may venture to assert, that they all, and particularly the last, assist its propagation, inflame its symptoms, and protract its cure. In a word, the plica Polonica appears to be a contagious distemper, which, like the leprosy, still prevails among a people ignorant in medicine, and inattentive to check its progress, but is rarely known in those countries where proper precautions are taken to prevent its spreading.

However accurate or otherwise this statement may be, certain it is that no method of relief is yet known; for if the discharge be checked, or the vessels cut off, the consequence is an increase of more miserable symptoms, and in the end death. Sennertus says, when all the morbid matter is thrown out of the body the plicæ fall off spontaneously. He further observes, that the only safe practice in this case is, to solicit the peccant matter to the hairs, to which it naturally tends; and that this is best answered by lotions of bear's-breech. Some say, that a decoction of the herb club-moss, and its seeds, with which the head is to be washed, is a specific. Greatly to their honour, the University and Imperial Academy at Wilna, in their class of Medical Science, have offered a premium for the best account of this disease and the methods of cure.

PLUMBA'GO; a name for the *Polygonum persicaria* Linn. See Persicaria.

PLUMBA'GO (from *plumbum*, lead; so called because it is of a lead colour); an ore of a shining blue or grey colour, a greasy feel, and tuberculated when fractured. It is by many erroneously taken for molybdena, from which it is easily distinguished by its fracture, that of the latter being always lamellated. Mr. Pelletier exposed it to distillation, in the pneumato-chemical apparatus, by a violent fire during six hours, without the plumbago having lost weight, or suffered any other change. He exposed two hundred grains in a well-closed porcelain crucible to the fire of the manufactory at Seves, and it lost only ten grains. But when it is calcined with the concurrence of air, it then burns, and leaves but a small quantity of residue. Other chemists have also observed, that one hundred grains, treated under a muffle in a shallow vessel, left only ten grains of oxid of iron; and Mr. Fabroni has dissipated the whole of a portion of plumbago exposed under the muffle. If one part of plumbago and two of very caustic dry alkali be heated in a retort with the pneumato-chemical apparatus, the alkali becomes effervescent, hydrogenous gas is obtained, and the plumbago disappears. This beautiful experiment proves that the small quantity of water contained in the salt is decomposed; and that its oxigen, by combining with the carbon of the plumbago, forms the carbonic acid. Mr. Scheele has asserted that the sulphuric acid does not act upon plumbago. Mr. Pelletier has, however, observed that one hundred grains of plumbago, and four ounces of acid of vitriol, on being digested in the cold for several months, the acid acquired a green colour, and the property of congealing by a very slight degree of cold. The sulphuric acid distilled from plumbago passes to the state of the sulphureous acid; at the same time that carbonic acid is obtained, and an oxid of iron is left in the retort. The nitric acid has no action upon plumbago unless it be impure. Eight ounces of nitric acid, distilled from half a gros of purified plumbago, neither altered its shining appearance, nor deprived it of its unctuous feel. The muriatic acid dissolves the iron and the clay which contaminate native plumbago; and Berthollet and Scheele have availed themselves of this method to purify it. The liquor being decanted after digestion upon the plumbago, the residue is then washed, and submitted to distillation to separate the sulphur. The muriatic acid alone has no action upon plumbago, but the oxigenated muriatic acid dissolves it; the result being a true combustion effected by the oxigen of the acid, and the carbon of the plumbago. If ten parts of the nitrate of potash be fused in a crucible, and one part of plumbago be thrown thereon by a little at a time, the salt will deflagrate, and the plumbago will be destroyed. The matter which remains in the crucible consists of very effervescent alkali, and a small portion of martial ochre. If plumbago be distilled with muriate of ammonia, the muriate sublimes, and is coloured by the iron. These facts prove that *plumbago* is a peculiar combustible substance, a true charcoal combined with a martial basis. This substance has not, as yet, been found to possess any useful properties as a medicine.

PLUMBA'GO EUROPÆ'A; the systematic name of the herb tooth-wort. See Dentaria.

PLU'MBUM. See Lead.

PLU'MBUM CA'NDIDUM. See Stannum.

PLUMMER'S PILL, so called from its inventor; a former name for the *pilulæ calomelanos compositæ* of the London, and *pilulæ stibii compositæ* of the Dublin, pharmacopœias. The original formula, however, contained a proportion of the resin of guaiacum.

PLUM, MALABAR. See Malabar plum.

PLUMS, a kind of fruit much in use both in their recent and dried state. Three sorts of plums are ranked amongst the articles of the materia medica. These are all to be met with in the gardens of this country, but the shops are supplied with them, in a dried state, from abroad. 1. The *pruna Brignolensia;* the Brignole plum, or prune, brought from Brignol in Provence. This plum is of a reddish-yellow colour, and has a very grateful, sweet, subacid taste. 2. The *pruna Gallica;* or common French prune. 3. The *pruna damascena,* the damascene, or damson. See Damson. These possess the same general qualities with the other summer fruits. See Fructus. The prunelloes, in which the sweetness has a greater mixture of acidity than in the other sorts, are used as mild refrigerants in fevers and other indispositions. The French prunes and damsons are found to be the most emollient and laxative; they are therefore often eaten to gently move the belly, where there is a tendency to inflammation or febrile heat. Decoctions of these also afford a useful basis for laxative or purgative mixtures, and the pulp in substance is used for electuaries.

PLU'MULA, in botany; that part of the seed of a plant, which, in its growth, becomes the stem or trunk. It is inclosed in two small cavities formed in the lobes for its reception, and is divided at its loose end into pieces, all closely bound together like a bunch of feathers, from whence it has this name; *pluma,* signifying a feather.

PLURALITY, of children at a birth. See Twins.

PNEUMATIC MEDICINE; an appellation, by which the advocates for the cure of diseases by the application of different gases to the lungs, have chosen to dignify their practice. Long before modern improvements in chemistry had furnished the physician with this class of remedies, it had been a favourite opinion, and by no means an unnatural one, that, in a disease of the *lungs,* medicated particles, set afloat in the common atmosphere, might be usefully employed as a mere *topical* remedy. Accordingly, change of air, the fumes of a brick-kiln, the effluvia of new-ploughed earth, the vapour of boiling tar, or of resin in a state of volatisation, and even the supposed salutary breath of ruminating animals, were severally objects of attention to the consumptive. Chemical discoveries, however, have led to a far more extensive view of this subject, which has been cultivated with more assiduity, we fear, than ultimate success. Dr. Beddoes has suggested a new theory of phthisis, founded on the prevailing pneumatic doctrine in chemistry. Thinking that much cannot be gained by adhering to established principles and modes of practice, and being unawed by any pretensions to success from experience, he enters into the province of speculation. He fixes on the effect of pregnancy in suspending the progress of phthisis, as a fact which, by its mode of operation, might suggest a method of diminishing the havock occasioned by this distemper. We shall give his explanation of this interesting fact:

"The fœtus has its blood oxygenated by the blood of the mother through the placenta. During pregnancy there seems to be no provision for the reception of an unusual quantity of oxygen. On the contrary, in consequence of the impeded action of the diaphragm, less and less should be continually taken in by the lungs. If, therefore, a somewhat diminished proportion of oxygen be the effect of pregnancy, may not this be the way in which it arrests the progress of phthisis? and if so, is there not an excess of oxygen in the system of consumptive persons? and may we not, by pursuing this idea, discover a cure for this fatal disorder?"

Dr. Beddoes thinks, that this supposition is countenanced by the deficiency of oxygen in the blood of pregnant women, of asthmatic patients, and of those who labour under sea-scurvy; and by the superabundance of it in the blood of phthisical persons, indicated by its colour, as well as by the aggravation of the symptoms of consumption by breathing oxygen air, and by the relief from inspiring atmospheric air mixed with carbonic acid gas; and, lastly, from the small proportion of deaths among sea-faring people. Supposing acids to act by decomposition, their alleged effects in producing consumption are consistent with the author's doctrine, as well as the emaciation preceding and accompanying phthisis. From these facts, Dr. Beddoes concludes, that "1. The phthisical inflammation may so alter the structure of the lungs, as to cause them to transmit a more than ordinary portion of oxygen to the blood; or, 2. Some unknown cause having enabled them to transmit, or the blood itself to attract, more oxygen, an inflammation of the lungs might ensue."

From these principles the doctor thinks himself justified in proposing, in a disease which is incurable by present modes of practice, to diminish the supply of oxygen by the two channels through which it is introduced; namely, through the lungs, by lowering the atmospheric air with azotic or hydrogen gas; and through the stomach, by giving such nourishment as contains a small portion of oxygen.

To this theory of consumption, however, the following objections were made in the Monthly Review for November, 1793. "It is assumed by Dr. Beddoes," says the writer, "that the blood of pregnant women has a diminished proportion of oxygen: but pregnant women have the same circumscribed spot of florid red in their countenances which is apparent in hectics. If, then, the presence of this colour be sufficient to prove an excess of oxygen in the one case, it must have the same weight in the other. Another question is, whether less oxygen be really taken in by the lungs during pregnancy? For although the diaphragm be impeded in the freedom of its action, the frequency of breathing is proportionably increased. A third circumstance which demands attention is, in what degree the fœtus has its blood oxygenated by the blood of the mother through the placenta. It appears highly probable that the fœtal blood receives a very trifling supply of oxygen from the blood of the mother; that the fœtal heart contains only a small portion of blood, which has been conveyed to the placenta; and that the blood in the heart and arteries of the fœtus is not florid." For many ingenious arguments on this subject, we may refer to Mr. Coleman's Dissertation on suspended Respiration. Dr. Beddoes, in a subsequent publication, gives an account of his treating with success several cases of phthisis according to the principles of this theory. After distinguishing consumptions into two kinds, the florid, and the pituitous or catarrhal, he observes, "that the system may be as variously affected by means of the lungs as of the stomach: that it is impossible to doubt that we are nourished by the lungs as truly as by the stomach: and that what we take in at the former entrance, becomes, like our food, a part of the substance of our solids as well as of our fluids. By the lungs we can also introduce effectual alteratives of the blood, and by consequence of all the parts nourished by the blood."

By the efforts of Dr. Beddoes and Mr. Watt, a public institution was formed for carrying on the pneumatic treatment, in a great variety of diseases, both general and topical, at the Hotwells, Bristol. These gentlemen, desirous of ascertaining fully what were the effects to be expected from their favourite practice, applied it not only in pulmonary affections, but also in palsy, epilepsy, asthma, chlorosis, hysteria, typhus, dyspepsia, leprosy, besides many chirurgical complaints; and the evidence of different medical gentlemen has been produced, in numerous instances, to strengthen its claim to universal adoption. But the result affords the young practitioner an additional caution not *fully* to adopt any thing that experience has not yet sanctioned as a rule of practice, whilst he is equally careful to avoid the opposite extreme.

To such, however, as still adhere to this curious though, we fear, unsubstantial system, it may be of use to be informed of Mr. Watt's ingenious *Pneumatic Apparatus*, consisting of fire-tubes, by which convenient quantities of factitious airs may be prepared readily in any situation where there is a common fire; so that any one may make trial of this new process, at a moderate expence.

As oxygen and inflammable airs ought not to be prepared in the same fire-tube, the apparatus is provided with one for each of these species of air. The fire-tube for *oxygen gas*, is made somewhat like a pocket liquor-flask, the flattened form of which permits it to enter between the bars of a common grate. Its dimensions enable it to contain about a pound of powdered manganese, which will generally produce half a cubic foot, or three gallons, of air, at one operation. The figure of it is delineated in pl. XV. fig. 1, at A, and its cross section in its widest part at B.

The fire-tube for preparing *hydro-carbonate* air, is delineated at A, fig. 2, and its transverse section at B. It consists of two parallel hollow cylinders united together, each open at one end, and communicating with one another at the bottom or shut end. The water-pipe is adapted to the mouth of one of these hollow cylinders, and the conducting-pipe, by which the air issues, is adapted to the mouth of the other cylinder; so that the water, when converted into steam by the heat of the tube, must pass through and among the whole matter contained in both of them, before it can make its exit.

This fire-tube (C), with its water-pipe (F) and conducting-pipe (D), together with the air-holder, are represented in their proper positions when in use, at fig. 3. It was judged unnecessary to give a representation of the oxygen fire-tube when in use, as such representation would differ in nothing from that given, except in the absence of the water-pipe, which is not needed in preparing oxygen air. One joint of the conducting-pipe, D, is made partly of hammered iron, and the others of tin-plate, japanned. In order to avoid too great nicety in adjusting the place of the air-holder, a short flexible tube is interposed betwixt two of the four pieces, of which, for convenience of carriage, the pipe is composed.

Either of the fire-tubes, when applied to use, being previously charged with the proper material, is to be introduced between two of the bars of the fire-grate; or, if none of the interstices are wide enough, it may be laid above the upper bar, and the coals heaped over it. If the grate is not deep enough to permit the fire-tube to enter far enough into it, when placed at right angles to the bars, it may be put in obliquely; from which the further advantage will be derived, that the air-holder, not standing directly before the fire, may be more easily screened from its rays.

The lower end of the conducting-pipe turns up a little, and is to be inserted in the pipe *z* of the air-holder, in the manner directed for the simplified apparatus. It is proper, before any operation is commenced, to adjust the height of the support of the air-holder, and its place in the tub or pail, which is to receive the water; otherwise, if the fire-tube heats quickly, some of the air will be lost before these matters can be adjusted. In defect of a stool, bricks or short pieces of board may be used as a support for the air-holder; but, where the apparatus is used at home, a stool will be found most convenient.

To prepare oxygen gas, fill the fire-tube (of fig. 1) with manganese in coarse powder, up to the narrow part of its neck, lute the end-piece E into the fire-tube, and introduce the tube into the fire, lute the iron part of the conducting-pipe into the end-piece, and, when the heat has hardened the lute, apply the other parts of the conducting-pipe previously luted to one another. The air-holder being filled with water, and set upon its stool in the tub or pail, uncork the pipe *z*, advance the air-holder, and insert the end of the pipe D into *z*. The operation will then go on as has been said in the description of the simplified apparatus. When the oxygen air has displaced the water, and filled the air-holder, the fire-tube should be immediately withdrawn from the fire, to prevent the needless calcination of that tube. If the joints have been well luted, it may be pulled out by taking hold of the iron part of the conducting-pipe, by means of a cloth, to prevent burning the hands.

To prepare hydro-carbonate air, fill both the cylinders of the fire-tube (fig. 2) with small bits of charcoal, none of them exceeding a quarter of an inch cube; insert the water-pipe into the mouth of one of the cylinders, and the end-piece of the conducting-pipe D into the mouth of the other, luting them properly; place the fire-tube in the fire-grate, and when the heat has hardened the lute, proceed to the adjustment of the remainder of the apparatus, as has been directed.

When the fire-tube has become perfectly red hot, admit water by the water-pipe, pretty freely, in order to expel any noxious matter contained in the charcoal, and suffer any air which is thus produced to escape. When this part of the operation has been continued for five or ten minutes, restrain the water, and bring the air-holder into its place. With a proper degree of heat and due exhibition of water, a three-gallon air-holder may be filled in half an hour, without any steam passing into the conducting-pipe, which is known by the tin parts not becoming hot.

To prevent the water in the cup from being heated by the fire, it is necessary to interpose a fire-shovel, or something similar, to screen the cup from its rays. If the water is suffered to boil in the cup; or in the perpendicular part of the water-pipe, none will enter the fire-tube; therefore it is also proper not to fix that part of the water-pipe in its place till all the rest of the apparatus is adjusted. The air-holder may be screened from the heat by a sheet of brown paper.

The hydro-carbonate fire-tube is made double, that the water may pass through a greater length of heated charcoal, and may act more immediately upon it, and less upon the iron; for if the water were transmitted slowly into a red-hot pipe, it would act upon the iron, and produce hydrogen air before it reached the charcoal; and it appears from experiment, that the hydrogen dissolves none of the charcoal in its passage through it. This has sometimes happened in making hydro-carbonate in the alembic of the large apparatus, and renders the fire-tubes preferable for that purpose.

Air-holders are to be appropriated to each species of air, and they should be labelled to prevent mistakes. They should be kept in a cool place of an equal temperature, and the corks should be good and tight. If sent to a distance, they should be packed in a locked basket or box, to prevent injuries. The *inhalation of the gas* is performed by taking the point of the faucet between the lips, inhaling from the bag through the mouth, and expelling the air from the lungs through the nostrils; which operation most patients readily acquire a habit of performing with ease: but those who cannot do it, may use the mouth-piece, commonly employed. It should be recommended to patients not to hurry themselves, to inhale gently, and to retain the air a little in their lungs before they expel it. It is also proper, especially in the use of the hydro-carbonate, for the patient to rest a little at every five or six inhalations, to observe whether any vertigo takes place: and even in using oxygen, an unexperienced patient should rest to avoid fatiguing the lungs, which of itself may cause some giddiness.

Mr. Watt thus describes the *doses of the factitious airs.* Where symptoms, he says, do not decidedly indicate larger doses, it is prudent to begin with a pint of oxygen air, in a bagful or half a bagful of common air, that is to say, diluted with from 20 to 40 times its bulk of common air, and gradually to increase the dose as symptoms direct; observing always to dilute with at least 20 times the quantity of common air. This dose may be thought too small to produce sensible effects; but it will frequently produce very considerable ones; and in some cases, where the system is very irritable, may prove an over-dose.

Patients with a slow firm pulse, will generally bear large doses; but those with slow feeble pulses, are generally more readily affected by it. In diseases occasioned by want of irritability, very large quantities have been given before any effect was produced, even several cubic feet per day; but, as in such cases the oxygen was given little diluted or pure, it appears probable that more was given than would have been necessary, had it been sufficiently diluted; for, if pure oxygen air is inhaled, it will be found, upon its emission from the lungs, to be still highly dephlogisticated; but, when diluted, it has more time to act, and more of it is probably absorbed.

The hydro-carbonate, having powerful effects in causing vertigo, ought always to be administered cautiously: where there is much debility, it may be prudent to begin with half a pint of this air, diluted with 10 or 20 pints of common air, to be increased in the subsequent doses, till each dose shall cause vertigo: how far the latter effect should be pushed, must depend upon the situation of the patient, and the nature of the disease. Patients with a *strong* quick pulse, can in general bear large doses of this air, and its immediate effect is rendering the pulse slower; whereas in patients with quick *weak* pulse, it generally renders the pulse quicker and weaker immediately after the inhalation; though its subsequent effect is to render the pulse slower and stronger, if it takes effect upon the disease.

It has seldom been found necessary to give more of this air than from two to three quarts per day, until the patients have been long habituated to the use of it; and in all cases where the air has been very lately made, it is proper to give only half the usual dose; but, after four or five days' keeping, it seems to suffer little further change. The oxygen air keeps good for months, if the corks are good.

Mr. Watt has contrived his apparatus of various dimensions; and to enable practitioners to judge of the size of the apparatus which their practice may require, he describes the quantities of oxygen gas which each size can produce at one operation. His largest apparatus is necessary for hospitals, practitioners of great practice, or who do not choose to resort often to a fresh operation: the second size to practitioners of more confined practice; and the portable apparatus to patients who choose to prepare their own airs, and to gentlemen who wish to try experiments. To those who require considerable quantities of air, the frequent repetition of the process with this portable apparatus will be found troublesome; and it is further to be remarked, that the consumption of fire-tubes is less in proportion to the quantities of air produced in the larger than in the smaller apparatus; and that nothing will tend more to avoid unnecessary repetitions of operations, than the being provided with a sufficient number of air-holders, or other proper recipients for the gasses.

PNEUMATOCE'LE (of the Gr. *πνευματοκηλη*; from *πνευμα*, *wind*, and *κηλη*, a *tumor)*, the flatulent hernia, or windy rupture, a supposed species of hernia distended with flatus. Mr. Pott positively asserts the *pneumatocele* to be a mistake. He says, that there is no tumor of this kind, and in this situation, in a living animal. It is indeed particularly described by many writers, both ancient and modern, and said to be a disorder to which infants are particularly liable: but the complaint so described, and which nurses, &c. do still call a wind-rupture, is not what they take it for; neither is it produced by wind; it is either a true intestinal hernia, or a species of hydrocele. There is no hernia produced by mere wind; the two diseases, which in new-born children and infants are taken for and called wind-ruptures, are a tumor produced by a small quantity of fluid remaining in the lower part of the tunica vaginalis, after its communication above with the cavity of the belly is closed; and a true, but a small intestinal hernia. The natural communication between the cavity of the tunica vaginalis and the belly not being shut until some space of time after birth, it may become close at its upper part, while there is a quantity of fluid on the lower, too large for the absorbent vessels to take up immediately; and consequently such infant will, until that be effected, labour under a true hydrocele of the tunica vaginalis testis; a case which is very frequent, though generally mistaken for a wind-rupture.

Some writers have mistaken the encysted hydrocele of the tunica communis, which connects the spermatic vessels, for the pneumatocele; though it differs from the supposed windy-rupture in its situation; but unfortunately the encysted hydrocele of the tunica communis may be accompanied with an hydrocele of the tunica vaginalis, or with a true hernia, and then the case is somewhat difficult to ascertain. In the case of air diffused into the cellular substance of these parts, the same treatment will answer for its removal that is required for anasarcous swellings formed by water, viz. small punctures with the point of a lancet.

PNEUMATO'MPHALUS (of the Gr. *πνευμαομφαλος*; from *πνευμα*, *wind*, and *ομφαλος*, the *navel)*; a flatulent, umbilical hernia.

PNEUMATO'SIS (*πνευματωσις*; from *πνευματοω*, to *inflate)*, the *emphysema*, or windy swelling; a genus of disease in the class *cachexiæ*, and order *intumescentiæ*, of Cullen. It is known by a collection of air in the cellular texture under the skin; rendering it tense, elastic, and crepitating. The species of pneumatosis are: 1. *Pneumatosis spontanea*, without any manifest cause. 2. *Pneumatosis traumatica*, from a wound. 3. *Pneumatosis venenata*, from poisons. 4. *Pneumatosis hysterica*, with hysteria. The emphysema sometimes comes on spontaneously; but more frequently is occasioned by wounds of the lungs, which, giving vent to the air, that fluid insinuates itself into the cellular texture, and often blows it up to a surprising degree. It must be observed, however, that it is only in cases of laceration of the lungs (happening commonly from fractured ribs) where this disease can take place; for in a simple wound, the effusion of blood usually prevents the air from getting out. The cure is to be accomplished by scarifications and compresses; but in some cases, only by the paracentesis of the thorax. When air introduced from the lungs is collected in a considerable quantity in the cavity of the thorax, the operation of the paracentesis is, perhaps, the only means of cure; though the absorbents are sometimes found to act, to a certain extent, in such cases. Upon an opening being thus made, the air sometimes rushes out with incredible violence; and the patient receives at least immediate relief from circumstances the most distressing imaginable. In some instances it is followed even by a complete cure.

PNEUMO'NIA (*πνευμονια*, from *πνευμων*, a *lung)*; inflammation of the lungs. This is a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ*, of Cullen; characterised by pyrexia, difficult respiration, cough, and a sense of weight and pain in the thorax. The species of pneumonia, according to the above nosologist, are, 1. *Peripneumonia.* The pulse not always hard, but sometimes soft: an obtuse pain in the breast; the respiration always difficult; sometimes the patient cannot breathe, unless in an upright posture; the face swelled, and of a livid colour; the cough for the most part moist, frequently bloody. 2. *Pleuritis.* The pulse hard; a pungent pain in one side, aggravated during the time of inspiration; an uneasiness when lying on one side; a very painful cough, dry in the beginning of the disease, afterwards moist, and frequently bloody. Under the general head of *Pneumonia*, Dr. Cullen comprehends all inflammations of the thoracic viscera, or membrane lining the inside of that cavity: as the symptoms do not sufficiently distinguish the seat of the affection, nor does a difference in the situation of the affected place make any difference in the cure.

1. *Pneumonic inflammation*, however various in the seat, always discovers itself by pyrexia, difficult breathing, cough, and pain in the same part of the thorax. It almost always comes on with a cold stage, and is accompanied with the other symptoms of pyrexia; though in some few instances the pulse may not be more frequent, nor the heat of the body increased beyond what is natural. Sometimes the pyrexia is from the beginning accompanied with the other symptoms; but frequently it is formed some hours before them, and particularly before the pain be felt. The pulse, for the most part, is frequent, full, strong, hard, and quick; but, in a few instances, especially in the advanced state of the disease, it is weak, soft, and at the same time irregular. The difficulty of breathing is most considerable in inspiration, both because the lungs do not easily admit of a full dilatation, and because the dilatation increases the pain attending the disease. The difficulty of breathing is also greater when the patient is in one posture of the body rather than another. It is generally greater when he lies on the side affected; though sometimes the contrary happens. Very often the patient cannot lie easy upon either side, and can find ease only when lying on the back; and sometimes he cannot breathe easily, except when in somewhat of an erect posture. The cough, in different cases, is more or less urgent or painful. It is sometimes dry, or without any expectoration, especially in the beginning of the disease; but more commonly it is, even from the beginning, moist, and the matter spit up various, both in consistence and colour, and frequently it is streaked with blood. The pain is also different in different cases, and felt in different parts of the thorax, but most frequently in one side. It has been said to affect the right side more frequently than the left; but this is uncertain, and we are sure that the left side has been very often affected. Sometimes it is felt as if it was under the sternum; sometimes in the back between the shoulders; and when in the sides, its place has been higher or lower, more forward or backward; but the place of all most frequently affected is about the sixth or seventh rib, near the middle of its length, or a little more forward. The pain is often severe and pungent; but sometimes more dull and obtuse, with a sense of weight rather than of pain. It is most especially severe and pungent when occupying the place last mentioned. For the most part it continues fixed in one part, but sometimes shoots from the side to the scapula on one hand, or to the sternum and clavicle on the other.

Dr. Cullen supposes that the disease is always seated, or at least begins, in some part of the pleura, taking that membrane in its greatest extent, as now commonly understood; that is, as covering not only the internal surface of the cavity of the thorax, but also as forming the mediastinum, and as extended over the pericardium, and over the whole surface of the lungs. But as the symptoms never clearly indicate where the seat of the disease is, there is but little foundation for the different names by which it has been distinguished. The term *pleurisy* is improperly limited to that inflammation which begins in and chiefly affects the pleura costalis. This Dr. Cullen thinks is a rare occurrence; and that the pneumonia much more frequently begins in the pleura investing the lungs, producing all the symptoms which belong to what has been called the *pleuritis vera.* The word *peripneumony* has been applied to an inflammation beginning in the parenchyma, or cellular texture of the lungs, and having its seat chiefly there. But to Dr. Cullen it seems very doubtful if any acute inflammation of the lungs, or any disease which has been called *peripneumony*, be of that kind. It seems probable that every acute inflammation begins in membranous parts; and in every dissection of persons who have died of peripneumony, the external membrane of the lungs, or some part of the pleura, has appeared to have been considerably affected. An inflammation of the pleura covering the upper surface of the diaphragm, has been distinguished by the appellation of *paraphrenitis*, as supposed to be attended with the peculiar symptoms of delirium, *risus sardonicus*, and other convulsive motions; but it is certain, that an inflammation of that portion of the pleura, and affecting also even the muscular substance of the diaphragm, has often taken place without any of the symptoms above mentioned; and neither the dissections, which have fallen under Dr. Cullen's observation, nor any accounts of dissections, support the opinion that an inflammation of the pleura, covering the diaphragm, is attended with delirium more commonly that any other pneumonic inflammation.—It is to be observed, however, that though the inflammation may begin in one particular part of the pleura, the morbid affection is commonly communicated to the whole extent of the membrane.

The pneumonic inflammation, like others, may terminate by resolution, suppuration, or gangrene: but it has also a termination peculiar to itself; namely, when it is attended with an effusion of blood into the cellular texture of the lungs, which, soon interrupting the circulation of the blood through that viscus, produces a fatal suffocation. This, indeed, appears to be the most common termination of pneumonic inflammation when it ends fatally; for upon the dissection of almost every person who has died of this disease, it appears that such an effusion had happened. From the same dissections we learn, that pneumonic inflammation commonly produces an exudation from the internal surface of the pleura, which appears partly as a soft viscid crust, often of a compact membranous form, covering everywhere the surface of the pleura, and particularly those parts where the lungs adhere to the pleura costalis, or mediastinum; and this crust seems always to be the cement of such adhesion. The same exudation shews itself also by a quantity of serous fluid commonly found in the cavity of the thorax; and some exudation or effusion is usually found to have been made into the cavity of the pericardium. It seems likewise probable, that an effusion of this kind is sometimes made into the cavity of the bronchiæ; for in some persons who have died, after labouring under a pneumonic inflammation for a few days only, the bronchiæ have been found filled with a considerable quantity of serous and thickish fluid, which must be considered rather as the effusion above mentioned, having had its thinner parts taken off by respiration, than as a pus so suddenly formed in the inflamed part. It is, however, not improbable, that this effusion, as well as that made into the cavities of the thorax and pericardium, may be a matter of the same kind with that which in other inflammations is poured into the cellular texture of the parts inflamed, and there converted into pus; but in the thorax and pericardium it does not always put on this appearance, because the crust covering the surface prevents the absorption of the thinner part. This absorption, however, may be compensated in the bronchiæ, by the drying power of the air; and therefore the effusion into them may assume a more purulent appearance. In many cases of pneumonic inflammation, when the expectoration is very copious, it is difficult to suppose that the whole proceeds from the mucous follicles of the bronchiæ; and it seems probable that a great part of it may come from the effused serous fluid just mentioned; and this too will account for the appearance of the expectoration being so often purulent. Perhaps the same thing will account for that purulent matter found in the bronchiæ, which De Haen says he had often observed when there was no ulceration in the lungs, and which he accounts for in a very strange manner, namely, by supposing a pus formed in the circulating blood.

Dr. Cullen is of opinion, that the effusion into the bronchiæ above mentioned, often concurs with the effusion of red blood into the cellular substance of the lungs to occasion the fatal suffocation which frequently terminates peripneumony: that the effusion of serum alone may have this effect: and that the serum poured out in a certain quantity, rather than any debility in the powers of expectoration, is the cause of that cessation of spitting which precedes the fatal event; for in many cases the expectoration has ceased, when no other symptoms of debility have appeared, and when, upon dissection, the bronchiæ have been full of liquid matter. Nay, it is even probable, that in some cases such an effusion may take place without any symptoms of violent inflammation; and in other cases the effusion taking place may seem to remove the symptoms of inflammation which had appeared before, and thus account for those unexpected fatal terminations which have sometimes happened.

Pneumonic inflammation seldom terminates by resolution, without being attended with some evident evacuation. An hæmorrhagy from the nose happening on some of the first days of the disease has sometimes put an end to it; and it is said, that an evacuation from the hæmorrhoidal veins, a bilious evacuation by stool, and an evacuation of urine with a copious sediment, have severally had the same effect: but such occurrences have been rare. The evacuation most frequently attending, and seeming to have the greatest effect in promoting resolution, is an expectoration of a thick, white, or yellowish matter, a little streaked with blood, copious, and brought up without much or violent coughing. Very frequently the resolution of this disease is attended with, and perhaps produced by, a sweat, which is warm, fluid, copious, over the whole body, and attended with an abatement of the frequency of the pulse, heat of the body, and other febrile symptoms.

Although, from the history given, it appears that pleurisy and peripneumony cannot with propriety be considered as different diseases, yet it is certain that in different cases this affection occurs with an assemblage of symptoms separate and distinct. Thus even Dr. Cullen himself, in his Nosology, has defined pleuritis to consist in pyrexia, attended with pungent pain of the side, painful respiration, difficulty of lying down, particularly on the affected side, and distressing cough, in the beginning dry, but afterwards humid, and often with bloody expectoration. While again he has defined peripneumony to consist in pyrexia attended with a dull pain under the sternum and between the shoulders, anxiety, difficulty of breathing, humid cough, expectoration generally bloody, a soft pulse, and a tumid livid appearance of the countenance. It is highly probable, that the first of these sets of symptoms chiefly arises from a state of active inflammation, and the second from effusion. Thus, in certain cases, the symptoms may appear perfectly separate and distinct; but more frequently both inflammation and effusion are united; and thus the symptoms in both definitions are in general combined in the same patient.

2. The *remote cause* of pneumonic inflammation is commonly cold applied to the body, obstructing perspiration, and determining to the lungs, while at the same time the lungs themselves are exposed to the action of cold. These circumstances operate chiefly when an inflammatory diathesis prevails in the system; and therefore those principally affected with this disease are persons of the greatest vigour, in cold climates, in the winter season, and particularly in the spring, when vicissitudes of heat and cold are frequent. This disease, however, may arise in any season when such varieties take place. Other remote causes also may have a share in producing this disorder; such as every means of obstructing, straining, or otherwise injuring the pneumonic organs. The pneumonic inflammation has sometimes been so much an epidemic, that it has been suspected of depending on a specific contagion; but Dr. Cullen never met with an instance of its being contagious.

3. In pneumonic inflammation, a violent *pyrexia* is always dangerous. The danger, however, is chiefly denoted by the difficulty of breathing. When the patient can lie on one side only; when he can lie on neither side, but only on his back; when he cannot breathe with tolerable ease, except when the trunk of his body is erect; when even in this posture the breathing is very difficult, and attended with a turgescence and flushing of the face, with partial sweats about the head and neck, and an irregular pulse: these circumstances mark the difficulty of breathing in different degrees; and consequently, in proportion, the danger of the disease. A frequent violent cough, aggravating the pain, is always the symptom of an obstinate disease; and as the disease is seldom or never resolved without some expectoration, so a dry cough must always be an unfavourable symptom.

The proper characteristics of the expectoration have been already laid down; and though an expectoration which has not these marks must indicate a doubtful state of the disease, yet the colour alone can give no certain prognostic. An acute pain, very much interrupting inspiration, is always the mark of a violent disease; but not of a more dangerous disease than an obtuse pain attended with very difficult respiration.

When the pains, which had at first affected one side only, shall afterwards spread into the other; or when, leaving the side first affected, they pass entirely into the other; these are always marks of a dangerous disease. A delirium coming on during a pneumonic inflammation is always a symptom denoting much danger.

When pneumonic disorders terminate fatally, it is on one or other of the days of the first week, from the third to the seventh. This is the most common case; but, in a few instances, death has happened at a later period. When the disease is violent, but admitting of resolution, this also happens frequently in the course of the first week, but in a more moderate disease the resolution is often put off to the second week. The disease generally suffers a remission on some of the days from the third to the seventh: which, however, may be often fallacious, as the disease sometimes returns again with as much violence as before; and in such a case with great danger. Sometimes it disappears on the third day, while an erysipelas makes its appearance on some external part; and if this continue fixed, the pneumonic inflammation does not recur. If the disease continue beyond the fourteenth day, it will terminate in a suppuration, or phthisis. The termination by gangrene is much more rare than has been imagined: and when it does occur, it is usually joined with the termination by effusion; the symptoms of the one being hardly distinguishable from those of the other.

4. *The cure* must proceed upon the general plan mentioned under SYNOCHA; but, on account of the importance of the part affected, the remedies must be employed early, and as fully as possible: and these are chiefly directed with one of three views, viz. for obtaining a resolution of the inflammation in the thorax, for mitigating the urgent symptoms before a resolution can be effected, and for counteracting or obviating the consequences of the disease. Venesection is the remedy chiefly to be depended on; and the quantity taken away ought in general to be as large as the patient's strength will allow. The remission of pain, and the relief of respiration, during the flowing of the blood, may limit the quantity to be then drawn; but if these symptoms of relief do not appear, the bleeding should be continued to a considerable extent, unless symptoms of a beginning syncope come on. It is seldom that one bleeding, however large, will cure this disease; and though the pain and difficulty of breathing may be much relieved by the first bleeding, these symptoms commonly, and after no long interval, recur, often with as much violence as before. In this case the bleeding is to be repeated, even on the same day, and perhaps to the same quantity as before. Sometimes the second bleeding may be larger than the first. There are persons who, by their constitution, are ready to faint even upon a small bleeding; and in such persons this may prevent the drawing so much blood at first as a pneumonic inflammation may require; but as the same persons are found to bear after-bleedings better than the first, this allows the second and subsequent bleedings to be larger, and to such a quantity as the symptoms of the disease may seem to require.

Bleedings are to be repeated according to the state of the symptoms, and they will be more effectual when practised in the course of the first three days than afterwards; but they are not to be omitted though four days of the disease may already have elapsed. If the physician has not been called in time, or the first bleedings have not been sufficiently large, or even though they should have procured some remission, yet upon the return of the urgent symptoms, bleeding may be repeated at any time within the first fortnight, or even after that period, if a suppuration be not evident, or if after a seeming solution the disease shall have returned.

With respect to the quantity of blood which may be taken away with safety, no general rules can be given; as it must be very different according to the state of the disease, and the constitution of the patient. In an adult male of tolerable strength, a pound avoirdupois of blood is a full bleeding. Any quantity above twenty ounces is a large, and any quantity below twelve is a small, bleeding. An evacuation of four or five pounds, in the course of two or three days, is generally as much as most patients will bear; but if the intervals between the bleedings, and the whole of the time during which the bleedings have been employed, have been long, the quantity taken upon the whole may be greater.

When a large quantity of blood has been taken from the arm, and it is doubtful if more can be taken in that manner with safety, some blood may still be taken by cupping and scarifying. This will especially be proper, when the recurrence of the pain, rather than the difficulty of breathing, becomes the urgent symptom; and then the cupping and scarification should be made as near as possible to the pained part.

An expectoration sometimes takes place very early in the disease; but if the symptoms continue urgent, the bleedings must be repeated notwithstanding the expectoration: but in a more advanced state, and when the symptoms have suffered a considerable remission, we may then trust the cure to the expectoration alone. It is not observed that bleeding, during the first days of the disease, stops expectoration; on the contrary, it has been often found to promote it; and it is only in a more advanced state of the disease, when the patient has been already exhausted by large evacuations and a continuance of his illness, that bleeding seems to put a stop to expectoration; and even then, this stoppage seems not to take place so much from the powers of expectoration being weakened by bleeding, as by its favouring the serous effusion in the bronchiæ, already taken notice of.

Besides the bleeding, every part of the antiphlogistic regimen ought here to be carefully employed: the patient must keep out of bed as much as he can bear;

must have plenty of warm diluting drinks, impregnated with vegetable acids, accompanied with nitre or some other cooling neutral salt; and the belly also ought to be kept open by emollient clysters or cooling laxative medicines. Vomiting in the beginning is dangerous; but in a somewhat advanced state of the disease emetics have been found the best means of promoting expectoration. Fomentations and poultices to the pained part have been found useful; but blistering is found to be much more effectual. A blister, however, ought not to be applied till at least one bleeding has been premised, as venesection is less effectual when the irritation of a blister is present. If the disease be moderate, a blister may be applied immediately after the first bleeding; but in violent cases, where it may be presumed that a second bleeding may soon be necessary after the first, it will be proper to delay the blister till after the second bleeding, when it may be supposed that the irritation occasioned by the blister will be over before another bleeding becomes necessary. It may frequently be of use in this disease to repeat the blistering; and in that case the plasters should always be applied somewhere on the thorax, for when applied to more distant parts they have little effect. The keeping the blistered parts open, and making what is called a *perpetual blister*, has much less effect than a repeated blistering.

Many methods have been proposed for promoting expectoration, but none appear to be sufficiently effectual; and some of them, being acrid stimulant substances, are not very safe. The gums usually employed seem to be too heating; the squills less so; but they are not very powerful, and sometimes inconvenient, by the constant nausea they occasion. The volatile alkali may be of service as an expectorant, but it ought to be reserved for an advanced state of the disease. Mucilaginous and oily demulcents appear to be useful, by allaying that acrimony of the mucus which occasions too frequent coughing; and which coughing prevents the stagnation and thickening of the mucus, and thereby its becoming mild. The receiving into the lungs the steams of warm water, impregnated with vinegar, has often proved useful in promoting expectoration; and, for this purpose, the machine called the *inhaler* (see INHALER) may be of great service. But of all others, the antimonial emetics, given in nauseating doses, promise to be the most powerful for promoting expectoration. The *kermes mineral* has been greatly reccommended; but does not seem to be more efficacious than tartarised antimony or antimonial wine; and the dose of the kermes is much more uncertain than that of the other preparations.

Though this disease often terminates by a spontaneous sweating, this evacuation ought not to be excited by art, unless with much caution. When, after some remission of the symptoms, spontaneous sweats arise, they may be encouraged: but it ought to be without much heat, and without stimulant medicines. If, however, the sweats be partial and clammy only, and a great difficulty of breathing still remain, it will be very dangerous to encourage them.

Physicians have differed much with regard to the use of opiates in pneumonic affections. It appears, however, that in the beginning of the disease, and before bleeding and blistering have produced some remission of the pain, and of the difficulty of breathing, opiates have a bad tendency, by their increasing the difficulty of breathing and other inflammatory symptoms. But in a more advanced state of the disease, when the difficulty of breathing has abated, and when the urgent symptom is a cough, proving the chief cause of the continuance of pain and want of rest, opiates may be employed with great advantage and safety. The interruption of the expectoration which they seem to occasion, is for a short time only; and they tend often to promote it, as they occasion a stagnation of what was by frequent coughing dissipated insensibly: and therefore give the appearance of what physicians have called *concocted matter*.

Dr. Saunders joins pulv. antimon. with the extract. papav. alb. in a pill given at bed-time. Opium combined with calomel, has of late been highly extolled in this and some other inflammatory diseases, by Dr. Hamilton, of Lynn-Regis; who has given a full account of the success attending this practice, in the Edin. Med. Comment. Vol. IX.

PO'DAGRA (ποδαγρα; from ϖȣς, the *foot*, and αγρα, a *taking* or *seizure)*, the gout; a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ*, of Cullen. It is known by pyrexia, pain in the joints, chiefly of the great toe, and especially the hands and feet, returning at intervals: previous to the attack, the functions of the stomach are commonly disturbed. The species are: 1. *Podagra regularis*, the regular gout. 2. *Podagra atonica*, the atonic gout. 3. *Podagra retrograda*, the retrocedent gout. 4. *Podagra aberrans*, misplaced or wandering gout. See ARTHRITIS.

POICTOU, COLIC OF. See DEVONSHIRE COLIC.

POISONS, *venena;* those substances which when applied externally, or taken into the human body, uniformly cause such a derangement of the animal economy as to produce disease. As it is extremely difficult, however, to give a definition of a poison, the above is subject to great inaccuracy. Poisons are divided, with respect to the kingdom to which they belong, into animal, vegetable, mineral, and halituous or vaporous poisons. Poisons are only deleterious in certain doses; for the most active, in small doses, form the most valuable medicines. There are, nevertheless, certain poisons, which are really such in the smallest quantity, and which are never administered medicinally; as many of the animal poisons, the poison of hydrophobia, &c. There are likewise substances which are innocent when taken into the stomach, but which prove deleterious when taken into the lungs, or when applied to an abraded surface. Thus carbonic acid is continually swallowed with fermented liquors, and thus the poison of the viper may be swallowed with impunity; whilst inspiring carbonic acid instantly destroys, and the poison of the viper inserted into the flesh produces formidable effects.

Many substances also act as poisons when applied either externally or internally, as arsenic, lead, &c. When a deleterious substance produces its effects not only in mankind but in all other animals, it is distinguished by the term *common poison*, as arsenic, caustic alkali, &c. whilst that which is poisonous to man only, or to brute animals, and often to one genus only, is said to be a *relative poison;* thus, aloes is said to be poisonous to dogs and wolves; the phellandrium aquaticum kills horses, whilst oxen devour it greedily, and with impunity. It appears, then, that substances act as poisons only in regard to their *dose, the part of the body they are applied to*, and the *subject* on which their powers are exerted.

Poisons enter the system either: 1. Through the œsophagus, alone or with the food. 2. Through the anus by clysters. 3. Through the nostrils with odorous substances. 4. Through the lungs with the atmosphere. 5. Through the absorbents of the skin, either whole, ulcerated, cut, or torn. As to their *constituent principles*, they are divided into: 1. *Acrid poisons*, as drastic and corrosive vegetables; acid, alkaline, metallic, and acido-metallic minerals; deleterious and necrotic animals. 2. *Narcotic*, as certain vegetables. 3. *Narcotico-acrid*, which kill with both principles. 4. *Halituous*, which suffocate by noxious vapour. 5. *Mechanical poisons*, which destroy by their mechanical effects.

The *symptoms produced* by poisons, have been divided into: 1. *Inflammatory*, or which induce inflammation and gangrene. 2. *Drastic*, which operate by purging and vomiting. 3. *Convulsive*, exciting spasms and convulsions. 4. *Paralytic*, which induce palsy of the extremities and heart; as the preparations of lead, the essential oil of the lauro-cerasus, &c. 5. *Narcotic*, which cause coma, amaurosis, and delirium. 6. *Suffocating*, which suffocate by a mephitic vapour. 7. *Exsiccant*, which bring on tabes; as lead, gradually absorbed. 8. *Septic*, which induce a tendency to putridity in the blood, and local gangrene.

Of the *animals which are considered as poisonous*, many might be enumerated, particularly of the Asiatic and American snakes, of the genera *Crotalus* and *Coluber*, for whose bites, authors propose to us the radix mungos, seneka, volatile alkali, and common salt, internally; and topically, the general caustic applications, extirpation, &c.

Poisonous insects and worms, poisonous animals of the amphibious tribe, poisonous fishes (see Fish-poison), and other animal poisons which cannot be classed under any of the foregoing heads, form a most extensive list; and still more numerous are the poisons derived from the vegetable kingdom, many of which, however, afford us the most important assistance in the cure of diseases. For the former we accordingly refer to their proper names, not only as being too copious to be included in a distinct article, but as involving many intricate and uncertain accounts, which, though the best that can be procured, would prove extremely unsatisfactory to the medical reader. A list of the *vegetables which are considered as poisons*, may not however be unacceptable, for the reasons already stated.

1. *Narcotic vegetables.*

Papaver somniferum.
Opium.

These, of course, require the same antidotes.

Physalis somnifera.
Solanum lycopersicum.
Solanum mammosum.
Solanum insanum.
Solanum dulcamara.
Solanum nigrum.
Atropa mandragora.
Datura stramonium.
Datura metel.
Datura ferox.
Datura tatula.
Hyosciamus niger.

The proposed antidotes are, first, vomits, which also purge; then vinegar and oil. *Query*—Camphor, and Ipecacuanha. See the latter article.

Hyosciamus albus.
Hyosciamus physalodes.
Hyosciamus scopolia.
Azalea pontica.
Antirrhinum orontium.
Actæa spicata.
Lolium temulentum.
Ervum ervilja.
Lathyrus cicera.
Peganum harmela.
Chenopodium hybridum.
Cheledonium glaucium.
Taxus baccata.
Lactuca virosa.
Lactuca scariola.
Paris quadrifolia.
Prunus lauro-cerasus.

Against all these narcotics, after vomiting, authors recommend: (1.) *Acids;* as vinegar, lemon juice, spirits of vitriol diluted. (2.) A very strong infusion of *Turkey coffee.* (3.) Small doses of *ipecacuanha*, to promote a powerful sweating. (4.) *Clysters* of vinegar, or soap dissolved in water. (5.) *Blisters* to the neck. (6.) *Wine.* (7.) Alkaline salts and borax. We doubt the efficacy of these remedies; but none better have been proposed.

2. *Narcotic and acrid vegetable poisons.*

Hippomane mancinella.
Hippomane biglandulosa.
Cocculus indicus.
Coriaria myrtifolia.
Strychnos nux vomica.
Strychnos colubrina.
Ignatia amara.
Nerium oleander.
Atropa belladonna.
Nicotiana tabacum.
Nicotiana rustica.
Nicotiana paniculata.
Nicotiana glutinosa.
Bryonia alba.
Chærophyllum sylvestre.
Chærophyllum bulbosum.
Chærophyllum temulentum.
Œthusa cynapium.
Sium latifolium.
Cicuta virosa.
Conium maculatum.
Mercurialis perennis.

3. *Poisonous fungi.*

Agaricus muscarius.
Agaricus integer venenatus, Krapfii.
Agaricus integer viscidus, Krapfii.
Agaricus lactifluus venenatus, Krapfii.
Agaricus piperatus.
Agaricus fimetarius.
Agaricus pustulatus.
Agaricus necator.
Agaricus sanguineus.
Agaricus viscidus.
Agaricus clypeatus.
Boletus versicolor.
Boletus elegans.
Boleti parasitica.
Phallus impudicus.
Phallus mukusin.
Lycoperdon carcinomalis.

And several others not yet scientifically named.

4. *Acrid vegetable poisons.*

Delphinia staphisagria.
Veratrum sabadillæ.
Rhododendron chrysanthem.
Fritillaria imperialis.
Colchicum autumnale.
Pedicularis palustris.
Digitalis purpurea.
Cyclamen europæum.
Plumbago europæa.
Convolvulus scammonium.
Cucumis colocynthis.
Momordica elaterium.

Gambogia gutta.
Cerbera ahovai.
Cerbera manghas.
Cynanchum erectum.
Lobelia syphilitica.
Lobelia longifolia.
Cynanchum vimiale.
Apocynum androsemifolium.
Apocynum cannubinum.
Apocynum venenatum.
Asclepias gigantea.
Hydrocotale vulgaris.
Œnanthe fistulosa.
Œnanthe crocata.
Scandix infesta.
Thapsia fœtida.
Alisma plantago aquatica.
Clematis vitalba.
Clematis flammula.
Clematis recta.
Clematis integrifolio.
Anemone palmata.
Anemone pulsatilla.
Anemone pratensis.
Anemone narcissiflora.
Anemone nemerosa.
Anemone ranunculoides.
Veratrum album.
Helleborus niger.
Helleborus fœtidus.
Veratrum nigrum.
Caltha palustris.
Aconitum napellus.
Aconitum cammarum.
Aconitum lycoctonum.
Aconitum anthora.
Pastinacu sativa annosa.
Polygonum hydropiper.
Sœlanthus quadragonus.
Sœlanthus forskalli.
Sœlanthus glandulosus.
Jatropha curcas.
Jatropha multifida.
Jatropha manihot.
Ricinus communis.
Phytolacca decandra.
Croton tiglium.
Daphne mezereum.
Daphne thymelœa.
Daphne laureola.
Daphne cneorum.
Daphne gnidium.
Cneorum tricoccum.
Amyris toxifera.
Rhus vernix.
Rhus radicans.
Rhus toxicodendron.
Scilla maritima.
Excœcaria agallocha.
Anacardium orientale.
Anacardium occidentale.
Caryota urens.
Arum maculatum.
Arum dracunculus.
Arum dracontium.
Arum colocasia.
Arum esculentum.
Arum virginicum.
Arum arborescens.
Arum seguinum.
Calla palustris.
Euphorbia officinarum.
Euphorbia antiquorum.
Euphorbia canariensis.
Euphorbia tirucalli.
Euphorbia peplus.
Euphorbia lathryris.
Euphorbia helioscopia.
Euphorbia verrucosa.
Euphorbia platyphyllos.
Euphorbia esula.
Euphorbia cyparissias.
Euphorbia hiberna.
Euphorbia characias.
Euphorbia amygdaloides.
Euphorbia sylvatica.
Euphorbia exigua acuta.
Euphorbia mauritanica.
Euphorbia nerifolia.
Ranunculus acris.
Ranunculus sceleratus.
Ranunculus flamula.
Ranunculus bulbosus.
Ranunculus ficaria.
Ranunculus thora.
Ranunculus arvensis.
Ranunculus lingua.
Ranunculus alpestres.
Ranunculus polyanthemos.
Ranunculus illyricus.
Ranunculus gramineus.
Ranunculus asiaticus.
Ranunculus aquatilis.
Ranunculus platanifolius.
Ranunculus breynius.
Ranunculus sardous.
Raphanus rhaphanistrum.
Secale cornutum.

The usual and most approved antidotes to all these are, after vomiting and purging, emollient substances, such as panada, with butter; or, copious draughts of the soup recommended in the dysentery by Sir John Pringle, consisting of a jelly made of starch and milk, into which a quantity of suet, finely shred, is incorporated whilst boiling. Wine and cordials, to support the strength, are also necessary.

5. For the *mineral substances which are considered as poisonous*, or taken with that intention, and which come under the denomination of *mechanical mineral poisons*, such as powdered glass, &c. or *earthy matters*, as *gypsum*, *selenites*, &c. mucilaginous and oily substances are given to obviate the symptoms arising from them, though we fear little good is to be expected from this sort of treatment. For *acids* used as poison, and for alkalies, we have indeed much more obvious and certain antidotes, since each becomes a remedy for the other; provided it can be administered before the stomach has been too much injured by the poison taken. In these cases the diluted acids (or alkalies as the case may be) are to be given immediately; then oily and mucilaginous substances to defend the coats of the stomach.

6. The *metallic poisons* form a most important branch of this subject. Fortunately, these are more within our power than the vegetable poisons, and when the substance swallowed is accurately known, the practitioner who is well versed in chemistry will easily adapt his remedy to the case. As most of the metallic salts are combinations of some one of the acids with the metal, of whatever kind, if a decomposition can be speedily effected by the administration of an alkaline solution, the happiest effects may be expected, as has indeed been incontestibly shewn in the cases published in Vol. VI. of the Edin. Med. Comm. by the late Dr. Houlston of Liverpool, who had the merit of suggesting and applying this remedy in the case of a gentleman who had swallowed, for the purposes of self-destruction, *half an ounce of muriated mercury.* The recital of this case will be no bad illustration of the course to be pursued in similar instances, or indeed in cases where the mineral poison taken is of any other kind that is decomposable by an alkali.

"On the 9th of April, 1785, at one in the morning, a ship-surgeon, in Liverpool, mixed six drachms of corrosive sublimate in a tumbler glass of water, drank it, and as some remained at the bottom of the glass, he rinsed it twice with water, which he also swallowed. Something less than two drachms of the sublimate remained at the bottom of the glass; but he certainly took about half an ounce.

"He repented, almost immediately, of what he had done; drank plentifully of warm water; and three quarters of an hour afterwards, took three teacupsful of oil. He soon vomited; and proper assistance was expeditiously procured. A solution of prepared kali was very attentively exhibited, and continued during the day, when it was thought eligible to remove him to the Infirmary. His sufferings were great, and aggravated by his anxious desire of life; his discharges upwards and downwards very frequent, and mixed with a good deal of blood.

"In consultation at the Infirmary, the plan fixed upon and pursued was, a continuance of the solution of an alkali occasionally by the mouth, and the same thrown up forcibly in a large clyster; and, in like manner, the tincture of opium: neither of these, however, were long retained. For the latter, the opium in substance was substituted; and for the alkaline salt (the next day) the calcined magnesia: for he manifested a repugnance to the solution of prepared kali, solely on account of its nauseous taste; and it also seemed to cause some irritation of the stomach, which was soon followed by vomiting; disagreeable sensations, no doubt, but of little consequence, and scarcely meriting attention, where the object is of such magnitude. Nor is it at all probable, but that the same, and even greater degrees of pain and irritation, must have arisen from the mere action of the sublimate on the stomach, *in proportion as it dissolved;* which action would be prevented and counteracted by the alkaline solution, was it retained only for a moment.

"On a further solution of the sublimate, a fresh exhibition of the alkali becomes necessary; and there does not seem to be any *well-grounded objection* to its use under so sore and tender a state of the stomach; since, contrary to all reasonable expectation, in less than a week (having in thirty hours taken near ℥v. of the alkali) he got perfectly well, and, notwithstanding some hæmorrhagy, did not feel any degree of uneasiness in the stomach or bowels."

The *antimonial poisons,* besides being treated with alkaline solutions, also require the use of opium; the latter having a tendency to render antimony sudorific. We may also give oily and mucilaginous substances, and some cordials, to allay the violent vomiting and purging usually produced by these preparations.

The poison of *arsenic* presents considerable, perhaps insurmountable, difficulties to the practitioner. The kali sulphuratum, sulphuret of potass, or, as it has been heretofore named, hepar sulphuris, is said to be the best antidote against arsenical preparations. This mineral, however, admits of decomposition in some degree by alkalies. See Arsenic.

The *mephitic vapours usually considered as poisonous,* are the mineral acid vapours, alkaline vapours (volatile alkali), and putrid vapours. In cases of suffocation from these, oxygen gas, thrown into the lungs through a tube, introduced into the trachea; stimulating volatile applications thrown into the stomach, and tobacco clysters, are usually recommended. See Resuscitation.

POLARITY; that property of the magnet, or of a piece of iron, to point toward the poles of the world, is thus called.

POLE'NTA. See Alphiton.

POLEY-MOUNTAIN. See Polium creticum, and Polium montanum.

PO'LIUM (πολιον, from πολιος, *white;* so called from its white capillaments), the plant named *Poley.*

PO'LIUM CRE'TICUM, candy poley-mountain; the *Teucrium creticum* Linn. The whole of this herb entered the now antiquated compounds *mithridate* and *therica.* This plant is obtained from the island of Candy. It has a moderately aromatic smell, and a nauseous bitter taste, and is ranked amongst the aperients and corroborants.

PO'LIUM MONTANUM, poley-mountain of Montpellier; the *Teucrium capitatum* Linn. This is generally substituted for the candy species.

PO'LLEN, in botany, the fecundating or fertilising dust contained within the antheræ or tops of the stamina, and dispersed upon the female organ when ripe for the purposes of impregnation. See Botany. This dust, analogous to the seminal fluid in animals, is commonly of a yellow colour; and is very conspicuous in the summits of some flowers, as the tulip and lily. Its particles are very minute, and of extreme hardness. Examined by the microscope, they are generally found to assume some determined form, which often predominates, not only through all the species of a particular genus, but also through the genera of a natural family or order. The pollen of flowers, triturated, and otherwise prepared in the stomachs of bees, by whom great quantities are collected in the hairy brushes with which their legs are covered, is supposed by some authors to produce *wax;* but this has not been satisfactorily proved.

PO'LLEX, the thumb, or great toe. This term expresses also the fourth degree in the Linnæan scale for measuring the parts of plants: the length of the first joint of the thumb, or a Parisian inch.

POLLUTION, NOCTURNAL; an habitual involuntary emission of semen during sleep. This, in different persons, is very different in degree as to its frequency. The persons most subject to it, are young men of a sanguineous temperament, who feed high and lead indolent or sedentary lives. When this happens only at long intervals, once in a fortnight or a month, it is of no great consequence; but when it takes place almost every night, it greatly injures the health; the patient looks pale and sickly; in some, the eyes become weak and inflamed, are sometimes affected with violent defluxions, and are usually encircled with a livid appearance of the skin. This disease is to be cured rather by a change of life than by medicines. When it has taken its rise from a high diet and sedentary life, a plainer food and the use of exercise will generally cure it. Persons subject to this disease should never take any stimulating purges, and must avoid as much as possible all violent passions of the mind: and though exercise is recommended in moderation, yet if this be too violent, it will rather increase the disorder than contribute to its cure. See Impotency and Onanism.

POLLUTION, SELF. See Onanism.

PO'LVERINE, the calcined ashes of a plant; of a similar nature with our pot-ashes or pearl-ashes. It is brought from the Levant and Syria; and in the glass-trade it is always to be preferred to any other ashes. The barilla, or pot-ashes of Spain, yields more pure salt than the polverine of the Levant, but the glass made with it has always some blue tinge; that made with the polverine is perfectly white, which ought always to be used for the finest crystal. See Barilla.

POLYADE'LPHIA (from πολυς, *many,* and αδελφια, *brotherhood),* many brotherhoods; the name of the 18th class of Linnæus's sexual system, consisting of plants with hermaphrodite flowers, in which several stamina, or male organs, are united by their filaments into three or more distinct bundles. See Botany.

POLYA'NDRIA (from πολυς, *many,* and ανηρ, a *man* or *husband),* many husbands; the name of the 15th class in Linnæus's sexual method, consisting of plants with hermaphrodite flowers, which are furnished with several stamina, that are inserted into the common receptacle of the flower. See Botany.

POLYA'NTHOS, or POLYANTHIUM (from πολυς, *many*, and ανθος, a *flower)*; in botany, a term applicable to any plant bearing many flowers.

POLYCHRE'STUS (ϖολυχρηςος, *ad multa utilis)*, the same as POLYPHARMACON; a medicine of many virtues, or that will cure many diseases. It has therefore been affectedly given to various preparations and compositions, which have been far from deserving of any marked encomium, and some of which yet remain in the dispensatories.

POLYDY'PSIA (πολυδιπσια, from πολυς, *much*, and διψη, *thirst)*, excessive thirst; a genus of disease in the class *locales*, and order *dysorexiæ*, of Cullen. It is mostly symptomatic of fever, dropsy, excessive discharges, or poisons. The cure is very generally obtained only by the removal of the primary diseases; and it is best palliated by the gradual introduction of diluents: but when these are contraindicated, it may often be successfully obviated by such articles, taken into the mouth, as have effect in augmenting the flow of saliva; and of these, few are so effectual as the root of *pellitory*. Two cases of this, as a primary affection, are related in the Medical and Physical Journal.

POLYGA'LA (πολυγαλα, from πολυς, *much*, and γαλα, *milk*, so named from its abundance of milky juice), or *Polygalon*, the common milk-wort. It is the *Polygala vulgaris* of Linnæus. The root is somewhat similar in taste to that of the seneka, but much weaker. The leaves are very bitter, and a handful of them infused in wine is said to be a safe purge, but it is rarely used.

POLYGA'LA AMA'RA, a species which is remarkably bitter, and though not used in this country, is said to be as efficacious as those in greater repute. It has been given freely in phthisis pulmonalis, and, like other remedies, failed in producing a cure: yet, Dr. Hooper says, as a palliative, it claims attention. Its virtues are balsamic, demulcent, and corroborant.

POLYGA'LA SE'NEGA; the systematic name of the rattlesnake milk-wort. See SENEKA.

POLYGA'LA VULGA'RIS; the systematic name of the common milk-wort. See POLYGALA.

POLYGA'MIA (from πολυς, *many*, and γαμος, *marriages)*, in the Linnæan system, a class of plants, the twenty-third in order. In this class are produced, either upon the same or different plants, hermaphrodite flowers, and also flowers of one sex only, either male or female; or flowers of each sex: the latter, receiving impregnation from, or giving it to, the hermaphrodites, as their sex happens to be. The parts essential to generation in the hermaphrodite flowers do not confine themselves to the corresponding parts within the same flower, but become of promiscuous use, which is the reason for giving this title to the class. See BOTANY.

POLY'GONUM (πολυγονον, from πολυς, *many*, and γονυ, a *joint;* so named from its numerous joints); knot-grass.

POLY'GONUM AVICULA'RE; the systematic name of the knot-grass. See CENTUMNODIA.

POLY'GONUM BISTO'RTA; the systematic name of the officinal bistort. See BISTORTA.

POLY'GONUM DIVARICA'TUM; the systematic name of the eastern buck-wheat plant. See BUCK-WHEAT, EASTERN.

POLY'GONUM PAGOPY'RUM; the systematic name of the buck-wheat. See BUCK-WHEAT.

POLY'GONUM HYDROPI'PER; the systematic name of the poor-man's pepper. See HYDROPIPER.

POLY'GONUM PERSICA'RIA; the systematic name of the arsmart. See PERSICARIA.

POLYGY'NIA (from ϖολυς, *many*, and γυνη, a *woman)*; one of the orders in the Linnæan system of botany. In the flowers of plants of this order there are many styles, which, in the sexual system, are the female organs. See BOTANY.

POLYPE'TALUS (from ϖολυς, *many*, and ϖεταλον, *a leaf)*; many-leaved. In botany those plants are so called, whose flowers have many petals.

POLYPHY'LLUS (from ϖολυς, *many*, and φυλλον, *a leaf)*, in botany, having many leaves.

POLYPO'DIUM (πολυποδιον, from πολυς, *many*, and πȣς, a *foot;* so called from its numerous ramifications, which resemble the polypus), common polypody, or polypody of the oak; the *Polypodium vulgare* Linn. The leaves of this plant have a weak ungrateful smell, and a nauseous sweet taste; leaving a kind of roughness and acrimony in the mouth. They give out their smell and taste, together with a yellow colour, both to water and rectified spirit. The spirituous tincture is sweeter than the watery; but, in inspissation, its sweetness is in a great measure destroyed; the spirituous extract, as Cartheuser observes, being to the taste only subastringent and subacrid, with very little sweetness, while the watery extract retains all the sweetness of the polypody.

The roots of the *polypodium quercinum*, or those that grow on the oak, have been the most employed for medicinal use, though no good reason can be assigned for this preference. The ancients employed it as a purgative. It was thought to be peculiarly useful in expelling bile and pituitous humours, and therefore much used in maniacal and melancholic disorders; but, to act as a cathartic, the root must be exhibited in its recent state, and in an inconveniently large dose. Another character in which it has been recommended, and for which, from its sensible qualities, it seems to promise more advantage, is that of a demulcent or pectoral. Joined with liquorice, its good effects have been experienced in coughs and asthmatic affections; yet it is now rarely used in this country, nor have the French authors, Poissoner and Malouin, who have lately cited instances of its success in mania, been able to restore to it its ancient reputation.

POLYPO'DIUM FILIX MAS; the systematic name of the male fern. See FILIX MAS.

POLYPO'DIUM VULGA'RE; the systematic name of the common polypody. See POLYPODIUM.

POLYPODY. See POLYPODIUM.

POLYPODY, MALE. See FILIX MAS.

PO'LYPUS (πολυπȣς, from πολυς, *many*, and πȣς, a *foot*, from its sending off many ramifications like legs); in Cullen's Nosology, a synonime with *sarcoma*. This term is generally given to a fleshy kind of substance, that frequently arises in the nostrils, uterus, &c. from its having many attachments or roots. Polypi may be found in different cavities of the body, and originate from the inner membrane; but those which come under surgical treatment are mostly in the nose, mouth, throat, and outer passages of the ear, and in the vagina and rectum. They are divided into two classes; the one soft and compressible, the other extremely firm. Both of them bleed on being fretted or roughly handled. The soft kind shrivels and contracts in a dry atmosphere (this is particularly the case with those of the nose); but the firm are not affected by the influence of the weather. Their colour is commonly pale and transparent, and sometimes a deep red.

The pain at the commencement of the disorder is always inconsiderable; but increases, in those of a hard nature, as they increase in size. Sometimes polypi of this kind become unequal, and form ulcers over the whole surface, discharging fetid matter in considerable quantity. They are apt at this time, unless extirpated, to degenerate into cancer.

Most frequently they arise from local injury, or whatever tends to produce and support an inflamed state of the part. Scrofula and lues venerea, though considered by some authors as frequently giving rise to them, seem only to be exciting causes: for in lues venerea in particular, polypi, when present, remain after the disease is cured.

The probability of curing polypi depends much upon their situation and consistence. The soft kind being seldom painful, may be removed at any period with little danger; but the hard kind are generally not only painful, but more apt to degenerate into cancer, or to return after being removed. The soft kind therefore may be removed in general with success; but when polypi of a harder nature exist, the prognosis will be much more unfavourable.

With respect to the treatment, as long as they remain stationary, they are not to be touched; but when they continue to grow, we ought to use astringent remedies, especially a strong solution of alum, a decoction of oak bark, vinegar, ardent spirits, &c. The softer kinds of polypi may frequently be prevented for a long time from increasing in size, and sometimes they even become considerably smaller. Mercury has been found rather to make them worse; caustic and other corroding applications have been of use in the softer kind, though they have not produced a cure. Setons have likewise been used, but with little advantage. It is therefore found necessary to have recourse to a more effectual practice; and with this view the knife, scissars, forceps, or ligature, are more generally recommended. The knife and scissars may be used when the roots of the tumor can be readily come at; but polypi are seldom so situated as to render excision practicable; and even when they are, the hemorrhage may be attended with considerable danger. The removal of a polypus by tearing or twisting it with the forceps, Plate IX. fig. 8, is occasionally practised. To do this, introduce the forceps an inch and a half up the nostril, to secure the polypus as near to its root as may be; then twist them a little from one side, and continue this action, at the same time pulling gradually downwards. If it break, repeat the extraction as long as any remains, unless it is attended with a violent hæmorrhage, which sometimes happens, and especially if the polypus is become scirrhous. This hæmorrhage, however, is soon abated by the contraction of the vessels, on the application of lint dipped in some styptic liquor. In introducing the forceps, it is difficult to avoid the ossa spongiosa; but to shun them, it is proper to keep the beak of the forceps as near as possible to the os palati. The operator, in drawing away the polypus, may generally bring it away whole, if he draws and moves it very gently.

But as the removal of polypi by *ligatures* is less painful, and fully as effectual, these are now more generally employed. The ligatures consist of wire, catgut, silk-cord, &c. Different methods have been employed for passing these over polypi, according to their different situations. When the ligature is to be applied, it is to be passed double over the tumor, and conducted to the root of it by means of the fingers, or by slit probes, or the apparatus, fig. 5, 6, 7, as may be best suited to the shape and size of the passage. The ends of the ligature are then to be introduced into a single or a double canula, fig. 4, which is to be pushed along the opposite side of the polypus till the end of the canula reach the root of it, when the ligature is to be drawn somewhat tight, and fastened to the canula, which is to be left in the passage. The ligature is to be daily tightened till the tumor drops off. In this manner the largest polypus may be removed equally well with those of a smaller size. Should any part of it remain, it may be destroyed by caustic, and different instruments are contrived for conducting this to the root of the tumor.

What has been said of the treatment of polypi in general, readily applies to those seated in the nose, outward passage of the ear, the rectum, and the vagina. It likewise applies to those in the throat; only that, instead of passing the ligature through the mouth, it is to be passed through one of the nostrils. The operator is then to introduce one or two of his fingers into the mouth, and open the doubling of the ligature, which he is to pass over the polypus, and having pressed it down to the root of it, to proceed as before directed.

POLYTRI'CHUM COMMUNE (*πολυτριχον*, from *πολυς*, *many*, and *θϱιξ*, *hair*); so called from its resemblance to a woman's hair, or because, in ancient times, women used to wash their hair with a decoction of it, to keep it from shedding); the systematic name of the golden maidenhair. See ADIANTHUM AUREUM.

POLYSA'RCIA (*ϖολυσαρκια*, from *ϖολυς*, *much*, and *σαρξ*, *flesh*), a troublesome corpulency or fatness. It forms a genus of disease in the class *cachexiæ*, and order *intumescentiæ*, of Cullen. In a natural and healthy state, the fat, or animal oil, is not allowed to diffuse itself throughout the cellular interstices at large, but is confined to the places where such an oily fluid is necessary, by a particular apparatus of distinct vesicles. But in some constitutions the oily part of the blood appears to exceed the requisite proportion, and easily separates from the other constituent parts; or there is an uncommon tendency to the separation of oily matter. In these cases it is apt to accumulate in such quantities, that we may suppose it to escape those vesicles which were originally destined to hinder it from spreading too far; for almost every cell of the membrana adiposa, many of which are in ordinary cases altogether empty, may be completely filled with fat.

The increase of the omentum particularly, and the accumulation of fat about the kidneys and mesentery, swell the abdomen, and obstruct the motions of the diaphragm; whence one reason of the difficulty of breathing which is peculiar to corpulent people; while the heart, and the large vessels connected therewith, are in like manner so encumbered, that neither the systolic nor subsultory motions can be performed with sufficient freedom, whence weakness and slowness of the pulse. But when the whole habit is in a manner overwhelmed with an oily fluid, the enlargement of the cellular interstices will necessarily interrupt the general distribution and circulation throughout the nervous and vascular systems; impeding the action of the muscular fibres, and producing insensibility, somnolency, and death.

Dr. Gregory says, he does not know one complaint produced from *thinness*, but that there are a great many from too great a degree of corpulency. These cases are the more deplorable, as there is but little prospect of a cure. For the animal oil is of too gross a nature to be easily taken up by absorption; and we know, that when fluids are accumulated in the cellular system, there are only two ways in which they can be carried off or escape; namely, by the absorbents, which take their rise from the cellular interstices, and through the pores of the skin by transudation. Another misfortune is, that the disease steals on so imperceptibly, that it becomes inveterate before people begin to think of pursuing the proper means of relief.

In this disease the *cure* must turn upon two points: First, on preventing the further deposition of fat, by avoiding the introduction of superfluous aliment, particularly of fatty matters, into the system; and, secondly, on promoting and forwarding the absorption of fat. On these grounds, besides what may be done by proper regimen, a variety of articles have been recommended in the way of medicine. Soap has been proposed as a remedy to melt down and facilitate the absorption of the fat in corpulent people; and Dr. Fleming, some years ago, published a little treatise, wherein he recommends this medicine, and relates the case of a gentleman who is said to have received considerable benefit from it. But perhaps the soap-leys would be more powerful, and might be more easily taken under the precautions directed when recommended as a dissolvent of the stone. See Lithontriptics.

Lieutard advises to take *acetum scillæ* in small doses, with frequent purging and brisk exercise. But it will seldom happen that these patients will be found sufficiently steady to persist in any such courses; it being the nature of the disorder to render them irresolute and inattentive to their condition. Therefore, the principal use of rules must be with a view to prevention; and persons who are disposed to corpulency should take care in time to prevent it from becoming an absolute disease, by using a great deal of exercise, not indulging in sleep, and abridging their meals, especially that of supper. Salted meats are less fattening than such as are fresh; and drinking freely of coffee is recommended to corpulent people.

But Dr. Fothergill observes, that a strict adherence to vegetable diet reduces exuberant fat more certainly than any other means that he knows; and gives two cases wherein this regimen succeeded remarkably well. The famous Dr. Cheyne brought himself down in this way, from a most unwieldy bulk to a reasonable degree of weight; as he himself informs us. It deserves, however, to be remarked, that every practice for the removal or prevention of fatness must be used with great caution and prudence: for not a few, anxious to prevent this, have had recourse to an extreme of regimen and medicine which have proved fatal. This has particularly arisen from the excessive use of acids, probably operating by entirely destroying the action of the chylopoietic viscera.

POLYSPE'RMUS (from *ϖολυς*, *much*, and *σπερμα*, *seed)*. In botany, those plants are so called which have more than four seeds succeeding each flower, and that without any certain order or number.

PO'MA, apples. See Apples.

POMA'CEÆ (from *pomum*, an apple), the name of the 36th order in Linnæus's Fragments of a Natural Method, the genera of which have a pulpy esculent fruit of the apple, berry, and cherry kind. Dr. Cullen says, the *Pomaceæ*, when duly ripened, or when their immaturity is corrected by artificial heat and proper additions, may have all the common qualities of other summer fruits; but in their recent state, being seldom duly ripened, at least in the northern parts of Britain, the firmness of their texture renders them slowly dissolved, and ready to contribute to an excess of acidity in the stomach. This vice happens more readily with respect to apples than to pears, as we can at least have some species of the latter mellow and tender. In the case of a dyspeptic stomach, Dr. Cullen says he has known apples, a long time after they had been taken down, brought up again by eructation in the same masses that they had been swallowed, and that even after two days.

POMA'TUM (from *pomum*, an apple), an ointment wherein apples originally formed a considerable part; but what is now used under that name, is only scented fat or suet; yet, to these, medicinal remedies are sometimes joined, and employed in cutaneous affections, and other cases where the application of a plaster would be inconvenient.

POMEGRANATE. See Granatum.

POMET (Peter), a noted French druggist, born at Paris in 1658. He collected at a great expence, from all countries, drugs of every kind, and rendered himself celebrated by his book entitled *Histoire Générale des Drogues*, which was the most complete book on the subject at that time known. He gave demonstrations with respect to his medicinal plants in the king's garden, and a catalogue of the drugs noticed in his work, with a list of all the rarities of his cabinet, which he proposed to publish by subscription; but this was prevented by his death, which happened in 1699, upon the very day when the patent for a pension granted him by Louis XIV. was made out.

POMI'FERUS (from *pomum*, an apple, and *fero*, to bear). By some systematic botanists those plants are thus called which have the largest fruit, and are covered with a strong hard rind, by which they are distinguished from the bacciferous, which have only a thin skin over the fruit.

PO'MPHOLYX (πομφολυξ, from πομφος, a *bladder*). See Tutia.

PO'MUM, an apple; a species of seed-vessel, composed of a succulent fleshy pulp; in the middle of which is generally found a membranous capsule, with a number of cells, or cavities, for containing the seeds. Seed-vessels of this kind have no external opening or valve. At the end opposite to the footstalk is frequently a small cavity, called by the gardeners the *eye of the fruit*, and by botanists *umbilicus*, the *navel*, from its fancied resemblance to the navel in animals. The gourd, cucumber, melon, pomegranate, pear, and apple, furnish instances of the fruit or seed-vessel in question.

PO'MUM ADAMI (*pomum*, an apple; so called because it was superstitiously thought to have originated in consequence of Adam having eaten the forbidden fruit); that protuberance in the anterior part of the neck, which is formed by the fore part of the thyroid cartilage.

PO'NDUS, or Pondo; a weight called a *pound*. The medical or Troy pound is less than the avoirdupois; but the ounce and the drachm are greater. The Troy pound contains 5760 grains, the avoirdupois pound contains 7000 such grains. The Troy ounce contains 480 grains; the avoirdupois contains only 437½ grains. The Troy drachm contains 60 grains; the avoirdupois rather more than 27.

PO'NS VARO'LII, also named *Corpus annulare*, and *Processus* or *Eminentia annularis*; Varolius's bridge. It is an eminence of the medulla oblongata, and so called, because it was described by the anatomist Varolius. It is formed by the two exterior crura of the cerebellum becoming flattened and passing over the crura of the cerebrum. See Medulla oblongata.

POOR-MAN'S PEPPER. See Lepidium.

POPLAR. See Populus.

POPLES, the ham, or hinder part of the joint of the knee.

POPLITE'A ARTERIA (*poplitea*, from *poples*, the ham), the popliteal artery; a continuation of the crural artery. It is that portion which passes through the hollow of the ham.

POPLITE'US MUSCULUS (from *poples*, the ham); the popliteal muscle.

POPPY, RED CORN. See Papaver erraticum.

POPPY, WHITE. See Papaver album.

PO'PULUS (from πολυς, *many*, because of the multitude of its shoots), *Populus nigra* of Linnæus; the black poplar. The young buds of this tree, or the rudiments of the leaves which appear in the beginning of the spring, were formerly employed in an officinal ointment. At present they are almost entirely disregarded, but, from their sensible qualities, they seem to be applicable to purposes of some importance. They contain a yellow, unctuous, odorous, balsamic juice.

PO'PULUS BALSAMI'FERA. See Tacamachus.

PO'PULUS NIGRA; the systematic name of the black poplar. See Populus.

PORCUPINE-MAN, the name by which one Edward Lambert, who had a cutaneous disease, was commonly called in London. We have the following account of him in the Philosophical Transactions for 1755, by Mr. Henry Baker, F. R. S. "He is now (says he) 40 years of age, and it is 24 years since he was first shewn to the society. The skin of this man, except on his head and face, the palms of his hands, and the soles of his feet, is covered with excrescences that resemble an innumerable company of warts, of a brown colour and cylindrical figure; all rising to an equal height, which is about an inch, and growing as close as possible to each other at their bases; but so stiff and elastic as to make a rustling noise when the hand is drawn over them. These excrescences are annually shed, and renewed in some of the autumn or winter months. The new ones, which are of a paler colour, gradually rise up from beneath as the old ones fall off; and at this time it has been found necessary for him to lose a little blood, to prevent a slight sickness which he had been used to suffer before this precaution was taken. He has had the small-pox, and he has been twice salivated, in hopes to get rid of this disagreeable covering; but though, just when the pustules of the small-pox had scaled off, and immediately after his salivations, his skin appeared white and smooth, yet the excrescences soon returned by a gradual increase, and his skin became as it was before. His health during his whole life has been remarkably good: but there is one particular of this case more extraordinary than all the rest; this man has had six children, and all of them had the same rugged covering as himself, which came on like his own about nine weeks after the birth. Of these children only one is now living, a pretty boy, who was shewn with his father." It appears, therefore, as Mr. Baker remarks, that a race of people might be propagated by this man, as different from other men as an African is from an Englishman; and that if this should have happened in any former age, and the accidental original have been forgotten, there would be the same objections against their being derived from the same common stock with others. He therefore thinks it very possible, that the differences now subsisting between one part of mankind and another, may have been produced by some such accidental cause, long after the earth had been peopled by one common progenitor.

PORES; little interstices or spaces between the parts of the skin, serving for perspiration. See Perspiration.

PO'RI BILIA'RII; the biliary pores or ducts. These receive the bile from the penicilli of the liver, and convey it to the hepatic duct. See Liver.

PORK; the flesh of the hog, commonly used as food. See Animal food.

PORRACEOUS, a term applied to things resembling a leek in colour or scent; as of the bile, or what is sometimes discharged by vomiting or stool, and appearing of a green colour.

PORRI'GO *(a porrigendo*, from its spreading abroad), a cutaneous disease very common among children. In this affection the skin of the hairy scalp becomes dry and callous, and scales come off, like bran, upon combing the head.

PO'RRUM, the common leek; *Allium porrum* Linn. Every part of this plant, but more particularly the root, abounds with a peculiarly fetid odour. The expressed juice of this plant possesses diuretic qualities, and is given in the cure of dropsical diseases, and nephritic complaints.

PO'RTA *(a portando*, because through it the blood is carried to the liver); that part of the liver where its vessels enter. See Liver.

PO'RTÆ VENA. See Liver.

PO'RTIO DURA, the facial nerve; a name given to one branch of the seventh pair of nerves. It is called the hard portion, either from its being more firm than the other, or because it runs into the hard part of the skull; and the other the *portio mollis*, or soft portion. This nerve arises near the pons from the crus of the brain, enters the petrous portion of the temporal bone, gives off a branch into the tympanum, which is called the chorda tympani, and then proceeds to form the *pes anserinus* on the face, from whence the integuments of the face deduce their nerves. See Facialis nervus.

PO'RTIO MOLLIS, or *Auditory nerve.* This arises from the medulla oblongata and fourth ventricle of the brain, enters the petrous portion of the temporal bone, and is distributed, by many branches, both to the cochlea, and also to the membrane lining the vestibulum and semicircular canals. It is the immediate organ of hearing. See Medulla oblongata.

PORTLAND POWDER, a once celebrated remedy for the gout, of which some account is given under the article Amara. In opposition to an attempt made to restore the use of this dangerous remedy, Dr. Fothergill, of Bath, published some laudable cautions, calculated to apprise the public of its ultimate effects, even when successful in removing the gout. He gives the following receipt for the Portland powder:

Take of Aristolochia rotunda *(birthwort)*;
Gentian root;
Germander;
Ground pine;
Centaury, the tops and leaves.

Of all these, well dried, powdered and sifted fine, mix equal parts well together, and take one drachm every morning fasting, in a cup of wine and water, broth, tea, or any other vehicle.

"It is necessary to fast an hour and half after taking it. Continue this for three months without interruption; then diminish the dose to three-fourths of a drachm for three months longer; then to half a drachm for six months more, taking it regularly every morning if possible. After the first year, it will be sufficient to take half a drachm every other day. As this medicine operates insensibly, it will perhaps take two years before you receive any great benefit, so you must not be discouraged, though you do not perceive at first any great amendment; it works slow, but sure; it doth not confine the patient to any particular diet, so one lives soberly, and abstains from those meats and liquors that have always been accounted pernicious in the gout, as champaigne, drams, high sauces, &c.

"In the rheumatism that is only accidental, and not habitual, a few of the drachm doses may do; but if habitual, or of long duration, then you must take it as for the gout:—the remedy requires patience, as it operates but slow in both distempers."

Dr. Clephane has given an excellent account of this very ancient preparation, in the first volume of the Medical Observations and Enquiries. It is mentioned, he observes, with very little variation from the above receipt, by Galen, in the second century; by Cælius Aurelianus (from Soranus), who lived about the same time; by Actius Alexander Trallianus in the fifth century; by Paulus Ægineta in the seventh century; by Myrepsus in the twelfth; by Franciscus de Pedemontio, A. D. 1400; by the Prince of Mirandola, about 1480; by Tournefort in later times; and at a period still later, it was transferred into the Paris Pharmacopœia, under the title of *pulvis arthriticus amarus.* This powder was given in the dose of about a drachm, daily, for a year; as many of those remedies called *antidoti* were.

"But though it cannot be denied," says Dr. Fothergill, "that the ancient writers recommended, in some cases, these bitter preparations as remedies for the gout, yet they advised them with considerable reserve, and an apprehension of their danger. Soranus, who advised them, cautions against their being *long continued;* as, he says, they brought on some persons acute complaints; on others, apoplexy; on others, pleurisy and peripneumony; and, in some cases, difficulty of breathing, or dyspnœa. All of the writers on the subject, caution against the indiscriminate use of it in all cases and habits; as they assure us these bitters are extremely hurtful in hot and bilious habits, and proper only in cold phlegmatic constitutions. They also judged them to be very dangerous in cases of long standing, and advise no trial of them to be made where the complaint has existed *five*, or at most *seven* years."

PORTULA'CA (from *porto*, to carry, and *lac*, milk; because it increases the animal milk), Purslane; the *Portulaca oleracea* Linn. This plant abounds with a watery and somewhat acid juice, and is often put into soups, or pickled with spices. It is said to be antiseptic and aperient, but its virtues are trifling.

PORTULA'CA OLERACEA; the systematic name of the esculent purslane. See Portulaca.

POSSET; milk curdled with wine, treacle, or any acid. This cookery is, by foreigners, reckoned peculiar to the English, with whom it is extremely common. The *serum* of a posset, called posset-drink, is like the whey of milk, only differing with respect to the means by which the curd and whey are made to separate. Sulphur boiled in milk and formed into a posset with a little vinegar, is a common remedy, amongst soldiers, for curing the itch at a single dressing. In this case they rub the curd all over the body and drink the whey; observing to keep on the same body linen for three or four days, which proves an infallible remedy, as indeed the sulphur would without the posset.

POSTE'RIOR ANNULA'RIS; an external interosseal muscle of the hand, which extends and draws the ring-finger inwards.

POSTE'RIOR IN'DICIS; an internal interosseal muscle of the hand, that extends the fore-finger obliquely, and draws it outwards.

POSTE'RIOR ME'DII; an external interosseal muscle of the hand, that extends the middle finger, and draws it outwards.

POTASH, or POTASS, *potassa;* the *Kali* of the London and Dublin Pharmacopœias. This alkali may be extracted from various substances; and it is more or less pure according as it is afforded by one substance or another. If any vegetable substance be burnt in the open air, and the ashes repeatedly washed with water till it passes tasteless; and if this liquid be evaporated to dryness, the substance which remains is *potash.* In this state it occurs in commerce; but far however from being in a state of purity. Indeed it is seldom found in an uncombined state, except in natural springs, as in that at Douay in France, &c. It is said to exist in the aluminous ore of La Tolfa; and, combined with the sulphuric, nitric, and muriatic acids, it is found in Spain and in the East Indies.

Potash was formerly denominated the vegetable alkali, but, Mr. Accum says, improperly, because it is met with abundantly in mineral bodies, more especially in volcanic products. Dr. Kennedy discovered it in the pumice stone; Vauquelin found it in the zeolite from the Ferro islands; and Klaproth has likewise discovered it in the *leucite,* an earth of the siliceous genus.

Vegetable physiologists are not agreed whether potash be derived from the soil in which vegetables grow; whether it exists uncombined with any acid in plants; whether it be a product of vegetation; or whether it be generated during the process of burning.

Potash, in a crystallised form, consists of soft quadrangular compressed prisms, which are extremely caustic and deliquescent. It dissolves all soft animal matters when brought into contact with it. It liquefies by a gentle heat, and rises in fumes at high temperatures. It does not unite in a direct manner with phosphorus. It easily combines with sulphur and metallic oxids. It dissolves alumine in the humid way, and even a small quantity of silex; but it does not act on glucine or zircon, nor on magnesia or lime. It contracts no union with barytes. It absorbs water and carbonic acid rapidly. It fuses into glasses with silex by the aid of fire. It forms salts which in general do not yield their acid unless to barytes. It changes blue vegetable colours green, and possesses all the general properties of alkalies.

It has long been a desideratum with chemists to possess a method of preparing potash in a state of absolute purity; the strong tendency which it has to combination renders this extremely difficult. The following methods are recommended by two eminent chemists:

1. Bouillon la Grange employs an apparatus consisting of several boxes of common deal. At the bottom we are directed to put river-sand, which must be well washed, and over it add another stratum, but of a finer kind, and cover the whole with a cloth besprinkled with wood-ashes. In the bottom of each box a hole is made, into which is fitted a glass tube, for the purpose of affording a passage to the liquor as it filters through the sand.

Having thus arranged the apparatus, we are directed to take equal parts of quick-lime and potash of commerce, if the lime is very caustic; but in the contrary case, it requires twenty parts to fifteen of potash. Put water into an iron kettle, bring it nearly to a state of ebullition, and then add lime, which by its slaking will bring the water to that state. When it is slaked mix the potash, and form of the whole a thick liquid, which must be suffered to cool a little. Then pour the mixture into the boxes, and immediately throw water over it; but to prevent the water from making holes, when added, place over it a small board, which will rise with the water.

Care must be taken to place earthen pans, or other vessels, to receive the liquor which runs through the tubes; and, that the ley may not absorb carbonic acid from the atmosphere, the vessels must be closed with care, in such a manner as to exclude the external air. It will be necessary also to keep water always over the mixture, which must be collected till it passes tasteless from the tubes. The liquors obtained are nearly of the same degree of strength till towards the end of the process; when they grow weak suddenly.

To evaporate the water, use should be made of cast-iron pots, beginning with the last portions, which are a little weaker; and to prevent the necessity of keeping the strongest a long time in contact with the air when boiling, a strong ebullition is requisite. When the fluid is concentrated to a certain degree, any sulphate of potash that may be present will crystallise, and be precipitated.

To obtain dry potash, pour the concentrated liquor into a small bason, and proceed with the evaporation, till a little of it poured on an iron plate, or a marble slab, becomes solid. Then put the concrete potash into a jar, and pour over it very strong alcohol; the potash alone dissolves in it; the sulphate and muriate of potash, with the portions of earth and even of carbonic acid which it obstinately retains or which it may have acquired from the air during the evaporation, remain at the bottom of the solution. Afterwards decant the pure liquor, and distil it in a retort till it becomes colourless. It must then be evaporated in a silver bason. On cooling, it crystallises in white laminæ, which are sometimes three-tenths of an inch in length: or instead of suffering it to crystallise, it may be evaporated to dryness.

2. According to Lowitz, the whole operation for obtaining potash of the greatest purity and whiteness is this: A lixivium of potash, freed from carbonic acid in the usual manner, is evaporated to a thick pellicle. After the cooling, the foreign salt which has crystallised is to be separated, and the evaporation of the lixivium continued in an iron pot. During this second evaporation the pellicle of foreign salts, particularly of carbonate of potash, which continues to be formed, must be carefully taken off with an iron skimmer. When no more pellicle is formed, and the matter ceases to boil up, it is removed from the fire and suffered to cool, continually stirred with an iron spatula. It is then to be dissolved in double the quantity of cold water, and the solution filtered, and evaporated in a glass retort till it begins to deposit regular crystals. If the mass should consolidate ever so little, by cooling, a small quantity of water is to be added, and it must be heated again to render it fluid. After the formation of a sufficient quantity of regular crystals, the fluid, which is very brown, is to be decanted, and the salt, after being suffered to drain, must be re-dissolved in the same quantity of water. The decanted fluid must be kept in a well-closed bottle, and suffered to become clear by subsiding during several days. It must then be decanted for a second evaporation and crystallisation. The process must be repeated as long as the crystals afford, with the least possible quantity of water, solutions perfectly limpid. These solutions are to be preserved in well-closed bottles, to defend them from the access of air.

The greatest difficulty of this process arises from the facility with which the fluid assumes a solid form. To obviate this inconvenience, a small portion of it may be concentrated to the point at which it becomes converted into a solid mass by cooling. The saturation of a lixivium considerably evaporated may be ascertained by throwing small pieces of this mass into it during its cooling. When these are no longer dissolved, it is a proof that it is at the point required.

With regard to the foreign salts which are mixed with the potash, the greatest portion separates by crystallisation after the first evaporation. The rest is separated during the second concentration by the continual skimming of the pellicle. The little which may remain with the potash must precipitate for want of water of solution, in a lixivium, wherein the alkali itself is no longer dissolved but by its own water of crystallisation.

Mr. Accum observes, that the property of alkalies to dissolve in highly rectified alcohol, with the exclusion of every foreign salt, would afford an excellent means of obtaining potash very pure, if their mutual action did not afford a new source of impurity. For when an alkali absolutely pure and crystallised is dissolved in spirit of wine, even without heat, the fluid assumes a very brown colour, which becomes still deeper after being decanted from the saline mass.

The crystallisation of potash is very different, accordingly as the crystals are formed with cold or heat. In the first case, the crystals obtained are octahedra in groups, which contain 0.43 water of crystallisation, and excite by their solution in water, even in the summer, a degree of cold very near the point of aqueous congelation. In the second case, very thin crystalline transparent blades of extraordinary magnitude are formed, which by an assemblage of lines, crossing each other in infinite directions, present an aggregate of cells or cavities most commonly so perfectly closed that the vessel may be inverted without the escape of the smallest drop of the lixivium, though sometimes included to the amount of an ounce or two. For this reason, it is necessary to break this fine crystallisation, that the fluid may run off. The crystals present in their regular formation rectangular tetragonal blades, which, as they contain little water of crystallisation, produce a considerable degree of heat when dissolved in water. By exposing these crystals to a red heat in a silver crucible, they become fused; and, after cooling, afford a mass that is perfectly white, extremely caustic, and deliquescent.

As the crystals and lixivium, during the length of time required to drain the salt, may frequently become charged with a portion of carbonic acid, it is advisable, in order to avoid this inconvenience as much as possible, that the lixivium, as soon as it is brought to the requisite point of concentration, should be poured into a narrow-necked bottle, and well closed therein, to crystallise. After the crystals are formed, the bottle is to be reversed without opening, and kept at a temperature rather warm until the crystals are well dried. During the winter, the liquor, after the first crystallisation, continues to crystallise without being submitted to a new evaporation, provided only that it be exposed to a temperature somewhat colder than that wherein the first crystals were formed.

Pure potash rapidly absorbs water and carbonic acid from the atmosphere; it combines with silex in the dry way; acts powerfully on animal substances; has a strong affinity for sulphur; produces, when mixed with snow, a great degree of cold; and of heat when mixed with the dense acids. If it be left exposed in an open vessel, it soon attracts humidity and carbonic acid, augments in weight, becomes liquid, and gradually assumes the state of liquid carbonate of potash. To preserve it therefore in a state of purity, it must be kept in bottles well stopped and *entirely filled.*

The medicinal uses of potash are spoken of under the articles Kali, Escharotica, &c. but the substance popularly named *potash*, or *pearl-ash*, and which, in a purified state, forms the *kali præparatum* of the London, and *carbonas potassæ* of the Edinburgh, Pharmacopœias, is the common potash of commerce.

POTA'SSA; potass, or potash. See Potash.

POTATOE; the root of the *Solanum tuberosum* of Linnæus. It is a native of Peru, and well known as an extremely nutritious and wholesome vegetable. Dr. Cullen says, this root, dried in a proper manner, is readily brought into a farinaceous powder that has every property of the *Cerealia*, except that it affords no gluten or animal matter, as wheat does. It affords a large proportion of an amylum, precisely of the same nature with that of wheat, or of any other grain used as food. Its nutritious quality in general is now ascertained by the experience of all Europe, and in almost every part of this country it makes a very considerable portion of the food of the vulgar. However, as potatoes contain such a considerable proportion of water, amounting to one-half or more of their whole weight, they cannot be supposed to give, in proportion to their bulk, so much nourishment as grain. But to compensate this, their watery texture renders them of easy solution and digestion in the stomach; and they are generally less liable to become acescent or to occasion heartburn than the unfermented Cerealia. To this account Dr. Cullen adds, that they are without any noxious quality that can be perceived. Potatoes are capable of being formed into a fermented bread without any addition; but they are very commonly mixed with wheaten flour to form bread. With the lower classes of the people, however, they very well answer the general purpose of bread, when taken in their boiled state, in which they are often found to be dry and mealy, if properly cooked.

POTATOE, SPANISH; the root of the *Convolvulus batatas* Linn. It is a native of the Indies. It is firm, and of a pale brown on the outside, white within, and very sweet, like the chesnut. It is the only esculent root of the genus *convolvulus*.

POTENTIAL CAUTERY, in surgery, denotes the consuming, or reducing to an eschar, any part of the human body by a caustic or metallic salt, &c. instead of a red-hot iron, which last is called the *actual cautery*.

POTENTI'LLA (*a potentia*, from its efficacy), called also *Argentina*, and *Anserina*; the wild tansy. The leaves of this plant, *Potentilla anserina* of Linnæus, possess weak astringent and corroborant qualities; hence they are seldom used, except by the lower orders of people.

POTENTI'LLA ANSERINA; the systematic name of the silver-weed, or wild tansy. See POTENTILLA.

POTENTI'LLA REPTANS; the systematic name of the common cinquefoil. See PENTAPHYLLUM.

POTE'RIUM SANGUISORBA; the systematic name of the Burnet-saxifrage, the leaves of which are often put into cool tankards. They have an astringent quality, but in no great degree.

POTION, a liquid medicine, consisting of such a quantity as can be taken at one draught: the name of *draught* is now more commonly given to it by apothecaries.

POULTICE, a popular name for the remedy, termed by surgeons, a cataplasm. See CATAPLASM. The most frequent intention of a poultice is to soothe a part which is irritated, and to allay inflammation; but it may also be used merely to defend a sore from the action of the atmosphere whilst a natural cure is going on, as has been advised by the late Mr. Hunter. In the common farinaceous cataplasm or *bread poultice*, it has been the custom, for a very long period, to employ milk; but as this is liable to turn sour by the heat of the body, and possesses no greater property of relaxing the skin than water, some rather prefer the latter. It is thus prepared effectually, and with very little trouble, by merely soaking slices of new bread in boiling hot water, till they are swollen and perfectly soft. Afterwards, it is necessary to pour away, and even to press out, as much water as may appear to be superfluous, and the bread may then be beaten up with a spoon. This composition will be rendered still more complete, if we stir into it a small quantity of linseed-meal; which has the double advantage of binding its parts together, so that it shall not smear and cling to the skin, and also of retaining, for a much longer time, that moisture, on the preservation of which its beneficial properties chiefly depend. Another common error is, the too copious use of oil. An excess of this or of any kind of unguent in poultices, is utterly destructive of their efficacy, and cannot be too strenuously prohibited.

In cases where a more mucilaginous application seems to be required, nothing is better than the *linseed poultice*. This is made by simply stirring a sufficient quantity of the *meal* of linseed (or that from which the oil has been pressed) into boiling water. It is a good emollient, and universally adopted by the hospitals. Some employ a poultice of ground linseed alone; but that of *linseed meal* is preferable, as there is too great an abundance of oily mucilage in the linseed alone, to answer, completely, the purposes intended.

Mr. Hunter expresses his approbation of the linseed-poultice, and his objections to the popular mode of making a common poultice, in the following terms. He says, "Poultices are commonly made *too thin*; by which means, the least pressure, or their own gravity, removes them from the part: they should be thick enough to support a certain form when applied. They are generally made of *stale* bread, and milk. This composition, in general, makes too *brittle* an application; it breaks easily into different portions, from the least motion, and often leaves some part of the wound uncovered, which is frustrating the first intention. The poultice which makes the best application, and continues most nearly the same between each dressing, is that formed of the meal of linseed: it is made at once, and when applied, it keeps always in one mass."

Mr. Payne recommends for hospital use, a poultice in which linseed is the principal ingredient, and bread entirely omitted, by which the expence is considerably lessened. In the Infirmary of St. George's, Hanover-square, Mr. Payne found the usual poultice and the expence attending it, to be as follows:

	s.	*d.*
Bread, 49lb. at 2½d. per pound, - - - -	10	2½
Milk, 14 quarts, at 2d. per quart, - - - -	2	4
Lard, 2¼lb. at 9d. per pound, - - - - -	1	8¼
	14	2¾

In lieu of this, he recommends—

	s.	*d.*
Fine pollard, 3½ pecks, at 6d. - - - - -	1	9
Genuine linseed flour, 14lb. at 4d. - - - -	4	8
Lard, ¼lb. - - - - - - - - - - -	0	2¼
	6	7½

To stimulate in a moderate degree, and also as an antiseptic application, the *beer poultice* is sometimes employed; but the solid contents, and the management of the composition, are the same as the foregoing.

To mortified parts, the *effervescing poultice* is a very useful application. The *cataplasma effervescens* is prepared by stirring into an infusion of malt (the *sweet wort* of the ale or porter brewers), as much oatmeal as is required to make it of a proper thickness, and afterwards adding about a spoonful of yeast. It is one of the most effectual methods of applying carbonic acid gas to ulcers, cancers, or other local affections requiring to be treated with powerful antiseptic remedies. In applying it, great care is necessary not to bind it on too closely; as the fermentation, a short time after its application, will be considerable, and its bulk, of course, so increased, as to put the cloths and bandages which confine it, very much on the stretch.

A poultice is sometimes used for the mere purpose of stimulating the part to which it is applied. Dr. Hugh Smith gives the following formula for a *stimulating poultice:*

℞ Farinæ secalis lib. j.
Fermenti veteris acris unc. iv.
Natri muriati unc. ij.

These being wrought into a paste with hot water, he directs to be immediately wrapped round the part affected, and renewed morning and evening. This poultice was prescribed as a remedy for those anomalous swellings which are supposed to arise from viscid secretions. It was first introduced into England by the Hessians and Hanoverians, with whom it is much in use, for gouty and rheumatic affections.

POUPART'S LIGAMENT, *ligamentum Poupartii*, also called the Fallopian or inguinal ligament; a strong tendinous expansion of the external oblique muscle, that goes across from the inferior and anterior spinous process of the ilium, to the crista of the os pubis. The femoral vessels pass under this ligament; and when the intestine or omentum passes underneath it, the disease is called a femoral hernia. See Hernia.

POWER, MUSCULAR. See Irritability and Muscular motion.

POWER, TONIC. See Irritability.

PRÆCO'RDIA (from *præ*, before, and καρδια, the *heart)*; the fore part of the region of the thorax.

PRÆPU'TIUM (from *præputo*, to cut off before, because some nations used to cut it off in circumcision), the prepuce; a membranous or cutaneous fold that covers the glans penis in men, and clitoris in women.

PRAXAGORAS, a celebrated Greek physician, and a great promoter of medical science after Hippocrates. He differed, indeed, very considerably, in his practice, from his illustrious predecessor. Cœlius Aurelianus acquaints us, that he made great use of vomits in his practice, insomuch as to exhibit them in the iliac passion till the excrements were discharged by the mouth. In this disorder he also advised, when all other means failed, to open the belly, cut the intestine, take out the indurated fæces, and then to sew up all again; but this practice has not been followed by any subsequent physician.

PRE'CIÆ (from *precius*, early), the name of the 21st order in Linnæus's Fragments of a Natural Method; consisting of *primula*, the primrose, an early flowering plant; and a few genera which agree with it in habit and structure, though not always in the character or circumstance expressed in the title.

PRECIPITANT, in chemistry, a term applied to any liquor which, when poured on a solution, separates what is dissolved, and makes it precipitate, or fall to the bottom of the vessel. See Precipitation.

PRECIPITATE, in chemistry, that substance which, having been dissolved in a proper menstruum, is again separated from its solvent, and thrown down to the bottom of the vessel, by pouring some other liquor upon it. See Precipitation.

PRECIPITATE, RED. See Hydrargyrus nitratus ruber.

PRECIPITATE, WHITE. See Calx hydrargyri alba.

PRECIPITATION (from *præcipito*, to cast down). When two bodies are united, for instance, an acid and an oxyd or metallic calx, and a third body is added, such as an alkali, which has a greater affinity with the acid than the metallic oxyd, the consequence is, that the alkali combines with the acid, and the oxyd, thus deserted, appears in a separate state at the bottom of the vessel in which the operation was performed. This decomposition is commonly known by the name of *precipitation*, and the substance, if it sink, is named a *precipitate;* if it swim, it is called a *cream.* The substance by the addition of which the phenomenon is produced, is denominated the *precipitant.*

This operation, like solution, is performed either in the *dry* or *humid* way. It is effected, 1. By lessening the quantity of the solvent by evaporation. 2. By diminishing its power, as by a reduction of its temperature, or dilution. Or, 3. By the addition of some chemical agent, which, from its more powerful affinities, will either combine with the solvent, and precipitate the solvend, or form, itself, an insoluble compound with some constituent of the solution.

By precipitation we can, 1. Effect a separation of substances from their solutions. 2. We can purify solutions from precipitable impurities. 3. We can produce new combinations. For the two first means of precipitation we may resort to the table of elective attractions. To perform it in the last manner, we may observe the following rules laid down by Dr. A. Duncan. 1. The solution and precipitant must possess the requisite degree of purity. 2. The solution should be perfectly saturated, to avoid unnecessary expenditure of the solvent or precipitant. 3. The one is to be added slowly and gradually to the other. 4. After each addition, they are to be thoroughly mixed by agitation. 5. We must allow the mixture to settle, after we think that enough of the precipitant has been added, and try a little of the clear solution, by adding to it some of the precipitant: if any precipitation takes place, we have not added enough of the precipitant. This is necessary, not only to avoid loss, but in many instances, the precipitant, if added in excess, re-dissolves or combines with the precipitate.

After the precipitation is completed, the precipitate is to be separated by some of the means commonly practised, as by filtration, &c. When the precipitate is the chief object of this process, and when it is not soluble in water, it is often advisable to dilute, to a considerable degree, both the solution and precipitant, before we perform the operation. When it is only difficultly soluble, it is sufficient if we wash the precipitate, after it is separated by filtration. In some cases the separation of the precipitate is much assisted by a gentle heat.

PREDISPOSING CAUSE, in the animal pathology; that which renders the body susceptible of disease. The most frequent predisposing causes of disease are, the temperament and habit of the body; idiosyncracy, age, sex, and structure of the part affected by disease. See CAUSES.

PREDISPOSITION; that constitution or state of the solids or fluids, or of both, which prepares the body for the action of disease.

PREGNANCY, or UTERO-GESTATION; that state in which a woman is, after having had an effectual intercourse with a man. See the articles CONCEPTION, and UTERUS, GRAVID. After conception, a remarkable change is soon produced in the genital system of the female. This is the source from whence arise different symptoms, that are however liable to considerable variation, not only in the constitution of different women, but in the same woman in different pregnancies, and at different periods of the same pregnancy.

I. The *signs of pregnancy* are these: During the first fourteen or fifteen weeks, the signs of conception are very ambiguous, and cannot be depended on; for, as they proceed from the irritation of the womb on other parts, they may be occasioned by every circumstance which can alter the natural state of that organ. The first circumstance which renders pregnancy probable, is the suppression of the periodical evacuation, which is generally accompanied with fullness in the breasts, headach, flushings in the face, and heat in the palms of the hands. These symptoms are commonly the consequences of suppression, and therefore are to be regarded as signs of pregnancy in so far only as they depend on it. As, however, the suppression of the periodical evacuation often happens from accidental exposure to cold, or from the change of life in consequence of marriage, it can never be considered as an infallible sign.

The abdomen, some weeks after pregnancy, becomes flat, from the womb sinking by its own weight, and drawing down the intestines along with it; but this cannot be looked upon as a certain sign of pregnancy, because an enlargement of the womb from any other cause will produce this effect.

Many women, soon after they are pregnant, become very much altered in their looks, and have peculiar irritable feelings, inducing a disposition of mind which renders their temper easily ruffled. The eyes appear larger, and the mouth wider than usual; and the woman has a particular sharpness of countenance, which cannot be described, but with which matrons are well acquainted. These breeding symptoms, as they are called, originate from the irritation produced on the womb by impregnation; and as they may proceed from any other circumstance which can irritate that organ, they cannot be depended on when the woman is not young, or where there is not a continued suppression for at least three periods.

The irritations on the parts contiguous to the womb, are no less ambiguous; and therefore the signs of pregnancy in the first four months are always to be doubted, unless every one enumerated be distinctly and unequivocally present.

From the fourth month, the signs of pregnancy are less ambiguous, especially after the womb has risen into the cavity of the belly. In general, about the fourth month, or a short time after, the child becomes so much enlarged, that its motions begin to be felt by the mother; and hence a sign is furnished at that period called *quickening*. Women consider this sign as the most unequivocal proof of pregnancy; but although, when it occurs about the period described, and has been preceded by the symptoms formerly enumerated, it may be looked upon as a sure indication that the woman is with child; yet when there is an irregularity, either in the preceding symptoms or in its appearance, the situation of the woman is not very decisive. As the sensation of the motion of the child cannot be explained, or accurately described, women may readily mistake other sensations for that of quickening. Flatus in the bowels, or the natural pulsation of the great arteries, of which people are conscious only in certain states of the body, have frequently been mistaken for this feeling in women.

After the fourth month, the womb rises gradually from the cavity of the pelvis, enlarges the belly, and pushes out the navel: hence the protrusion of the navel has been considered one of the most certain signs of pregnancy in the latter months. Every circumstance, however, which increases the bulk of the belly occasions this symptom; and therefore it cannot be trusted to, unless other signs concur.

The progressive increase of the belly, along with the suppression of the menses, after having been formerly regular, and the consequent symptoms, together with the sensation of quickening at the proper period, afford the only true marks of pregnancy. These signs, however, are not to be entirely depended on; for the desire which some women have to be mothers, induce them to conceal, even from themselves, whatever may render their situation doubtful, and to magnify every circumstance which can seem to prove that they are with child.

But besides quickening and an increase of bulk of the belly, another symptom appears in the latter months, which, when preceded by the ordinary signs, renders pregnancy extremely probable. This is, the presence of milk in the breasts. When, however, there is any irregularity in the preceding symptoms, even this sign is not to be considered as unequivocal, since the sympathy between the breasts and the uterus will sometimes bring on a degree of action in the former when pregnancy has not taken place.

II. *Diseases incident to the pregnant state* may be considered, either as arising from sympathy in the early months; or as depending on the stretching and pressure of the uterus, towards the more advanced stages. Though the former of these complaints may generally be accounted for from other causes than that of plethora; yet, in many constitutions, a certain plethoric disposition in the early months of pregnancy seems to prevail in the vascular system: and therefore, though many inconveniences may ensue from a too frequent, a too copious, or an indiscriminate use of venæsection; yet, if prudently and judiciously employed, abortion by this means will not be endangered, as some late authors have alleged; but, on the contrary, on many occasions, a seasonable bleeding will be attended with the most beneficial and salutary effects.

1. In young women, suddenly affected with *severe sickness and loathing*, febrile commotion, head-ach, vertigo, and other symptoms of breeding, more especially in full sanguineous habits, besides a spare light diet and suitable exercise, recourse must be had to proper evacuations, the chief of which is venæsection. This may be safely performed at any time of gravidation, and occasionally repeated according to the urgency of the symptoms. Small bleedings, at proper intervals, are preferable to copious evacuations, which in early pregnancy ought always to be carefully guarded against.

When the stomach is loaded with putrid bile or acrid saburra, the offensive matter should be discharged by gentle vomits of ipecacuanha, or of infusions of chamomile flowers. The violent efforts to retch and vomit, and the commotions thence excited, which often occasion the expulsion of the fœtus, will by this means frequently be removed, or in most cases greatly diminished. During the term of breeding, the state of the belly must be also attended to. When laxative medicines become necessary, those of the mildest and gentlest kind should be administered.

In women liable to nervous complaints, where the stomach is weak, and the sickness violent and continued, the patient should be put on a course of light, aromatic, and strengthening bitters; such as infusions of bark, columbo, &c. and her diet, air, exercise, company, and amusement, should be regulated. In order to settle the stomach, and lessen the sensibility of the system, opiates will often happily succeed, when every other remedy fails. In the Lond. Med. Jour. Dr. Vaughan of Leicester describes a case wherein nausea and vomiting, as attendants on pregnancy, occurred in a much greater degree than usual; where the symptoms lasted much longer, and the consequences were of the most serious kind. The means he employed to obviate them were, throwing in nourishment by clysters *only*, applying anodyne liniments to the scrobiculus cordis, and bathing the legs in a decoction of cinchona in milk; and these it seems were successful.

2. *Heart-burn* and *diarrhœa*.—These, which are common symptoms of breeding, or of pregnancy, must be treated pretty much as at other times. Both complaints chiefly depend on the state of the stomach. Dr. John Sims, of London, says he has been in the habit of employing *pure ammonia* in such cases, and with "extraordinary success." He says, "In all the complaints of pregnant women, arising from too prevailing an acidity, so general with them, such as heartburn, vomiting, cough upon taking food, and that feverish, restless state, so common in the latter period of pregnancy: for all these complaints, two or three spoonfuls of the following mixture should be taken either occasionally, or when the symptoms are more continual, immediately after every meal:

℞ Magnesiæ ustæ, drachm. j.
Aquæ puræ, unc. vss.
Sp. cinnamomi, drachm. iij.
Aquæ Ammoniæ puræ (Pharm. Lond.) drachm. j.
Misce.

Magnesia has long been a popular remedy for these complaints, but the most efficacious ingredient in the prescription, Dr. Sims says, is the pure ammonia; as the effect will be nearly the same without the magnesia, but this without the ammonia is greatly inferior.

It should seem probable, from the effect of this remedy, that the cardialgia, and the other symptoms enumerated, may arise from an acid gas in the stomach, more than from its liquid contents; an idea suggested by the late Dr. Wm. Hunter. See CARDIALGIA. The vomiting which occurs in early pregnancy, very rarely arises from, or is connected with, acidity, and of course this remedy is not appropriate. When vomiting in early pregnancy is moderate, and confined to the fore-part of the day, it appears to be useful, and nothing should be done to prevent it; but it sometimes happens that the vomiting is incessant for many days together, accompanied with great prostration of strength, and constant thirst, and at the same time an utter inability of retaining any thing on the stomach, as in Dr. Vaughan's case. In this state of the case, Dr. Sims says, the most effectual remedy he knows of is, the application of leeches to the pit of the stomach, and a constant attention to suffer nothing to be swallowed that can irritate. He has found it of the greatest service to allow the patient nothing but asses' milk, and that by single spoonfuls only.

3. *Tumefaction, tension, and pains, in the mammæ.*—If tight lacing here be only avoided, and the breasts have room to enlarge and swell, no inconvenience ever follows. These effects arise from a natural cause, and seldom require medical treatment. If very troublesome and uneasy, bathing with oil, or anointing with pomatum, and covering with soft flannel or fur, will in most cases prove the cure.

4. The *menstrual evacuation*—is in some women regular for the first, second, or third period after conception. This seldom happens but in women of sanguinary plethoric habits, such as have been accustomed to very copious evacuations at other times, when the discharge is to be considered as beneficial.

5. *Deliquia, nervous*, or *hysteric fits.*—When these are occasioned by falls, frights, and passions of the mind, they frequently end in the loss of the child: but when they happen about the term of quickening, they seem

to arise from the escape of the uterus from its confinement within the capacity of the pelvis; in which case they are commonly slight, of short duration, and never threaten any dangerous consequence.

III. The next class of complaints, viz. those that are incident to the *advanced stages of utero-gestation*, and that depend on the change of situation of the gravid uterus, its enlargement and pressure on the neighbouring parts, are more painful in their symptoms, and more dangerous in their consequences, than those enumerated in the preceding class. The premature exclusion of the fœtus is generally the worst inconvenience resulting from the one; the death of the mother, along with the loss of the child, is too frequently an attendant of the other.

1. *Difficulty* or *suppression of urine*—is sometimes occasioned by the pressure of the uterus on the neck of the bladder, before the fundus uteri escapes from its confinement within the brim of the pelvis. This complaint, if early attended to, will seldom prove troublesome or hazardous; but cannot be entirely removed till the uterus rises above the brim of the pelvis, and by its enlargement becomes supported by resting on the expanded bones of the ossa ilia. But if neglected in the beginning,

2. *A retroversion of the uterus*—is generally the consequence; a case that demands particular attention. Here the fundus uteri, instead of being loose, falls back in a reclined state within the hollow of the os sacrum: thus a tumor is formed in the vulva, whereof the os tincæ makes the superior part; the body of the uterus, by this means, becomes strongly wedged between the rectum and bladder; and, from the enlargement of the uterus itself, and accumulating load of fæces and urine, the reduction will prove in many instances utterly impracticable. A total suppression of urine, or a rupture of the coats of the bladder, fever, inflammation, or gangrene of the uterus, then ensue; and these are succeeded by delirium, convulsions, and death.

The indications of cure in this dangerous disease, are sufficiently obvious: for, in the first place, every obstacle that prevents the reduction should be removed. Thus the contents of the rectum and bladder must, if possible, be evacuated; emollient fomentations and cataplasms must be applied, if indicated by inflammation or tumefaction of the parts. Secondly, the reduction of the prolapsed uterus must be attempted, by placing the patient upon her knees, with her head low and properly supported. While this is attempted within the vagina, a finger or two should also be passed within the rectum, by which the operation in some cases may be facilitated: but, at other times, no power whatever will be sufficient for this purpose. Lastly, if the reduction be accomplished, the fever, inflammatory symptoms, and other consequences of the disease, must be subdued, and a recurrence prevented by an open belly, rest, and a recumbent posture, and promoting a free discharge of urine; means that ought to be persisted in till the uterus rises within the abdomen, when the patient will be secured from future danger.

3. *Costiveness in pregnancy*—is inconvenient. It may proceed from the same cause with the preceding complaint; it may depend on the stomach; the febrile heat, that in many women prevails, will also prove an occasional cause. It may be obviated or prevented by a proper regulation of the regimen, and by such gentle laxative medicines as are best suited to the state of the woman; the chief of which are ripe fruit, magnesia, lenitive electuary, cream of tartar, sulphureous and aloëtic medicines, oleum ricini, emollient clysters, &c.

4. *The piles*—frequently arise in consequence of costiveness, or else from pressure of the gravid uterus on the hæmorrhoidal veins. These are also to be removed or palliated by the same means employed on other occasions; regard being had to this distinction, which may be applied universally to the gravid state, that all violent remedies are to be avoided: a light diet should be enjoined; the belly should be kept moderately open; and topical liniments or cataplasms should be applied, such as are suggested under the article HÆMORRHOIDS.

5. *Œdematous swellings of the legs and labia.*—These are occasioned by the languid state of the circulation, by the interruption of the refluent blood from the pressure of the distended uterus on the vena cava, &c. These, though very troublesome and inconvenient, are seldom, however, of dangerous consequence, except where the habit is otherwise diseased; and seldom require puncture, as the swelling generally subsides very quickly after delivery. They can only, therefore, at this time admit of palliation; for which purpose, along with a proper diet and moderate exercise, a frequent recumbent posture, open belly, and dry frictions applied to the legs evening and morning, will prove the most effectual means.

6. *Varicous swellings in the legs and thighs*—from the interruption of the venal blood in these parts, occasioned by the pressure of the gravid uterus, are to be treated in the same manner with the preceding complaint; or they may be assisted by moderate bandages of loose callico or flannel.

7. *Pains in the back, loins, colic-pains, cramp*—occasioned by the stretching of the uterus and appendages, and from the pressure of the uterus on the neighbouring parts, symptoms that are most troublesome in a first pregnancy, are to be palliated by venæsection, an open belly, and light spare diet. If the patient be of a full habit, and predisposed to inflammatory complaints, where the pressure is very great in the advanced month, or with twins, &c. if proper remedies are neglected, inflammation of the uterus and adjacent viscera, or dreadful epileptic fits, may quickly ensue; the event whereof is generally fatal. Crampish spasms in the belly and legs require the same palliative treatment; to which may be added friction, and the application of æther, volatile or anodyne liniments, or the like, to the parts affected.

8. *Cough, dyspnœa, vomitings, difficulty or incontinence of urine*—occasioned by the pressure of the bulky uterus on the stomach, liver, diaphragm, &c. Complaints that can only be alleviated by frequent small bleedings, a light spare diet, and open belly. The

patient should be placed in an easy posture, something between sitting and lying; and when the uterus rises high, a moderate degree of pressure, from the superior part downwards, may in some cases prove useful. But this must be used with great caution; for dreadful are the effects of violent pressure, or tight lacing, during pregnancy. It frequently kills both mother and child, and ought to be guarded from the earliest months.

9. *Inflammation of the bladder.*—This viscus, in common with every other, is liable to morbid affections, which may or may not prove serious in the unimpregnated state of the womb; but where these exist already, the disease is naturally liable to aggravation from pregnancy, and even to be hurried on to a fatal termination, as appears to have been the case in various instances.

10. *Epileptic fits*—are very dreadful and alarming. They generally depend on the same cause with the above complaints: they may also arise from irritation, excited by the motion and stirring of the fœtus, and from various other causes. Such as had convulsions when young, are most liable to them during pregnancy: they happen most frequently in first pregnancies, or where the fœtus is very large, or in twins, triplets, &c. In such cases, the distension of the uterine fibres is so great, that actual laceration is sometimes the consequence.

At whatever period of pregnancy they occur, the utmost danger may be dreaded. This, however, will be in proportion to the severity, duration, and recurrence of the paroxysm, to the term of gravidation, to the constitution of the patient, and her condition during the remission. The danger is greater towards the latter end of pregnancy than in the earlier months or in time of labour. Such as arise from inanition, from excessive and profuse hæmorrhages, from violent blows, falls, &c. or from a ruptured uterus, are for the most part fatal.

Hysteric or nervous spasms must be carefully distinguished from true epileptic fits. The former are milder than the latter; they are not attended with foamings; they do not affect the posture; the pulse is smaller, feebler, and more frequent: the woman is pretty hearty after they are over; they are followed with no bad consequences, and yield to the common treatment. Women of strong, robust, vigorous constitutions are more generally the subjects of the one; the delicate, the nervous, and the irritable, of the other. Epileptic fits generally come on very rapidly; if any previous symptoms occur, the fit is commonly announced by an intense pain in the scrobiculus cordis, or violent head-ach. In the pregnant state, these fits are for the most part symptomatic, and will therefore only admit of a palliative cure. They may be distinguished into three classes; those of the early months, those of the latter, and those that come on with labour-pains.

With regard to the cure, the term of pregnancy, as well as the constitution of the patient, and particular cause of the disease, must carefully be considered. Convulsions at an early period of pregnancy chiefly happen to young women of a plethoric sanguine habit; and can therefore only be removed, or palliated, by a free and bold use of the lancet, by an open belly, cool regimen, and spare diet. After plentiful evacuations, if the stomach be loaded with acrid saburra or putrid bile, a gentle puke may be of use: but such remedies, on those occasions, must be employed with great caution. Instead of a plethoric, if the patient is of a nervous habit, a very necessary and important distinction, the intentions of cure will essentially vary. For here opiates in large doses and frequently repeated, emollient clysters, stupes applied to the legs, the semicupium, and every other means to soothe the nerves and remove spasmodic stricture, will prove the most effectual remedies. If insensible or comatous, opium, musk, and other antispasmodics, should be exhibited by way of clyster, and the patient ought to be roused by epispastic and stimulating cataplasms applied to the legs and hams. Convulsions succeeding profuse evacuations are generally mortal. The vis vitæ, in such circumstances, must be supported, by replenishing the vessels with the utmost speed: this is to be done by pouring in nourishing fluids as fast as possible by the mouth and by clyster; warm applications should also be made to the stomach and feet, and nervous cordials given internally along with opium.

The treatment of epileptic fits depending on other causes than those now mentioned, must be regulated by a proper attention to the particular symptoms with which they are attended. See **Epilepsia.** In the advanced months, such complaints are more to be dreaded than in early gestation, as they generally proceed from the irritation occasioned by the distension of the uterine fibres, or by the pressure of the uterus on the contiguous viscera: hence the natural functions of these parts will be interrupted, the circulation of their fluids will be impeded, and the blood, being thus prevented from descending to the inferior parts, will be derived in greater proportion to the brain, and overcharge that organ. The cure must, in this case, chiefly rest on copious and repeated bleedings, an open belly, and spare diet.

Lastly, *when fits come on with labour-pains*, a speedy delivery, if it can be done with safety, either by turning the child, or by extracting with the forceps when the head is within reach, will prove the most effectual cure. When the bladder is distended, the contents must be evacuated: if a stone sticks in the urethra, it must be pushed back or extracted. If the fits are the effect of a ruptured uterus, immediate death is generally the consequence. With regard to the treatment of such complaints, no other change is generally requisite, than what arises from the symptoms peculiar to this situation. In general, till after delivery, they will only admit of palliation.

11. *Hydatids discharged from the uterus.*—One of Dr. Smellie's pupils attended a woman, who, in the fourth month of her pregnancy, was taken with a violent flooding, which was restrained by opiates; but, in three days, returned with greater violence, accompanied with strong pains and frequent straining, like a tenesmus. At length she discharged a pot full of coagu-

lated blood and hydatids, adhering to a membranous substance, or to one another, like a bunch of grapes of different sizes, from the bigness of a nutmeg to the smallness of hempseed. The patient was reduced to such a degree, that it was thought she could not possibly live; nevertheless, she gradually recovered, contrary to expectation.

Another practitioner was called to a woman about the age of 27, who thought herself seven months gone with child. When he entered the room, she stood leaning on the back of a chair, with an earthen pot betwixt her legs. She had voided near a pint and a half of blood into this receiver before he came, and at times evacuated the same quantity for near three months. Her flooding was then much abated; but she was very weak and low, though almost entirely free from pain. On examining the matrix, the os tincæ was found open to scarce the breadth of half-a-crown, but nothing like the appearance of a child. Though her flooding was now but small, in consideration of her having enjoyed no rest for three nights before, she was put to bed, and took a composing draught, which made her sleep about two hours; but she waked with seemingly strong pains. "I examined her," says the relater of the case, "again, and, introducing my fore and middle fingers into the vagina, felt something which I mistook for clotted blood. It filled both my hands when I brought it away, and appeared to be a large bundle of hydatids connected one with another by an infinite number of small, slender filaments. Those bladders contained a clear lymph, and were of different sizes; some as large as my thumb, and others as small as a pin's head; and her pains continuing, she evacuated as many as filled a two-quart bason: thus delivered, she was free from her pains, her flooding ceased, and the womb contracted to the size of my fist. Nevertheless, she was still strongly possessed with the notion that there was a child remaining, and earnestly begged that I would bring it into the world. I assured her, that she was already delivered of what she had mistaken for a child, and having prescribed what was necessary, left her very well satisfied and composed. Next day I found her easy; she continued to do very well, and at the writing of this case was in the fifth or sixth month of pregnancy. She had been delivered of two children, before she was troubled with the hydatids."

Lamotte, in his 16th Observation, gives an account of a woman that imagined herself gone with child above five months, who was delivered of what was supposed a *mole*, or something of that nature, as big as two fists, composed of an infinite number of hydatids or vesicles, tied to one another by membranes, and which held together like the spawn of frogs. She had been much weakened with a continual loss of blood for eighteen days, which was slight at first, became very violent before delivery, but stopped immediately after.

The natural crisis of pregnancy is labour. See LABOUR.

PREPARATIONS, in pharmacy; medicines when mixed together or managed in such a manner as to be fit for the physician's use. See PHARMACY.

PREPARATIONS, in anatomy, the parts of animal bodies prepared and preserved for future observation. The manner of preserving anatomical preparations, is either by drying them thoroughly in the air, or putting them into a proper liquor. In *drying* parts which are thick, when the weather is warm, care must be taken to prevent putrefaction, fly-blows, insects, &c. This is easily done by the use of a solution of the hydrargyrus muriatus in spirit of wine, in the proportion of two drachms of the former to a pound of spirit: the part should be moistened with this liquor as it dries, and by this method the body of a child may be kept safe even in summer. Dried preparations are apt to crack and moulder away in keeping; to prevent this, their surface should be covered with a strong varnish, repeated as often as occasion requires.

Though several parts, prepared dry, are useful, yet others must be so managed as to be always flexible, and nearer a natural state. The difficulty has been to find a proper liquor for this purpose. Dr. Monro says, the best he knows is a well-rectified colourless spirit of wine, to which is added a very small quantity of vitriolic or nitrous acid. When these are properly mixed, they neither change their colour nor the consistence of the parts, except where these have serous or mucous liquors contained in them. The brain, even of a young child, in this mixture, grows so firm as to admit of gentle handling; as do also the vitreous and crystalline humours of the eye. The liquor of the sebaceous glands and the semen are coagulated by this spirituous mixture; and it heightens the red colour of the injection of the blood-vessels, so that after the part has been in it a little time, several vessels appear which were before invisible. On comparing these effects with what Ruysch has said of his balsam, we shall find the liquor above mentioned to come very near to it.

The proportion of the two spirits must be changed according to the part prepared. For the brain and humours of the eye, we must put two drachms of spirit of nitre to one pound of spirit of wine. In preserving other parts which are harder, 20 or 30 drops of the acid will be sufficient; a larger quantity will make bones flexible, and even dissolve them. The part thus preserved should be always kept covered with the liquor: therefore great care should be taken to stop the mouth of the glass with some sheet-lead, and a bladder tied over it, to prevent the evaporation of the spirit; some of which, notwithstanding all this care, will fly off; therefore fresh must be added as there is occasion. When the spirits change to a dark colour, which will sometimes happen, they should be poured off, and fresh put in their room; but with somewhat less acid than at first.

The glasses which contain the preparations should be of the finest sort, and pretty thick; for through such the parts may be seen very distinctly, and of a true colour, and the object will be so magnified as to shew vessels in the glass which out of it are not to be seen.

As the glass when filled with the liquor has a certain focus, it is necessary to keep the preparation at a proper distance from the sides of it, which is easily done by little sticks suitably placed, or by suspending it by a thread in a proper situation. The operator should be cautious of putting his fingers in this liquor oftener than is absolutely necessary; because it brings on a numbness on the skin, which makes the fingers unfit for any nice operation. The best remedy for this is to wash them in water mixed with a few drops of strong solution of kali.

Some anatomists prefer the rectified spirit of malt, for preserving anatomical preparations, to spirit of wine, or the other compositions; because these last soon change into a brown colour, whereas the spirit from malt remains in its limpid appearance. When any part is to be preserved wet, wash it with water till the latter is no more tinctured. The water is next to be washed away with spirits, and then the preparation is to be put into the spirits in a glass, the mouth of which is to be closely covered with a glass head, over which wet bladder and sheet-lead are to be tied, and lastly, when the bladder is dry, it is to be painted over with oil paint, of any colour that may be preferred.

PRESBYO'PIA (*πρεσϐυωπια*, from *πρεσϐυο*, *old*, and *οψις*, *sight;* because it is frequent with old men); that defect of the sight by which objects situated close to the eye are seen confusedly, but, at remote distances, distinctly. As the myopia is common to infants, so the presbyopia is a malady common to old age. The proximate cause is a tardy adunation of the rays of light into the focus, so that it falls beyond the retina. The species are, 1. *Presbyopia* from a flatness of the cornea. By so much the cornea is flatter, so much the less and more tardy it refranges the rays into the focus. This evil arises, (1.) From a want of aqueous or vitreous humour, which is common to the aged; or it may arise from disease: (2.) From a cicatrix, which diminishes the convexity of the cornea: (3.) From a natural conformation of the cornea. 2. *Presbyopia* from the too flat form of the crystalline lens. This evil is most common to the aged, or it may happen from a wasting of the lens itself. 3. *Presbyopia* from too little density of the cornea or humours of the eye. If these humours are thin or rarified, so much the less will they refrange the rays of light. Persons affected in their sight from this cause are cured in older age; for that induces a greater density of the humours. From this it has been observed, that the *presbyopes* are often cured spontaneously, and disuse their glasses, which younger persons labouring under this disease are obliged to have. 5. *Presbyopia* from a custom of viewing continually remote objects. Thus artificers, who are occupied in remote objects, are said to contract this malady, but why, is not very clear. 6. *Presbyopia senilis.* This arises from a multitude of causes in aged persons; from a deficiency of humours, which renders the cornea and lens flatter, and the bulb shorter. When in senile age, from dryness, the bulb of the eye becomes flatter and shorter, and the cornea flatter, those who were short-sighted or myopes before, see now without their concave glasses. 7. *Presbyōpia* from too close a proximity of objects; in which case the focus is shorter of distant, but longer of nearer objects. 8. *Presbyopia* from a coarctated pupil. By so much smaller is the aperture of the diaphragm in an optic tube, so much the more remote is the focus. 9. *Presbyopia mercurialis,* said to arise from the use of mercurial preparations. Many have supposed this disorder an imperfect amaurosis.

PRESCRIPTION, in medicine, is the assigning a proper and adequate remedy to the disease; from an examination of its symptoms, and an acquaintance with the virtues and effects of the materia medica. In the prescriptions handed down to us, from the most ancient Greek physicians until the fall of the Roman empire, a vast number of remedies were mixed together so as to form one mass. The same thing is to be found in Celsus and in all the Roman authors who have treated on medicine, who, however, are very few. The same observation is applicable to the Arabian physicians; and Dr. Geo. Fordyce asserts, that even some works on medicine which have been found in Hindostan, bear marks of the same attachment to a multifarious composition of medicines; though these seem to have been borrowed from the Greek writers, and not to be translations from the Sanscrit. This disposition for combining medicines came into modern Europe from the East, and has been continued, though not without some considerable abatement, down to our days. There are some prescriptions of Dr. Huxham's extant, which include no less than four hundred ingredients; and it is only of late years that the Pharmacopœia of the London College has been purged of a formula containing upwards of fifty, constituting a medicine, which is, even now, a favourite with many practitioners.

In the present age, when the foundation of all doctrines has been very assiduously enquired into, many have questioned the utility of mixing medicines together, and have thought it better to exhibit a single medicine, so that some physicians have gone into the opposite extreme. Whether it be better to employ one single substance by itself, to produce medicinal effects, or whether, and in what cases, it may be better to employ a variety of medicines mixed together, is an enquiry of no small importance. Dr. Fordyce, treating of the operation of purgatives, says, " All purgatives have not the same effect, though they all produce more frequent and more copious evacuations from the intestines than take place in perfect health. For example, natron vitriolatum occasions a purging much sooner after it has been exhibited than aloes or rhubarb does. Again, the latter occasions an evacuation of feculent matter, while natron vitriolatum ordinarily occasions an evacuation of a watery fluid. If an evacuation is wanted sooner than would take place from employing aloes and rhubarb, and, at the same time, an evacuation of feculent matter, it evidently would be better to mix natron vitriolatum with aloes or rhubarb, than to use either aloes or rhubarb alone, or the natron vitriolatum alone; and such a mixture is actually found to produce a quicker evacuation, and at the same time a more feculent one than the aloes or rhubarb, or the natron vitriolatum, would have produced singly. It is therefore evident, that if such was the intention of the practitioner, it would be better for him to use a mixture of aloes and natron vitriolatum, or a mixture of rhubarb and natron vitriolatum, than it would be to use either natron vitriolatum, rhubarb, or aloes, by itself."

This, then, is a case in which it is evidently useful to mix two purgatives together instead of employing one of them alone, and therefore it is better, in some cases, to employ medicines mixed together, when their general operation is of the same kind.

In some cases a practitioner may wish to produce *two different effects at the same time*, as in many cases of morbid purging. It may be desirable to make the vessels of the intestines contract so as not to secrete so large a quantity of fluid; and at the same time a physician may wish to relax the vessels of the skin, and, in consequence, occasion sweating. Here he might employ tormentilla to act as an astringent upon the intestines, and ipecacuanha to relax the vessels of the skin; the ipecacuanha sometimes tending to relax the vessels of the intestines, and the tormentilla tending rather to contract the vessels of the skin. But the ipecacuanha having little power in relaxing the vessels of the intestines, and the tormentilla having little power in contracting the vessels of the skin, the purging may be stopped, and sweating at the same time brought on. Thus we may produce two effects at the same time, by mixing two medicines together, which could not be obtained by using either of them singly.

If a medicine be given in a certain dose it has one effect, but if in another dose it often produces another and very different effect; sometimes even the reverse. If we apply weak vinegar to the skin, it produces paleness and contraction of the skin; if we apply acetous acid, which is the same substance, only diluted with a less quantity of water, it occasions redness of the skin and tumor. If a small quantity of the decoctum cinchonæ be exhibited to a patient, whose stomach is weak, and subject to sickness and vomiting, it will prevent these from taking place. On the other hand, if a larger quantity be exhibited to a patient whose stomach is weak, it will excite vomiting. When this happens, a small dose of each of two medicines which have the same tendency, will often more readily produce the effect which we wish for, without any reverse affection taking place, than a larger dose of either of the medicines separately.

Thus, in a weak stomach, if we join to the decoctum cinchonæ, in such quantity as it can bear, a dose of chamomile, gentian, or any other bitter, we shall increase the powers of the cinchona in strengthening the system, without occasioning any sickness. If this be true, it would certainly be much more eligible, in a weak habit, not to employ the cinchona alone. Here we might take an example from cookery, in which they never employ any one spice alone, but often mix a great number together. Pepper, ginger, cinnamon, garlic, or any other spice or stimulant *alone*, would not render any kind of food capable of being retained in the stomach, in so large a quantity, as when these spices or stimulants are mixed together.

Without yielding to any prejudice on the subject, it would greatly contribute to the progress of medicine, if physicians would endeavour sedulously to point out *what classes of medicines admit of mixture, when all have a tendency to produce the same effect;* and also, in the second place, what classes of medicines, *having different properties*, may be *mixed together*, so as to produce good effects.

"In the first place," says Dr. Fordyce, "though it has been common to mix medicines together which have been said to have a demulcent quality, by which has been always meant the capability of preventing stimulants from acting upon parts which they would otherwise stimulate without producing any chemical change in them; such as farinaceous matter, as it is found in the flour of wheat and in the other seeds of the gramina, in the pith of plants, as of the palm tree, and in gum tragacanth, and as sugar, gum arabic, and other gums not coagulable by heat, matter found in the roots of the orchis, and other plants of that natural class, as saloop, &c.; yet I have not found any advantage gained by mixing these together, excepting from mere convenience of application. With the same intention some animal substances have been made use of, such as ichthyocolla, &c. together with jellies formed from the cartilages of many other animals, or solutions of any part of an animal which is without taste or smell. In catarrh, the thin mucus secreted by the glands in the mouth, throat, and larynx, stimulates the mucous membrane, so as to produce a greater degree of inflammation than would otherwise take place. If sugar be employed alone, in the form of a lozenge, it dissolves quickly, and does not remain for a sufficient time to defend the membrane. If farinaceous matter be employed alone, it does not dissolve in the water of the saliva, but passes into the stomach without being of any use. The same may be said of gum as of sugar, though the solution does not take place quite so regularly. Ichthyocolla, and other such substances dissolved in water, so as to form a gelatinous matter, have a degree of softness, which prevents any sharp point from stimulating the mucous membrane. The mixture therefore of farinaceous matter, sugar, gum, and ichthyocolla, makes a better lozenge for defending the mucous membrane of the mouth, pharynx, and larynx, from the stimulus of the thin matter of the mucus, than any one of them does taken by itself. The farinaceous matter prevents the sugar and the gum from being so soon dissolved; the viscidity of the sugar and gum prevents the farinaceous matter from being swallowed so soon as it would otherwise be; and the ichthyocolla gives a softness to the whole, which prevents any sharp points from stimulating the membrane. A lozenge therefore of these, or similar substances, will be better than one formed of any one of them taken by itself; and so of these substances in other cases.

"Bitter medicines, which tend to strengthen the system, such as the bark of the cinchona, several species of the artemisia; of carduus, chamomile, the rinds of fruits of the orange kind; the gentians, and many others; sit easier on the stomach, and tend more to strengthen the system when mixed together, than when employed singly. Whether the bitter juice contained in all these plants is the same substance, as the sugar and indigo contained in many plants are the same, or whether it be, that the essential oils in these various bitters are different, certain it is, that they tend to strengthen the system more when mixed together, than when any one of them is employed singly. Preparations of iron, given in small doses, tend to strengthen the system, and were very often employed for this purpose before the cinchona came into use. There is, however, a degree of stimulus in all of them, which renders them too apt to occasion frequency of the pulse, and therefore it is better to give them at the same time with such bitter medicines as are strengthening, though they will not well bear to be mixed with them, as they tend to coagulate and destroy the bitter juice of the vegetable."

The bark as well as the other bitters, and the preparations of iron, zinc, copper, and tin, have a power of preventing many applications made to the body from exerting so considerable an effect as they otherwise would if these medicines were not exhibited; which effect is one, among others, that has been expressed by saying, they diminish irritability. Dr. Fordyce has not observed, that a mixture of any two of these medicines is of any use in promoting this effect: for example, cinchona has a power of preventing the return of an intermittent; but the metallic preparations are not found to increase this power, nor will the bark increase that of the metallic salts in preventing the return of an ague. There is some doubt whether the astringent juice found in different vegetables be not in all of them the same, as most of these juices are coagulable by many metallic and aluminous salts. But be this as it may, the mixture of several different vegetable astringent substances seems to be much better than giving one of them singly, whether it be to check secretions (as purgings) in cases where it is proper to employ astringents for that purpose, or in hæmorrhages, in cases where astringents may be employed for the purpose of stopping them. It is better, for example, to employ tormentilla, madder, simarouba, logwood, together, to stop a purging that arises from weakness and laxity of the intestines, than to employ any one of them by itself. In a hæmorrhage, where a disposition to inflammation, and a flow of blood upon the part, have been taken off, or when neither exists in the first part of the disease, it is better to join the astringency of red roses to that of vitriolic acid and alum, than to employ any of these astringents singly.

In spices and other such-like stimulating substances, that this is advisable there can be no doubt. One spice, such as, for example, the capsicum, being taken into the stomach, gives heat and pain in the stomach, and even produces a sense of coldness in the extremities, if given in considerable quantity. So, in like manner, does a quantity of pepper; but if capsicum and pepper be given mixed together, no such sense of pain in the stomach or coldness arises in the extremities, but a warmth is felt in the stomach, and a glow of heat over the whole body; and if capsicum, pepper, ginger, cinnamon, and other spices, be joined together, the chance of pain and coldness of the extremities is still further diminished, and a greater glow of warmth in the stomach, and heat in the extremities and other exterior parts of the body, is produced. Indeed, it has been the constant practice to mix spices together from the first ages of medicine down to the present time.

In medicines which have a tendency to produce relaxation in all the vessels and fibres of the body, such as preparations of antimony, ipecacuanha, neutral salts, &c. it is a question which Dr. Fordyce professes himself unable to decide, whether it be more useful to mix them together, or exhibit them singly. Each of these, given singly in a large dose, is apt to produce sickness. The sickness Dr. Cullen conceived to be the cause of their producing relaxation in the vessels and fibres throughout the body; hence he called them nauseating medicines: yet when the stomach will bear a large quantity of any one of them, without occasioning sickness, they have a much greater effect in producing relaxation, than when it will bear only a small quantity. They seldom too have any effect in relaxing the small vessels throughout the system, if a very small dose occasion sickness: for instance, if the stomach will bear the third part of a grain of tartarised antimony, without occasioning sickness, it has a powerful effect in relaxing the fibres and vessels throughout the system; but if the stomach will not bear more than $\frac{1}{5}$ of a grain, this has rarely any such effect. Dr. Fordyce says he suspects, that a mixture of these remedies may also be exhibited with greater effect than any one of them singly.

Where a medicine is applied to stimulate the ends of the excretory ducts in any membrane, on which a secretion is thrown out; as when a stimulating medicine is put into the mouth, so as to act upon the ends of the excretory ducts of the salivary glands; it is evidently better to mix several different stimulants, such as spices or acids with neutral salts, than to employ any one of these singly. If one is employed singly, it tends to inflame the membrane of the mouth when it is such a stimulant as a spice, or tends even to cause a less flow of saliva if it be a neutral salt. When several of these stimulants are mixed together, by the gentle action of each, they have not so pungent an effect upon the membrane of the mouth, but are much more powerful in increasing the secretion from the salivary glands; and the same thing takes place with regard to errhines applied to the nostrils.

In like manner, when we would excite vomiting, it is generally better to mix emetic substances together, such as ipecacuanha and tartarised antimony, than to employ either of them singly; or in the case of poison being swallowed, it is better, in order to produce vomiting quickly, to mix vitriolated zinc and ipecacuanha, than to employ either of them singly.

It has been already remarked, that purgatives are different in quality from one another, and that their mixture may be useful in producing different effects; but where the object is simply that they should act as laxatives, by increasing the peristaltic motion of the intestines, Dr. Fordyce says, several of them mixed together will be more efficacious, and act without giving so much pain to the patient as any one of them singly. In this view he gives the following, as a better mixture of laxatives than any in the Pharmacopœia of the London College.

> "Five parts of aloes, three parts of sagapenum, two parts of gamboge, one part of distilled oil of chamomile, two parts of gum-arabic, which is necessary to give a consistency, so that they may be made into pills with sufficient quantity of the syrup of the spina cervina."

From six to ten grains of this mass operate gently without giving pain, in most cases. The doctor says, that colocynthida, which has been commonly used in similar compositions, is apt to give pain, without producing so certain an effect. When the object is to produce great secretion in the intestines, an equal advantage also has been found by mixing together several purgatives which have the same effect; such as natron vitriolatum, kali tartarisatum, manna, jalap, &c. with an infusion or tincture of senna, which last purgative Dr. Fordyce reckons the most certain stimulus to the intestines of any substance in the materia medica.

Thus much respecting the several applications employed to act upon the ends of the excretory ducts, terminating in the mucous membrane of a cavity opening externally; but there are also certain medicines which, getting into the blood-vessels, are applied to the ducts, which secrete the fluids in the glands in different parts of the body. Mercury, for example, being rubbed down with any viscid fluid, and either applied to the skin or taken into the stomach, is absorbed and gets into the blood-vessels: it is secreted by the salivary glands, as appears from the metallic taste; and, being so secreted, stimulates the salivary glands, and occasions a greater secretion from them.

Many have conceived, that medicines taken into the blood-vessels could not reach such secretory organs so as to stimulate them, when the secretion from these organs is extremely small. It has been thought, for instance, that no substance could get into the blood-vessels and be secreted by the glands which open upon the mucous membrane of the lungs, on account of the extremely small secretion which commonly takes place in these glands, it not being perhaps more than the five hundredth part of the whole secretions that take place in the body. It has been therefore thought, that the quantity of stimulating matter contained in five grains of the root of squill, which certainly cannot be more than one grain, could not possibly affect the lungs, as there could not be $\frac{1}{500}$ of a grain applied to the whole of these glands at once, and perhaps not 1,000,000th part of a grain to any one of them; but who can say that a millionth part of a grain of squill may not act upon one of the glands of the lungs, when certainly an infinitely less quantity of a particle of light (if light be a body, as we have the greatest reason to believe) is capable of acting upon the retina? It seems therefore clear, that substances may get into the blood-vessels, and be applied to the glands, so as to increase the action of the secretory ducts, and produce a greater secretion.

Whether one or a mixture of medicines is most proper to be employed to get into the blood-vessels from the intestinal canal, or otherwise, so as to increase the secretions from any of the glands, is Dr. Fordyce's next object of enquiry. In the first place, he says, he does not know any medicine, which may be introduced into the blood-vessels, so as to increase the secretion from the lachrymal glands, the glands of the nostrils, and the glands of the ears; nor of any, except mercury, which can get into the blood-vessels so as to increase the secretion from the salivary glands.

Medicines can in no way be applied so as to increase the secretion from the glands which open upon the mucous membrane of the lungs, except by first getting into the blood-vessels, and afterwards being secreted by the secretory vessels of the glands of the lungs. There seem also to be no medicines, that can otherwise be got into the blood-vessels than by being taken into the stomach, which will occasion any such secretion. Dr. Fordyce's experience led him to suppose, that a mixture of medicines tending to increase the secretion from the glands of the lungs, in consequence of being thrown into the stomach, and being absorbed into the blood-vessels, is much more powerful in increasing the secretion from the glands of the lungs than one singly. It is better, he thinks, to mix squill with gum ammoniac, than to employ either of them singly; and it is even better to mix gum ammoniac, assa fœtida, squill, and colchicum, all together, than to employ squill and gum ammoniac by themselves.

That medicines will get into the blood-vessels, and act as *diuretics*, there can be no doubt. The secretion of urine is one of the greatest secretions in the body, and it is proved by daily experience of mankind, that this secretion may be increased. In dropsical cases, and some others, it is extremely difficult to increase this secretion; but Dr. Fordyce has no doubt, from long experience, that a mixture of diuretics is much more likely to produce the effect than any one of them singly.

Purgatives are almost always taken into the stomach, and passing from thence into the intestines, evidently stimulate the ends of the excretory ducts, as appears from the shortness of time between their exhibition and effect. It has been a common, though improbable opinion, grounded on no experience, that evacuants alter the property of the blood, and convert the red particles, serum, and coagulable lymph, into the matter which is to be evacuated. That substances *applied to the skin* in the form of liniment will be absorbed into the blood-vessels, and stimulate the glands of the intestines, and produce a greater secretion from them, is quite certain; as mercurial ointment has very frequently this effect; and it is not at all improbable, that other substances employed in the same way may have similar effects: hence in this case too, and other cases, where medicines are applied to the skin in order to be absorbed, so as to get into the blood-vessels and produce a like effect, it may be better to employ several at once. Emetic substances, as tartarised antimony, have also been applied through the medium of the skin, and have acted on the stomach.

That the composition of medicines in prescription has been carried to a degree of absurdity, is most certain. This induced Dr. Fordyce at first to reprobate all mixtures of medicines having the same effect; conceiving that it would be much better to employ some simple medicine for each particular purpose; but he was afterwards convinced, by long and repeated experience, that this notion is not well-founded. How far the extent of this doctrine may go, it is difficult to say, and whether all the medicines tending to have the same effect should be mixed together, or two or three, or four or five, or how many.

On the eligible *combination of medicines possessing different qualities*, we are unfortunately without the instructions of our venerable and experienced guide; who has left to his successors this ample field for future observation and enquiry. In this branch of prescription, yet more than that already discussed, it will be remarked, no doubt, how essential to the physician who prescribes, is a complete knowledge of chemistry, without which his compositions, when swallowed by the patient, will in many cases be either inert, or so changed by new combinations as to act very differently to his expectation.

PRESENTATION (from *præsento*, to offer), in obstetrics, the manner in which a child offers itself in its passage into the world; and the different presentations are denominated according to that part of the child which is perceived at the mouth of the womb, when the mother begins to be in labour. In a natural labour, the child presents with its head, the face being to the sacrum. The cause of wrong presentations is not exactly known; but different writers on midwifery give various opinions on the subject. Under the articles Labour, Labour difficult, &c. we have said all that can be of use on this subject. We shall therefore only notice in this place three cases, related by Dr. Denman, in the London Medical Journal, vol. V. pp. 64, &c. in which, though the upper extremities of the child presented, the delivery was partly effected by the *spontaneous evolutions of the child.* 1. In the first, the woman had been in labour during the whole night, and one of the child's arms was the presenting part: on attempting to turn the child, the pains were too violent to admit the introduction of the hand into the uterus. Imagining the child was small, so that it might pass, doubled, through the pelvis, further endeavours to turn were omitted; and on waiting a little, the breech presented, and the head was the last part that was delivered. 2. In the second case, the *presentation* was the same as in the first, and it was agreed on to turn the child: but the pains were strong and frequent, so that the action of the uterus was such as to forbid all endeavours that way. It was then agreed to wait for the effect which a continuance of the pains might produce, or till they were abated, when the child might be turned with less difficulty. The pains continued, and propelled the child lower into the pelvis, and in little more than an hour it was born; the breech being expelled, as in the first case. 3. In the third case, the arm presented, and labour had gone on for some time; after which, attempts were made, during several hours, to turn the child, whose shoulders strongly pressed upon the perinæum. At length, by the action of the uterus, the child was doubled, and the breech expelled; after which the shoulders and head were extracted. In all these cases Dr. Denman observes, that the women were at the full period of utero-gestation, and the children were of the usual size. More cases might be related; but these sufficiently prove the fact, that in cases in which children present with the arm, women will not necesssarily die undelivered, though they are not assisted by art. With respect to the benefit we can in practice derive from the knowledge of this fact, it may be observed, *that the custom of turning and delivering by the feet in presentation of the arm, will remain necessary and proper in all cases in which the operation can be performed with safety to the mother, or give a chance of preserving the life of the child. But when the child is dead, and when we have no other view but merely to extract the child, to remove the danger thence arising to the mother, it is of great importance to know, that the child may be turned spontaneously by the action of the uterus.* If we avail ourselves of that knowledge, the pain and danger which sometimes attend the operation of turning a child may be avoided. Nor would any person versed in practice, fixing upon a case of preternatural presentation, in which we might expect the child to be turned spontaneously, be involved in difficulty, if, from a defect of the pains or any other cause, he should be disappointed in his expectations. Nor would the suffering or chance of danger to the patient be increased by such proceeding. About thirty of these cases have lately occurred, in two of which the children were born alive.

PRIAPE'IA. See Nicotiana minor.

PRIAPI'SMUS (πριαπισμος, from πριαπος, a heathen god, whose penis is always painted erect); the priapism, or a continual erection of the penis, without the assistance of the will. See Impotency.

PRI'MÆ VIÆ; the first passages. The stomach and the intestinal tube are so called; and the lacteals the *secundæ viæ*, according to some authors.

PRIMARY TEETH. See Teeth.

PRIMROSE. See Primula vulgaris.

PRI'MULA VERIS (from *primulus*, the beginning, so called because it flowers in the beginning of the spring), or *Verbasculum;* the cowslip, paigil, or peagle. The flowers of this plant have a moderately strong and pleasant smell, and a somewhat roughish bitter taste. Vinous liquors impregnated with their flavour by maceration or fermentation, and strong infusions of them drank as tea, are supposed to be mildly corroborant, antispasmodic, and anodyne. An infusion of three pounds of the fresh flowers in five pints of boiling water, forms a syrup of a fine yellow colour, impregnated with the flavour of the cowslip.

PRI'MULA VULGA'RIS; the common primrose. The leaves and root of this plant are employed as a sternutatory.

PRINCI'PIA (from *princeps*, the first or chief), the principles or elements of bodies. To know the virtues of *bodies*, or how mixed substances stand related to living animals, either for preserving or for restoring health in them, we must know their *principles.* Such simple parts as all mixed bodies can be resolved into, are called *principles* or *elements.* The number of these has been much reduced by modern chemists. Chaptal says, " As soon as chemistry had advanced so far as to discover the principles of bodies, the professors of that science presumed to mark the number, nature, and character of the elements; and every substance that was unalterable by the chemical method of decomposition was considered by them as a simple or elementary principle. By thus taking the limits of anaylsis as the term for indicating the elements, the number and nature of these must vary according to the revolutions and progress of chemistry. This has accordingly happened, as may be seen by consulting all the authors who have written on this subject, from the time of Paracelsus to the present day. But it must be confessed, that it is no small degree of rashness to assume the extent of the power of the artist, as a limit for that of the Creator; and to imagine, that the state of our acquisitions is a state of perfect knowledge." The denomination of principles, or elements, ought, therefore, to be effaced from chemical nomenclature; or, at least, it ought not to be used but as an expression denoting the last term of our analytical results; and it is always in this sense that Chaptal uses the word.

PRI'OR ANNULA'RIS; an internal interosseous muscle of the hand. See Interossei manus.

PRI'OR I'NDICIS, the *Extensor tertii internodii indicis* of Douglas; an internal interosseal muscle of the hand, which draws the fore-finger inwards towards the thumb, and extends it in an oblique direction.

PRI'OR ME'DII; an external interosseous muscle of the hand. See Interossei manus.

PROBANG, a long and flexible probe of whalebone, having a piece of sponge affixed to its smaller extremity. It is used for forcing down substances that stick in the œsophagus.

PROBE (from *probo*, to try; because surgeons try the depth and extent of wounds with it); a chirurgical instrument, usually of silver, and of a long slender form, being pointed at one end and bulbed at the other.

PROCATARCTIC CAUSE (*causa procatarctica*, from προκαταρχω, *to go before)*. See Exciting cause.

PROCE'SSUS (from *procedo*, to go before), a *process* or eminence of a bone; as the spinous and transverse processes of the vertebræ.

PROCE'SSUS CÆCI VERMIFO'RMIS. See Intestines.

PROCIDE'NTIA (from *procido*, to fall down), the falling down of any part; as in the *procidentia ani, uteri, vaginæ*, &c. See Prolapsus.

PROCTA'LGIA (πρωκταλγια, from πρωκτος, the *fundament*, and αλγος, *pain)*; a pain at the anus. This is mostly symptomatic of some disease, as piles, scirrhus, prurigo, &c. Dr. Cullen places it amongst the varieties of phlogosis.

PROCTI'TIS (πρωκλιτις, from πρωκτος, the *anus)*, an inflammation of the internal or mucous membrane of the lower portion of the rectum.

PROFLU'VIA (from *profluo*, to run down), fluxes; the fifth order in the class *pyrexiæ* of Cullen's nosology, characterised by pyrexia, with increased excretions.

PROFLU'VII CORTEX. See Conessi cortex.

PROFU'NDUS. See Flexor profundus perforans.

PROFU'SIO; a hæmorrhagy, or loss of blood. This is a genus of disease in the class *locales*, and order *apocenoses*, of Cullen.

PROGNO'SIS (ϖρογνωσις, from ϖρο, *before*, and γινοσκω, to *know)*; the judgment formed of the event of a disease by its particular symptoms.

PROLA'PSUS (from *prolabor*, to slip down); a protrusion. It is a genus of disease in the class *locales*, and order *ectopiæ*, of Cullen; distinguished by the falling down of a part that is uncovered. The older writers have distinguished the different degrees in which a part is prolapsed by different names. When moved but a little, they called it *relaxation*; if descended as low as possible without becoming visible externally, it was named *procidentia*; and if passed down as far as it was capable, *prolapsus*. These distinctions however, as being useless, have been disregarded by the moderns. The principal cases of prolapsus are the following:

1. *Prolapsus ani*.—This is a protrusion of part of the rectum beyond the anus. It is often occasioned by debility of the parts, but is most frequently owing to violent exertions made in the rectum in consequence of irritation. The reduction should be effected as soon as possible; for although this part of the intestine can bear exposure to air much longer than any of the rest, yet allowing it to remain a long time out, would be attended with great uneasiness, and probably with danger. In the reduction, the tumor ought to be supported with the palm of one hand, while, with the fingers of the other, the part of the gut last protruded is to be returned. If the gut has been long exposed previous to the reduction, venæsection may become necessary, and gentle astringents may be applied cold to the part, such as a decoction of cinchona or of logwood; the patient being kept in a reclined posture. As soon as the prolapsed parts are returned, a proper bandage is to be applied to secure them, and such remedies are afterwards to be exhibited, as most tend to recover the tone of the parts. Lotions of alum-water, or a solution of vitriolated zinc, may be employed outwardly with advantage.

2. *Prolapsus of the uterus*.—This happens when the womb falls down through the relaxed vagina, and appears externally in the form of a tumor. It has been the common opinion, that the womb is retained in its natural situation by the ligaments peculiar to it, and that this disorder is occasioned by weakness of those parts; but, from the most particular examination, these appear to have very little sustaining power; and experience shews, that a descent of the womb may happen without any fault of those ligaments. But, allowing they were affected and their strength impaired, even then the womb could not possibly descend to the external parts, without an uncommon dilatation or enlargement of the vagina; and, on the contrary, so long as that part is endowed with sufficient resistance, no bearing down could possibly follow, although the ligaments had lost their sustaining power. The principal cause at least of this disorder must therefore be, a pre-

ternatural weakness and enlargement of the vagina. Hence it may proceed from any cause which tends to relax the vagina, and render it so weak as to allow the womb, in whole, or in part, to intrude or press down through its enlarged cavity: when the first happens, it is called a *descent of the womb;* but if only the last, it is termed a *bearing-down.*

In whatever degree this disorder prevails, it will always be rendered worse by the upright position of the body; for then, the weight of the womb rests more immediately upon the affected part. And if, to this principal cause of the disease, other accidental causes are added, such as a laxity of the suspensory ligaments, cough, straining to lift heavy weights, or any violent effort of the body, which acts immediately on the womb, it will then be aggravated, and rendered more difficult of cure. Agreeably to those circumstances, a bearing-down, and sometimes an entire descent, of the womb, happens in consequence of hard labours, where the fibres of the vagina have been so overstrained as not to be restored to their natural strength and firmness, especially in women of delicate constitutions: on the contrary, virgins are seldom affected with it, except they are of a habit of body uncommonly lax and weak, or where the womb is in a diseased state.

Leucorrhœa also disposes women to this complaint, because the parts contiguous to the womb gradually lose their resisting power, by the continuance of the discharge, which not only exhausts the strength, but so macerates and relaxes their fibres, as to render them preternaturally soft and yielding.

The disorder called bearing-down is generally slight at first, producing an uneasy sensation, as if something was pressing upon the affected part; but, where there is an entire descent, the symptoms are much more severe; for the bladder, being connected with the uterus, is then pulled down with it, and this occasions a difficulty of urine, attended with pain. This inconvenience may be remedied by pressing up the tumor, when the patient is placed, with her head low, upon a bed or couch, so as to restore the bladder to its natural situation, which is a much more proper and eligible method than that of passing the catheter to draw off the water; since, in this particular case, the instrument would meet with great resistance, and occasion excessive pain and inflammation of the urinary passage.

When the tumor is large, and descends so low as to appear externally, it is apt to swell and ulcerate; but this does not proceed, as generally supposed, from the acrimony or sharpness of urine diffusing itself over the tumor, but from the strangulation of vessels at its upper part, by which the course of the blood is obstructed, even sometimes to such a degree as to produce mortification.

The descent of the womb is attended with many circumstances of the most distressing nature to delicate women, who, unfortunately, are most subject to it. In bad habits of body, there have been instances where it ended fatally, by producing a scirrhus or cancer. In a word, it hinders the regular returns of the menses, brings on fluor albus, prevents conception, and, at last, by perverting the natural functions of the womb, destroys the constitution. It will therefore be prudent for every woman, who at first perceives a bearing-down, to consider it as the forerunner of the disorders already mentioned, which might be prevented by applying for relief before the disease is rendered incurable from its long continuance.

The intention of cure will be, to *replace the womb,* to strengthen and brace up the vagina in particular, and the solid system in general. When the disorder is of a late date, the two first intentions may be effected by placing the patient on a bed or couch, with her head low, and then gently pressing up the tumor till it is returned into its natural situation. She should afterwards continue, as much as possible, in the same recumbent position; and the cooler she is kept the better. By such means the uterus will retire from the weakened part, and be relieved from the superincumbent pressure, which it must otherwise sustain from an upright position of the body.

When the tumor is large and of long standing, attended with pain and inflammation, the patient should be bled, and emollient poultices of bread and milk applied twice a-day to the part affected, before any violent means are used to replace it; previous to which, the bowels should be emptied by a purging clyster, and the urine evacuated from the bladder. Should the reduction of the tumor prove difficult, it may be attempted whilst the patient is immersed in a temperate bath, in which she may be placed with her shoulders lower than her hips.

After the tumor has been reduced, the intention of contracting the relaxed vagina, so as to prevent its future descent, may be effected by the frequent use of some astringent injection, and by giving more strength and firmness to the whole bodily system. Nourishing diet, the remedies prescribed in treating on leucorrhœa, together with the waters of Tunbridge or Spa, will contribute most to this end. The use of the cold bath will also be extremely beneficial, where the lungs and internal parts are free from disease.

This gentle method, pursued with steadiness and patience, will at last generally effect a cure, by restoring the weakened parts to their former strength, particularly as there is a natural tendency in all the solids of the body to contract and regain their usual firmness, when freed from the stress and violence of such causes as before had diminished their power.

Some authors forbid the reduction of the tumor, when ulcerated, till after the sore has been healed; but this practice is neither founded on reason nor experience, for it must be impossible permanently to heal the ulcer whilst the part remains out of its natural situation, and its vessels are in a strangulated state; on the contrary, being replaced, it will naturally heal without any other assistance than that of a little barley-water, thrown up as an injection to keep the ulcer clean.

A simple bearing-down is sometimes cured by pregnancy, from the effect of which the womb enlarges, and will be gradually pressed upwards and reinstated; however, after delivery, it generally returns with an aggravation of the symptoms. It may therefore be prudent for the patient to keep her bed the longer on that account; and, more effectually to prevent a relapse, it will also be requisite to use the same strengthening medicines as have been directed in the cure of that disorder, and to wear the T bandage a few weeks after her going abroad. See BANDAGE.

In this complaint all violent efforts of the body should carefully be avoided, such as vomiting, coughing, sneezing, &c. also tight lacing, or whatever compresses the belly and affected parts. The same regimen as that recommended in leucorrhœa will be necessary. The curative method here laid down, being directed to the seat of the disorder, is preferable perhaps to the application of pessaries, though the latter are often made use of with good effect. See PESSARY.

The uterus not only descends in various degrees, but is also liable to be turned inside out. This, which is called *inversio*, never happens but immediately after delivery, the os tincæ then being nearly as large as the fundus; and, besides this, some violence, such as pulling the funis forcibly to bring away the placenta, is used, otherwise the contraction of the womb, after being freed from its principal burthen, the child, would absolutely prevent all possibility of this kind of disorder. Whatever be the cause, the part must immediately be restored, or the consequence will soon be fatal; for its orifice will contract in this unnatural state, and so prevent its being returned. We must first empty the bladder, if it contain much urine; then lay the patient on her back with her hips raised, and gently press it into the vagina with three fingers, and then with the whole hand return it to its place, after which, means must be used to retain it there until it contracts by its natural powers; or it must be supported by mechanical aid as in the case of a prolapsus.

3. *Prolapsus vaginæ.*—In this the same methods of cure are to be resorted to, with such variations as circumstances will suggest. The degrees of this disease are very different. Widemannus relates a case of *prolapsus vaginæ* which had all the appearance of a prolapsed uterus, and which was not properly distinguished until it was too late to afford any relief. Generally, however, this complaint is easily to be known by observing the os tincæ, which distinguishes the prolapsed womb from all other cases of a descent, and also from the inversion. When the whole vagina is prolapsed, it appears like a mass of bloody flesh. If it is attended with inflammation and swelling, there is immediate danger of a sphacelus; but if the prolapsed part be affected with little or no inflammation, the tumor will be returned with very little trouble, and without danger, by gently pressing it back with the fingers. When this is done, the patient should rest in bed for some days, and use an injection of port-wine and water; or of some of the metallic solutions, assisted by the bark, vitriolic acid, and the cold bath; but if these fail, the T bandage must be worn. In the Edinb. Med. Com. p. 46, it is proposed to make incisions, or rather scarifications, in the descending vagina, the healing of which will tend to contract its dimensions.

4. *Prolapsus vesicæ.*—The inversion of the uterus never happens without the bladder being also more or less displaced. Both get down to the perinæum, and there make a protuberance. In that case, the fundus being forced down, it is no longer exposed to the pressure of the abdominal muscles as before, and not having force enough in this posture to contract upon its contents, the woman so circumstanced, never makes any water without first squeezing the bladder with her hands, or between her thighs. When the bladder is thus situated, if the catheter is required to be introduced, it must not be thrust upward, but downward, the bulb of the bladder being below the meatus urinarius.

Other cases of prolapsus suggest their own remedy. All require to be distinguished from tumors which have the same appearance to the eye; as in cases of sarcoma, or fungus, &c. In the treatment, three points are generally to be attended to: viz. ablution from blood or extraneous substances; restoration to their natural situation; and suitable means of retention there, till the parts have recovered their healthy functions.

PROLIFIC, an epithet applied to living bodies that have the qualities necessary for generating. The prolific powers of some individuals among mankind are very extraordinary. Instances have occurred, where children, to the number of six, seven, eight, nine, and sometimes more, have been brought forth after one pregnancy. The wife of Emanuel Gago, a labourer near Valladolid, was delivered, the 14th of June, 1779, of five girls, the two first of whom were baptized: the other three were born in an hour after; two of them were baptized; but the last, when it came into the world, had every appearance of death. The celebrated Tarsin was brought to bed in the seventh month of her pregnancy, at Argenteuil near Paris, 17th July, 1779, of three boys, each 14 inches and a half long, and of a girl 13 inches: they were all four baptized, but did not live 24 hours. The public papers for the month of June 1779, made mention of one Maria Ruiz, of the district of Lucena in Andalusia, who was successively delivered of 16 boys, without any girls; and seven of them were still alive on the 17th of August thereafter. The following, though related as a fact, is almost incredible: In the year 1755, a Muscovite peasant, named *James Kyrloff*, and his wife, were presented to the empress of Russia. This peasant had been twice married, and was then 70 years of age. His first wife was brought to bed 21 times; namely, four times of four children each time, seven times of three, and ten times of two; making in all 57 children who were then alive. His second wife, who accompanied him, had already been delivered seven times, once of three children, and six times of twins, which made 15 children for her share. Thus the Muscovite patriarch had already had 72 children by two marriages. We are assured that the sultan Mustapha III. had issue by his concubines 580 male children. What number of female children he had, and whether there were twins of both sexes, we are not informed. These facts seem to be authentic, and certainly suppose great fecundity; but, whatever credit is given to them, we must consider as entirely fabulous many vague reports of the same description which constantly assail us in the diurnal publications.

Mr. Derham computes, that marriages, one with another, produce four children not only in England but in other parts also. In the genealogical history of Tuscany, written by Gamarini, mention is made of a nobleman of Sienna, named Pichi, who by three wives had 150 children; and that, being sent ambassador to the pope and the emperor, he had 48 of his sons in his retinue. In a monument in the church-yard of St. Innocent, at Paris, erected to a woman who died at 88 years of age, it is recorded, that she might have seen 288 children directly issued from her. This exceeds what Hakewell relates of Mrs. Honeywood, a gentlewoman of Kent, born in the year 1527, was married at 16 to her only husband R. Honeywood, of Charing, esq; and died in her 93d year. She had 16 children of her own body; of which three died young, and a fourth had no issue: yet her grandchildren, in the second generation, amounted to 114; in the third to 228; though in the fourth, they fell to 9. The whole number she might have seen in her life-time, was 367. $16+114+228+9=367$.

PRONATION, in anatomy. The radius of the arm has two kinds of motion, the one called *pronation*, the other *supination*.—Pronation is that by which the palm of the hand is turned flat downwards; and supination, the opposite motion, is that by which the back of the hand is turned downwards. The peculiar muscles by which pronation is performed are called *pronatores*, as those by which supination is performed are termed *supinatores*.

PRONA'TOR RADII QUADRATUS, so called from its use and shape; a small fleshy muscle, situated at the lower and inner part of the fore-arm, and covered by the tendons of the flexor muscles of the hand. It arises tendinous and fleshy from the lower and inner part of the ulna, and runs nearly in a transverse direction, to be inserted into that part of the radius which is opposite to its origin, its inner fibres adhering to the interosseous ligament. This muscle assists in the pronation of the hand, by turning the radius inwards.

PRONA'TOR RADII TERES; a small muscle, situated at the upper and anterior part of the fore-arm. It is called *teres*, to distinguish it from the pronator radii quadratus. It arises tendinous and fleshy from the anterior and inferior part of the outer condyle of the os humeri; and tendinous from the coronoid process of the ulna, near the insertion of the brachialis internus. The median nerve passes between these two portions. From these origins the muscle runs obliquely downwards and outwards, and is inserted, tendinous and fleshy, into the anterior and convex edge of the radius, about the middle of that bone. This muscle serves, as its name indicates, to turn the hand inwards.

PROPAGATION, the act of multiplying the kind. See GENERATION.

PROPAGATION, in botany. The most natural and the most universal way of propagating plants is by seeds; but they may also be propagated by *sets*, or *cuttings*, taken from the parent plant, as is well known. The number of vegetables that may be propagated from an individual is very remarkable, especially in the most minute plants. The annual product of even one seed of the common mallow has been found to be no less than 200,000; but it has been since proved, by a strict examination into the more minute parts of the vegetable world, that so despised a plant as the common wall-moss produces a much more numerous offspring. In one of the little heads of this plant there have been counted 13,824 seeds. Now, allotting to a root of this plant eight branches, and to each branch six heads, which appears to be a very moderate computation, the produce of one seed is $6 \times 13824 = 82944$; and 8×82944, gives 663,552 seeds as the annual produce of one seed, and that so small that 13,824 of them are contained in a capsule, whose length is but one-ninth of an inch, its diameter but one-23d of an inch, and its weight but the 13th part of a grain.

PROPHYLACTICA (from ϖρο, *before*, and φυλασσω, to *defend*); prophylactics: any means made use of to preserve the body from disease, whether applied topically, or generally by the medium of the system.

PROPTO'MA (προπτωμα, from προπιπτω, to *fall down*); relaxation of the scrotum, of the under lip, of the mammæ in females, of the præputium, or of the ears.

PROSTA'TA GLANDULA (from προ, *before*, and ιστημι, to *stand*; because it is situated before the urinary bladder), the prostate gland. That portion of the urethra which is not covered by the cavernous substance, and which, from the bladder to the bulb, is only a membranous canal, is sustained by a large solid whitish mass, of the figure of a chesnut, and situated between the bladder and the bulb of the urethra; its basis being toward the bladder, the apex or point toward the urethra, and the sides lying upward and downward.

The term *prostatæ* implies a plurality, because this gland appears to be divided into two lateral lobes by a hollow groove, which runs through its upper side from the basis to the apex. The first portion of the urethra lies in this groove, adhering very closely to the prostatæ, which surround it for about half an inch in length; but there is only a very small part of the prostate upon the foreside of this passage.

The body of the prostate lies on the intestinum rectum, and the apex is under the internal labium of the cartilaginous arch of the ossa pubis. The inner substance is spongy, but very compact; and in each lobe there are several folliculi, which open into the first portion of the urethra, toward the bottom of the groove, as we shall see hereafter. The small portion of the urethra, between the apex of the prostatæ and the bulb, perforates a ligamentary substance, which is situated at the under and back part of the symphisis pubis. This portion is very short, its length being no more than what is sufficient to pass through the hole in the ligament; the posterior side of which consequently touches the apex of the prostatæ, and its foreside the bulb of the urethra. This portion might be called the *neck* of the urethra, and that which lies between the body of the bladder and the prostatæ, Dr. Monro thinks, might be called the *neck* of the bladder.

PROSTATE, INFERIOR. See Transversus perinæi alter.

PROXIMATE CAUSE, this when applied to a disease, may be said to be, in reality, the disease itself; since all proximate causes are either diseased actions of simple fibres, or an altered state of the animal fluids. See Causes.

PRU'NA (pl. of *prunum*, a plum); plums or prunes. See Plums.

PRUNE. See Plums.

PRUNE'LLA (from *pruna*, a burn, because it is said to cure burns), also called *Brunella*, *Consolida minor*, and *Symphilum minus*; self-heal. It is the *Prunella vulgaris, foliis omnibus ovato-oblongis, serratis, petiolatis*, Linn. It was formerly recommended as an astringent in hæmorrhages and fluxes, and in gargles against aphthæ and inflammations of the fauces.

PRUNE'LLA VULGA'RIS; the systematic name of the herb self-heal. See Prunella.

PRUNE'LLOE. See Plum.

PRU'NUM GA'LLICUM, the common prune or plum; the fruit of the *Prunus domestica* Linn. *Prunus pedunculis subsolitariis, foliis lanceolato-ovatis convolutis, ramis muticis. Gemmæ floriferæ aphyllæ.* Mur. Class, *Icosandria*. Order, *Monogynia*. Prunes are emollient, and laxative, especially the French prunes, which are directed in the decoction of senna, and other purgatives; and the pulp is ordered in the *electuarium è senna*. See Plum.

PRU'NUM SYLVE'STRE, the sloe or fruit of the *Prunus spinosa* Linn. *Prunus pedunculis solitariis foliis lanceolatis glabris, ramis spinosis.* Class, *Icosandria*. Order, *Monogynia*. This is sometimes employed in gargles, to swellings of the tonsils and uvula. From its astringency it was also formerly much used in hæmorrhages, &c. but we have now many more effectual remedies of this sort.

PRU'NUS A'VIUM; the systematic name of the black-cherry tree. See Cerasa nigra.

PRU'NUS CE'RASUS; the systematic name of the red-cherry tree. See Cerasa rubra.

PRU'NUS DOME'STICA; the systematic name of the damson-tree. See Damson.

PRU'NUS LAURO-CE'RASUS; the systematic name of the poisonous laurel. See Lauro-cerasus.

PRU'NUS PA'DUS; the systematic name of the bird-cherry tree. See Padus.

PRU'NUS SPINO'SA; the systematic name of the sloe-tree. See Prunus sylvestris.

PRURI'GO (from *prurio*, to itch); a genus of disease in the order *papulous eruptions* of Dr. Willan's arrangement of cutaneous diseases. As it arises from different causes, or at different periods of life, and exhibits some varieties in its form, he describes it under the titles of prurigo mitis, prurigo formicans, and prurigo senilis. In these the whole surface of the skin is usually affected; but there are likewise many cases of local prurigo, which also it is proper to notice according to the situations in which they are respectively found.

1. *Prurigo mitis.* This originates without any previous indisposition, generally in spring, or the beginning of summer. It is characterised by soft and smooth elevations of the cuticle, somewhat larger than the papulæ of the lichen, from which they also differ by retaining the usual colour of the skin; for they seldom appear red, or much inflamed, except from violent friction. They are not, as in the other case, accompanied with tingling, but with a sense of itching almost incessant. This is, however, felt more particularly on undressing, and often prevents rest for some hours after getting into bed. When the tops of the papulæ are removed by rubbing or scratching, a clear fluid oozes out from them, and gradually concretes into thin black scabs. This species of prurigo, which mostly affects young persons, may, in general, be referred to sordes collected on the skin, producing some degree of irritation, and also preventing the free discharge of the sensible perspiration. The eruption extends to the arms, breast, back, and thighs, and it often continues during two or three months of the summer, if not relieved by proper treatment. When persons affected with it neglect washing the skin, or are uncleanly in their apparel, the eruption grows more inveterate, and at length changing its form, often terminates in the itch. Pustules arise among the papulæ, some filled with lymph, others with pus. The acarus scarabæi begins to breed in the furrows of the cuticle, and the disorder becomes contagious.

2. *Prurigo formicans*, a much more obstinate and troublesome disease than the foregoing; usually affecting persons of adult age. It commences at all seasons of the year indifferently; and its duration is from four months to two or three years, with occasional short intermissions. The papulæ are sometimes larger, sometimes more obscure, than in the preceding species; but are, under every form, attended with an incessant, almost intolerable, itching. They are diffused over the whole body, except the face, feet, and palms of the hands; they appear, however, in greatest number on those parts which, from the ordinary mode of dress, are subjected to tight ligatures; as about the neck, loins, and thighs.

The itching is complicated with other sensations, that are variously described by patients. They sometimes feel as if small insects were creeping on the skin; sometimes as if stung all over by ants; sometimes as if hot needles were piercing the skin in various places. On standing before a fire, or undressing, and more particularly on getting into bed, these sensations become most violent, and usually preclude all rest during the greater part of the night. The prurigo formicans is by most practitioners deemed contagious, and confounded with the itch. In endeavouring to ascertain this point, Dr. Willan has been led to the following remarks: 1. That the eruption is, for the most part, connected with internal disorder, and arises where no source of infection can be traced. 2. Persons affected may have constant intercourse with several others, and yet never communicate the disease to any of them. 3. Several persons of one family may have the prurigo formicans about the same time; but he thinks this should be referred rather to a common predisposition than to contagion, having observed that individuals of a family are often so affected, at certain seasons of the year, even when they reside at a distance from each other. Although the prurigo formicans is never, like the former species, converted into the itch, yet it does occasionally terminate in a pustular disease, that is not contagious.

3. *Prurigo senilis;* an affection of the skin that does not differ much in its symptoms and external appearance from the prurigo formicans; but medical writers have given it a distinct consideration, on account of its peculiar inveteracy. The prurigo is perhaps aggravated, or becomes more permanent, in old age, from the dry, condensed state of the skin and cuticle, which often takes place at that period. Those who are affected with it in a high degree have little more comfort to expect during life, being incessantly tormented with a violent and universal itching. The state of the skin in the prurigo senilis, is favourable to the production of an insect, the pediculus humanus, more especially to the variety of it usually termed body-lice.

These insects, it is well known, are bred abundantly among the inhabitants of sordid dwellings, of jails, workhouses, &c. and in such situations prey upon persons of all ages indiscriminately. But in the prurigo senilis they arise, notwithstanding every attention to cleanliness or regimen, and multiply so rapidly that the patient endures extreme distress, from their perpetual irritation. The nits or eggs are deposited on the small hairs of the skin, and the pediculi are only found on the skin or on the linen, not under the cuticle, as some authors have represented.

In connection with these complaints, Dr. Willan mentions pruriginous affections which are merely local. He confines his observations to the most troublesome of them, seated in the podex, præputium, urethra, pubes, scrotum, and pudendum muliebre. Itching of the nostrils, eye-lids, lips, or of the external ear, being generally symptomatic of other affections, do not require to be particularly considered. See ITCHING. The instances of partial prurigo are the following:

1. *Prurigo podicis.* Ascarides situated in the rectum usually excite itching and irritation about the sphincter ani. A similar inconvenience often arises, independently of worms, hæmorrhoidal tumors, or other obvious causes, which is mostly found to affect persons engaged in sedentary occupations; and may be referred to a morbid state of secretion in the parts, founded, perhaps, on a diminution of constitutional energy. It is not always accompanied with an appearance of papulæ or tubercles: it is little troublesome during the day-time, but returns every night soon after getting into bed, and precludes rest for several hours. The complaint continues in this form during three or four months, and has then an intermission, till it is produced again by hot weather, fatigue, watching, or some irregularity in diet. The disease most commonly occurs at the decline of life; but a variety of circumstances may produce it in persons of any age.

Women, after the cessation of the catamenia, are liable to be affected with this species of prurigo, more especially in the hot months of the year. Along with it, there is often an eruption of itching papulæ on the neck, breast, and back; a swelling and inflammation of one or both ears, and a discharge of matter from behind them, and from the external meatus auditorius. The prurigo podicis sometimes occurs as a symptom of syphilis.

2. The *Prurigo præputii* is attributed to an altered state of secretion on the glans penis, and inner surface of the præpuce. During the heat of summer there is also, in some persons, an unusual discharge of mucus, which becomes acrimonious, and produces a troublesome itching, and often an excoriation of these parts. Washing them with water, or soap and water, employed from time to time, relieves the complaint, and should indeed be practised as an ordinary point of cleanliness, where no inconvenience is immediately felt. If the fluid be secreted in too large a quantity, that excess may be restrained, by washes made with a solution of vitriolated zinc, or by applying the unguentum cerusæ acetatæ. In general, however, greasy applications are hurtful in this complaint.

3. *Prurigo urethralis.* A troublesome itching sometimes takes place at the extremity of the urethra, in women of different ages, without any manifest cause. On examination, there is no stricture or tumor along the course of the urethra. Probably, however, the itching may arise from an affection of the neck of the bladder, being in some instances connected with pain and difficulty of making water. Violent itching at the extremity of the urethra in men is produced by calculi, and by some diseases of the bladder. In strictures an itching is also felt, but near to the place where the stricture is situated. Another cause of it is small broken hairs, which are sometimes drawn in from the pubes, between the præputium and glans, and which afterwards becoming fixed in the entrance of the urethra, occasion an itching, or slight stinging, particularly on motion. Mr. Pearson, surgeon of the Lock Hospital in London, has seen cases of this kind, and given immediate relief by extracting the small hairs from the urethra.

4. *Prurigo pubis.* Itching papulæ often arise on the pubes, and become extremely sore if their tops are removed by scratching. They are occasioned sometimes by mere want of cleanliness, but much more commonly by a species of pediculus, which perforates the cuticle, and thus derives its nourishment, remaining fixed in the same situation. These insects are termed by Linnæus, *pediculi pubis;* vulgarly, *crab-lice*, from their resemblance in shape to a crab. They do not, however, affect the pubes only, but often adhere to the eye-brows, eye-lids, and axillæ. They are often found, also, on the breast, abdomen, thighs, and legs, in persons who have those parts covered with hair; but it is somewhat remarkable, that they seldom or never fix upon the hairy scalp. The great irritation produced by them on the skin, solicits constant scratching, by which they are torn from their attachments; and painful tubercles arise at the places where they had adhered. When these filthy animals are diffused over the greater part of the surface of the body, the patient's linen often appears as if sprinkled with drops of blood.

5. *Prurigo scroti.* A troublesome and constant itching may affect the scrotum from ascarides within the

rectum, from friction by violent exercise in hot weather, and very usually from the pediculi pubis. Another and more important form of the complaint appears in old men, sometimes connected with the prurigo podicis, and referable to a morbid state of the skin, or superficial glands, of the part. The scrotum, in this case, assumes a brown colour, often also becoming thick, scaly, and wrinkled. The itching extends to the skin covering the penis, more especially along the course of the urethra; and has little intermission.

6. The *Prurigo pudendi muliebris*, an affection very analogous to the prurigo scroti in men. This is often symptomatic in the lichen and lepra; but likewise originates from ascarides irritating the rectum, and is, in some cases, connected with leucorrhœa. A similar affection also arises in consequence of the change of state in the genital organs at the time of puberty, attended with a series of most distressing sensations. Dr. Willan confines his attention to one case of the disorder, which may be considered as idiopathic, and which usually affects women soon after the cessation of the catamenia. It chiefly occurs in those who are of the phlegmatic temperament, and inclined to corpulency. Its seat is the labia pudendi, and entrance of the vagina. It is often accompanied with an appearance of tension or fulness of those parts, and sometimes with inflamed itching papulæ on the labia and mons veneris. The distress arising from a strong and almost perpetual itching in the above situation, may be easily imagined. In order to allay it in some degree, the sufferers have frequent recourse to friction, and to cooling applications: whence they are necessitated to forego the enjoyment of society. An excitement of venereal sensations also takes place from the constant direction of the mind to the parts affected, as well as from the means employed to procure alleviation. The complicated distress thus arising, renders existence almost insupportable, and often produces a state of mind bordering on frenzy. Weak camphorated solutions, with tincture of opium, have sometimes good effects in these cases.

Deep ulcerations of the parts seldom take place in the prurigo pudendi; but the appearance of aphthæ on the labia and nymphæ is not unusual. From an intercourse with females under these circumstances, men may be affected with aphthous ulcerations on the glans, and inside of the præputium, which prove troublesome for a length of time, and often excite an alarm, being mistaken for venereal chancres.

Women, after the fourth month of their pregnancy, often suffer greatly from the prurigo pudendi, which is sometimes attended with aphthæ. These, in some few cases, have been succeeded by extensive ulcerations, which have destroyed the nymphæ, and even produced a fatal hectic. The complaint has, in general, some intervals or remissions; and the aphthæ usually disappear soon after delivery, whether at the full time, or by miscarriage.

PRURI'TUS (from *prurio*, to itch). See Prurigo.

PRUSSIATES, salts formed by the union of the prussic acid, or colouring matter of prussian blue, with different bases; thus, we have the *prussiat of alumine, prussiat of ammonia*, &c. These salts have been little examined, Mr. Accum says, probably on account of the difficulty which attends their formation, and the spontaneous decomposition they suffer. All that is known concerning them is, that they are very easily decomposed by all acids, and also by a mere exposure to vivid light, or to a heat of about 110°. All the metallic prussiates are insoluble, except prussiate of mercury and manganese. These compounds are not decomposable by acids. The triple prussiates are the salts which have been most particularly examined, on account of the important action they exercise upon other bodies. We shall here detail the *methods of obtaining prussiates* of the most important kinds.

1. *Prussiate of potash and iron.* Dissolve pure potash in five times its weight of water, and pour the solution into a glass receiver, placed in a sand-bath of 17° or 18°, and then gradually add the best prussian blue in powder, injecting new portions, as the former becomes discoloured, and supplying water as fast as it evaporates, until the last added portions of prussian blue are no longer discoloured; then increase the heat to boiling, and continue it for half an hour. Filter the ley thus obtained, and saturate it with sulphuric acid moderately diluted; a precipitate will appear: when this ceases, filter off the whole, and wash the precipitate.

Evaporate the filtered fluid to about one quarter, and set it aside to crystallise: after a few days, yellowish crystals of a cubic or quadrangular form will be found mixed with some sulphate of potash and oxid of iron; pick out the yellowish crystals, lay them on blotting paper, and re-dissolve them in four times their weight of cold water, to exclude the sulphate of potash. Having done this, essay a few drops of this solution with barytic water, to see whether it contains any sulphuric acid, and add some barytic water to the remainder if necessary; filter off the solution from the sulphate of barytes, which will have precipitated, and set it by to crystallise for a few days, that the barytes, if any should remain, may be precipitated. If the crystals now obtained be of a pale yellow colour, and discover no bluish streaks, when sprinkled over with the muriatic acid, they are fit for use; but if they still discover bluish or green streaks, the solution and crystallisation must be repeated. These crystals must be kept in a well-stopped bottle, which, to preserve them from the air, should be filled with alcohol, as they are insoluable in it.

Mr. W. Henry's method of preparing this salt consists in first forming a triple prussiate of barytes, and adding it, in crystals, to a solution of carbonate of potash, till the solution no longer restores the colour of reddened litmus paper. After digesting the mixture for half an hour, filter the liquid and evaporate it gently, and the triple prussiate of potash will form fine transparent crystals of a yellow colour, having the form of cubes or parallelopipeds. They contain, when prepared according to the first method, 0.24 parts of oxid of iron.

Mr. Accum considers this salt, or its solution

PSO'RA (of the Gr. ψωρα), the itch; a genus of disease in the class *locales*, and order *dialyses*, of Cullen: appearing first on the wrists and between the fingers in small pustules with watery heads. It is contagious, being produced, as Leeuwenhoek and others assert, by animalcules under the cuticle. The application of sulphur ointment is a certain cure. See PRURIGO.

PSORI'ASIS (ψωϱιασις; from ψωϱαω, *to itch)*; a disease which, according to Dr. Willan, is characterised by a rough and scaly state of the cuticle; sometimes continuous, sometimes in separate patches; of various sizes but of irregular figures, and for the most part accompanied with rhagades or fissures of the skin. It may be distinguished from the lepra Græcorum, not only by a different distribution of the patches, but also by its cessation and recurrence at certain seasons of the year, and by the constitutional affection with which it is usually attended. Dr. Willan gives the following varieties: *Psoriasis guttata,—diffusa,—gyrata,—palmaria,—labialis,—scrotalis,—infantilis,—inveterata:* of these we shall speak in their order.

1. *Psoriasis guttata*, appears in small, distinct, but irregular patches of laminated scales, with little or no inflammation surrounding them. The patches are very seldom so large as a sixpence. They have neither an elevated border, nor the oval or circular form by which all the varieties of lepra are distinguished; but their circumference is sometimes angular, and sometimes goes into small serpentine processes. The scale formed upon each of them is thin, and may be easily detached, leaving a red, shining base. The patches are often distributed over the greatest part of the body, but more particularly on the back part of the neck, the breast, arms, loins, thighs, and legs. They appear also upon the face, which rarely happens in lepra. In that situation they are red and more rough than the adjoining cuticle, but not covered with scales. The psoriasis guttata often appears on children in a sudden eruption, attended with a slight disorder of the constitution, and spreads over the body within two or three days. In adults it commences with a few scaly patches on the extremities, proceeds very gradually, and has a longer duration than in children. Its first occurrence is usually in the spring season, after violent pains in the head, stomach, and limbs. During the summer it disappears spontaneously, or may be soon removed by proper applications, but it is apt to return again early in the ensuing spring, and continues so to do for several successive years. When the scales have been removed, and the disease is about to go off, the small patches have a shining appearance, and they retain a dark red, intermixed with somewhat of a bluish colour, for many days, or even weeks, before the skin is restored to its usual state. In the venereal disease there is an eruption which very much resembles the psoriasis guttata, the only difference being a slighter degree of scaliness, and a different shade of colour in the patches, approaching to a livid red, or very dark rose colour. The patches vary in their extent, from the section of a pea, to the size of a silver penny, but are not exactly circular. They rise at first very little, if at all, above the cuticle. As soon, however, as the scales appear on them, they become sensibly elevated; and sometimes the edge or circumference of the patch is higher than the little scales in its centre. This eruption is usually seen upon the forehead, breast, between the shoulders, or in the inside of the fore-arms, in the groins, about the inside of the thighs, and upon the skin covering the lower part of the abdomen. The syphilitic psoriasis guttata is attended with, or soon followed by, an ulceration of the throat. It appears about six or eight weeks after a chancre has been healed by an ineffectual course of mercury. A similar appearance takes place, at nearly the same period, in some cases where no local symptoms had been noticed. When a venereal sore is in a discharging state, this eruption, or other secondary symptoms, often appear much later than the period above mentioned. They may also be kept back three months, or even longer, by an inefficient application of mercury. If no medicine be employed, the syphilitic form of the psoriasis guttata will proceed during several months; the number of the spots increasing, and their bulk being somewhat enlarged, but without any other material alteration.

2. *Psoriasis diffusa.* This species of disease extends itself in large patches; being irregularly circumscribed, reddish, rough, and chappy, with scales interspersed. It commences, in general, with numerous minute asperities, or elevations of the cuticle, more preceptible to the touch than by sight. Upon these, small distinct scales are soon after formed, adhering by a dark central point, while their edges may be seen white and detached. In the course of two or three weeks, all the intervening cuticle becomes rough and chappy, appears red, and raised, and wrinkled, the lines of the skin sinking into deep furrows. The scales which form among them are often slight, and repeatedly exfoliate. Sometimes, without any previous eruption of papulæ, a large portion of the skin becomes dry, harsh, cracked, reddish, and scaly, as above described. In other cases, the disorder commences with separate patches of an uncertain form and size, some of them being small, like those in the psoriasis guttata, some much larger. The patches gradually expand till they become confluent, and nearly cover the part or limb affected. Both the psoriasis guttata and diffusa likewise occur as a sequel of the lichen simplex. This transition takes place more certainly after frequent returns of the lichen. The parts most affected by psoriasis diffusa are the cheeks, chin, upper eye-lids, and corners of the eyes; the temples, the external ear, the neck, the fleshy parts of the lower extremities, and the fore-arm, from the elbow to the back of the hand, along the supinator muscle of the radius. The fingers are sometimes nearly surrounded with a loose scaly incrustation; the nails crack and exfoliate superficially. The scaly patches likewise appear, though less frequently, on the forehead and scalp, on the shoulders, back, and loins, on the abdomen, and instep. This disease occasionally extends to all the parts above mentioned at the same time; but, in general, it affects them successively, leaving one place free, and appearing in others; sometimes, again returning to its first situation. The psoriasis diffusa is attended with

a sensation of heat, and with a very troublesome itching, especially at night. It exhibits small, slight, distinct scales, having less disposition than the lepra to form thick crusts. The chaps or fissures of the skin, which usually makes a part of this complaint, are very sore and painful, but seldom discharge any fluid. When the scales are removed, by frequent washing, or by the application of unguents, the surface, though raised and uneven, appears smooth and shining; and the deep furrows of the cuticle are lined by a slight scaliness. Should any portion of the diseased surface be forcibly excoriated, there issues out a thin lymph, mixed with some drops of blood, which slightly stains and stiffens the linen, but soon concretes into a thin, dry scab; this is again succeeded by a white scaliness, gradually increasing, and spreading in various directions. As the complaint declines, the roughness, chaps, scales, &c. disappear, and a new cuticle is formed, at first red, dry, and shrivelled, but which, in two or three weeks, acquires the proper texture. The duration of the psoriasis diffusa is from one to four months. If, in some constitutions, it does not then disappear, but becomes, to a certain degree, permanent, there is, at least, an aggravation or extension of it, about the usual periods of its return. In other cases, the disease, at the vernal returns, differs much as to its extent, and also with respect to the violence of the preceding symptoms. The eruption is, indeed, often confined to a single scaly patch, red, itching, and chapped, of a moderate size, but irregularly circumscribed. This solitary patch is sometimes situated on the temple, or upper part of the cheek, frequently on the breast, the calf of the leg, about the wrist, or within and a little below the elbow joint, but especially at the lower part of the thigh, behind. It continues in any of these situations several months, without much alteration.

The eruption commonly denominated the *bakers' itch*, is an appearance of the psoriasis diffusa on the back of the hand, commencing with one or two small, rough, scaly patches, and finally extending from the knuckles to the wrist. The chaps and fissures of the skin are numerous about the knuckles and ball of the thumb, and where the back of the hand joins the wrist. They are often highly inflamed, and painful, but have no discharge of fluid from them. The back of the hand is a little raised or tumefied, and, at an advanced period of the disorder, exhibits a reddish, glossy surface, without crusts or numerous scales. However, the deep furrows of the cuticle are, for the most part, whitened by a slight scaliness. This complaint, however, is not general among bakers: it is only aggravated by the nature of their business, and affects those who are otherwise disposed to it, as is evident from the following circumstances: (1.) It disappears about midsummer, and returns in the cold weather at the beginning of the year. (2.) Persons constantly engaged in the business, after having been once affected with the eruption, sometimes enjoy a respite from it for three or four years. (3.) When the business is discontinued, the complaint does not immediately cease.

The *grocers' itch* has some affinity with the bakers' itch, or tetter; but that, being usually a pustular disease at its commencement, properly belongs to another genus.—Washerwomen, probably from the irritation of soap, are liable to be affected with a like scaly disease on the hands and arms, sometimes on the face and neck, which, in particular constitutions, proves very troublesome, and is of long continuance.

3. *Psoriasis gyrata* is distributed in narrow patches or stripes, variously figured: some of them are nearly longitudinal; some circular, or semicircular with vermiform appendages; some are tortuous, or serpentine; others like earth-worms or leeches: the furrows of the cuticle, being deeper than usual, make the resemblance more striking, by giving to them an annulated appearance. There is a separation of slight scales from the diseased surface, but no thick incrustations are formed. The uniform disposition of these patches is singular. A large circular patch has been seen situated on each breast above the papilla; and two or three others of a serpentine form, in analogous situations along the sides of the chest. The back is often variegated, in like manner, with convoluted tetters, similarly arranged on each side of the spine. They likewise appear on the arms and thighs of some persons, intersecting each other in various directions. Dr. Willan describes a slighter kind of this complaint, affecting delicate young women, and children, in small scaly circles or rings, little discoloured. These appear on the cheeks, neck, or upper part of the breast, and are mostly confounded with the herpetic, or pustular ring-worm. The psoriasis gyrata has its remissions and returns, like the psoriasis diffusa; it also exhibits, in some cases, patches of the latter disorder on the face, scalp, or extremities, while the trunk of the body is chequered in the singular manner above described.

4. *Psoriasis palmaria*; a species of tetter that is nearly confined to the palm of the hand. It commences with a small, harsh, or scaly patch, which gradually spreads over the whole palm, and sometimes appears in a slighter degree on the inside of the fingers and wrist, and the cure of it is extremely difficult. The surface feels rough from the detached and raised edges of the scaly laminæ; its colour often changes to brown, or black, as if dirty; yet the most diligent washing produces no favourable effect. The cuticular furrows are deep, and cleft at the bottom longitudinally, in various places, so as to bleed on stretching the fingers A sensation of heat, pain, and stiffness in the motions of the hand, attends this complaint. It is worst in winter or spring, and occasionally disappears in autumn or summer, leaving a soft, dark red cuticle; but many persons are troubled with it for a series of years, experiencing only very slight remissions. Every return or aggravation of it is preceded by an increase of heat and dryness, with an intolerable itching. Some shoemakers have the psoriasis palmaria locally, from the irritation of the wax which they so constantly handle. In braziers, tinmen, silversmiths, &c. the complaint seems to be produced by handling cold metals. A long predisposition to it from a weak, languid, hectical state of the constitution, may give effect to different occasional causes. Dr. Willan has seen it occur in women after lying-in. In some persons it is connected, or alternates,

with arthritic complaints. When the palms of the hands are affected as above, a similar appearance often takes place on the soles of the feet; but with the exception of rhagades or fissures, which seem less liable to form there, the feet being usually kept warm and covered. Sometimes, also, this species of the psoriasis is attended with a thickness of the præputium, with scaliness, and painful cracks. These symptoms at last produce a phymosis, and render the connubial embrace difficult, or impracticable. So great, in some cases, is the obstinacy of the disease, that medicinal remedies are of no avail, and the patient can only be relieved by circumcision. This affection of the præputium is not exactly similar to any venereal appearance; yet rhagades or fissures, and indurated patches within the palm of the hand, take place in syphilis, and somewhat resemble the psoriasis palmaria. The venereal patches are, however, distinct, white, and elevated, having nearly the consistence of a soft corn. From the rhagades there is a slight discharge, very offensive to the smell. The soles of the feet are likewise, in this case, affected with the patches, but not with rhagades. When the disease yields to mercury, the indurated portions of cuticle separate, and a new and healthy cuticle is formed underneath. The fingers and toes are not affected with the patches, &c. in cases of syphilis.

5. *Psoriasis labialis;* or that which sometimes affects the prolabium without appearing on any other part of the body. The characteristics of this species are, as usual, scaliness, intermixed with chaps and fissures of the skin. The scales are of a considerable magnitude, so that their edges are often loose, while the central points are attached; a new cuticle gradually forms beneath the scales, but is not durable. In the course of a few hours it becomes dry, shrivelled, and broken; and, while it exfoliates, gives way to another layer of tender cuticle, which soon, in like manner, perishes. These appearances should be distinguished from the slight chaps and roughness of the lips produced by very cold or frosty weather, but easily removed. The psoriasis labialis is often aggravated by frost or sharp winds, yet it receives no material alleviation from an opposite temperature. It is not, indeed, confined within any certain limit, or period of duration, having, in several instances, been protracted through all the seasons. The under lip is always more affected than the upper; and the disease takes place more especially in those persons whose lips are full and prominent.

6. *Psoriasis scrotalis.* This appellation has been given to the psoriasis diffusa affecting the skin of the scrotum, which it does like other parts of the surface of the body. Sometimes, however, a roughness and scaliness of the scrotum appears as an independent complaint, attended with much heat, itching, tension, and redness. These symptoms are succeeded by a hard, thickened, brittle texture of the skin, and by painful chaps or excoriations, which are not easy to be healed. This complaint is sometimes produced under the same circumstances as the *prurigo scroti* (see PRURIGO), and appears to be in some cases a sequel of it. A sort of psoriasis scrotalis likewise occurs in syphilis, but this merits no particular attention, being always combined with other secondary symptoms of the disease, and generally cured at the same time.

7. *Psoriasis infantilis.* This in infants, between the ages of two months and two years, occasionally appears as a dry tetter. It is irregular, forming scaly patches, of various sizes, on the cheeks, chin, breast, back, nates, and thighs. These are sometimes red, and a little rough, or elevated; sometimes excoriated, then again covered with a thin incrustation; and lastly, intersected by chaps or fissures. The general appearances in this species nearly coincide with those of the psoriasis diffusa in general; but there are nevertheless several peculiarities in the tetter of infants which, Dr. Willan thinks, demand a distinct consideration.

8. *Psoriasis inveterata.* This is characterised by an almost universal scaliness, with a harsh, dry, and thickened state of the skin. It commences from a few irregular, though distinct, patches on the extremities. Others appear afterwards on different parts, and, becoming confluent, spread at length over all the surface of the body, except a part of the face, or sometimes the palms of the hands, and soles of the feet. The skin is red, deeply furrowed, or wrinkled, stiff and rigid, so as somewhat to impede the motion of the muscles, and of the joints. So quick, likewise, is the production and separation of scales, that large quantities of them are usually found in the bed on which a person affected with this disease has slept. They fall off in the same proportion by day, and being confined within the linen, excite a troublesome and perpetual itching.

The *Psoriasis* is one of the most frequent cutaneous diseases in this kingdom; and Dr. Willan acknowledges, with Willis, that it is sometimes a disease of unconquerable obstinacy. With respect to the treatment recommended by Dr. Willis, the author observes: 1. That bleeding and purgations are seldom admissible. 2. That antiscorbutics, as they have been called, are not of any material use. 3. That decoctions of guaiacum, sarsaparilla, &c. cannot alone be depended upon for the cure of psoriasis, but are useful auxiliaries to other medicines in some stages of the species diffusa, palmaria, and inveterata. 4. That the chalybeate waters, which have been called specifics, do not seem to be more efficacious than the sulphureous waters. 5. That chalybeate medicines, especially ferrum præcipitatum, are perhaps occasionally useful where the eruptions occur in chlorotic habits. 6. From many experiments cautiously made, he is assured, that *mercurial preparations eventually rather aggravate than diminish the complaint:* an important observation, considering the indiscriminate use which is made of mercury for diseases of the skin.

The first three species of psoriasis, viz. the psoriasis guttata, diffusa, and gyrata, when they appear in a sudden eruption, attended with febrile symptoms, Dr. Willan says, may be advantageously treated by administering, in the evening, an emetic dose of ipecacuanha, and the following day, two or three grains of calomel, or some other gentle purgative; afterwards by the use of fixed alkali, either in its concrete or liquid form; by a light moderate diet, by frequently washing with tepid water, and by abstinence from fruits, acids, and fermented liquors, the above disorders may be brought to a conclusion within two or three weeks. But should the scaly patches, through neglect at their first appearance, or from an unhealthy state of the constitution, have enlarged considerably, and spread over the greater part of the body, a more elaborate plan will be necessary. This consists of the free use of antimonials, of the warm bath, with repeated friction, and of the mineral waters formerly mentioned. The decoctions of elm-bark, sarsaparilla, dulcamara, &c. have also their share of utility.

The psoriasis inveterata requires the same plan of treatment as the lepra vulgaris and alphos. A portion of mezereon root forms an active ingredient in the decoctions employed for the cure of these disorders. In the species named palmaria, Dr. Willan recommends the use of oiled silk gloves, to be worn during the night, and as much as possible during the day; the internal remedies being also employed. In the psoriasis labialis, the lips should be almost constantly covered with some mild unguent or plaster: but all acrid applications are detrimental.—Several syphilitic eruptions assume the forms of lepra and psoriasis, of which good representations may be seen in the coloured engravings given in Dr. Willan's work.

PSOROPHTHA'LMIA (ψωροφθαλμια, from ψωρο, a *scab*, and οφθαλμος, an *eye)*; a scabby eruption, or itch-like pustules of the eye-lids and their ciliary edges. The proximate cause is generally a scrofulous inflammation of the glands of the eye-lids. The species of the psorophthalmia are, 1. *Psorophthalmia crustosa*, which forms dry or humid crusts in the margins of the eye-lids. 2. *Psorophthalmia herpetica*, in which there are small papulæ, itching extremely, and terminating in scurf. The means used in the *ophthalmia tarsi* (see OPHTHALMIA) are to be resorted to.

PSYCHO'TRIA EMETICA (ψυχοτρια, from ψυχος, *cold*, because it grows in cold places); a name for ipecacuanha. See IPECACUANHA.

PSYDRA'CIUM (ψυδρακιον, from ψυχος, *cold)*, a cold tubercle or elevated spot, which soon forms into broad and superficial vesicles, such as are produced by stinging-nettles, the bites of insects, &c. Dr. Willan describes psydracia as a minute pustule irregularly circumscribed, producing but a slight elevation of the cuticle, and terminating in a laminated scab. Many of them usually appear together and become confluent. When mature, they contain pus; and when broken, yield a thin watery discharge. See PUSTULE.

PSY'LLIUM (ψυλλιον, from ψυλλος, a *flea*; so called because it was thought to destroy fleas), also named *Pulicaris herba*; flea-wort. It is the *Plantago psyllium; caule ramoso herbaceo; foliis subdentatis, recurvatis; capitulis aphyllis*, of Linnæus. The seeds have a nauseous mucilaginous taste, and no remarkable smell. A decoction of them is recommended in hoarseness and asperity of the fauces, but not much is to be expected from this remedy.

PTA'RMICA (πταρμικα, from πταιρω, to *sneeze*; so called because it irritates the nose, and provokes sneezing), *Pseudo-pyrethrum*, *Pyrethrum sylvestre*, *Draco sylvestris*, *Tarchon sylvestris*, and *Sternutamentoria*; the herb sneeze-wort, or bastard pellitory. It is the *Achillea ptarmica; foliis lanceolatis, acuminatis, argute serratis* Linn. The flowers and roots have a hot biting taste, approaching to that of pyrethrum, with which they also agree in their pharmaceutical properties. They are principally used as masticatory and sternutatory remedies.

PTE'RIS AQUILI'NA (πτερις, from πτερον, a *wing*; so called from the likeness of its leaves to wings, and *aquilina*, from *aquila*, an eagle, from its resemblance to an eagle's wings); the systematic name of the common brake, or female fern. See FILIX FŒMINA.

PTEROCA'RPUS SANTALI'NUS, the systematic name of the red-saunders tree. See SANTALUM RUBRUM.

PTERY'GIUM (of the Gr. πτερυγιον, dim. of πτερυξ, a *wing)*, a membranous excrescence which grows upon the internal canthus of the eye chiefly, and expands itself over the tunica albuginea and cornea. It is supposed to be an extension or prolongation of the fibres and vessels of the caruncula lachrymalis, or semilunar membrane, appearing like a wing. The species of pterygium are four: 1. *Pterygium tenue*, seu *ungula*; a transparent pellicle, thin, of a cineritious colour, but not painful; growing out from the caruncula lachrymalis, or membrana semilunaris. 2. *Pterygium crassum*, seu *pannus*. This differs from the *ungula* by its thickness, red colour, and fulness of the blood-vessels on the white of the eye; and it stretches over the cornea like fasciculi of vessels. 3. *Pterygium malignum*, a pannus of various colours, which is painful, various in appearance, and arising from a cancerous acrimony. 4. *Pterygium pingue*, seu *pinguicula*, is a mollicle of fat; soft, without pain, and of a light yellow colour. This commonly is situated in the external angle of the eye, and rarely extends to the cornea; though it often remains through life.

PTE'RYGO. Names compounded of this word belong to muscles which are connected with the pterygoid process of the sphænoid bone; as, *pterygo-staphilinus*, &c.

PTERYGO-PHARYNGE'US. See CONSTRICTOR PHARYNGEUS SUPERIOR.

PTERYGO-STAPHILI'NUS EXTERNUS. See LEVATOR PALATI.

PTERYGOIDE'US EXTE'RNUS *(pterygoideus*, from πτερυξ, a *wing*, from its belonging to the processus pterygoides), the *Pterygoideus minor* of Winslow; a muscle which is placed, as it were, horizontally along the basis of the skull, between the pterygoid process and the condyle of the lower jaw. It usually arises by two distinct heads; one of which is thick, tendinous, and fleshy, from the outer wing of the pterygoid process of the os sphenoides, and from a small part of the os maxillare adjoining to it; the other is thin and fleshy, from a ridge in the temporal process of the sphenoid bone, just behind the slit that transmits the vessels to the eye. It happens sometimes, that this latter origin is wanting, and, in that case, part of the temporal muscle arises from this ridge. Occasionally it affords a common origin to both these muscles. From these origins the muscle forms a strong fleshy belly, which descends almost transversely outwards and backwards, and is inserted tendinous and fleshy into a depression in the fore part of the condyloid process of the lower jaw, and into the anterior surface of the capsular ligament that surrounds the articulation of that bone. All that part of this muscle, which is not hidden by the pterygoideus internus, is covered by a ligamentous expansion, broader than that belonging to the pterygoideus internus, and originates from the inner edge of the glenoid cavity of the lower jaw, immediately before the styloid process of the temporal bone, and extends obliquely downwards, forwards, and outwards, to the inner surface of the angle of the jaw. When these muscles act together, they bring the jaw horizontally forwards. When singly, the jaw is moved forwards, and to the opposite side. The fibres inserted into the capsular ligament, serve likewise to bring the moveable cartilage forwards.

PTERYGOIDE'US INTERNUS, the *Pterygoideus major* of Winslow. This muscle arises tendinous and fleshy from the whole inner surface of the external ala of the pterygoid process, filling all the space between the two wings; and from that process of the os palati that makes part of the pterygoid fossa. From thence the muscle growing larger, descends obliquely downwards, forwards, and outwards, and is inserted, by tendinous and fleshy fibres, into the inside of the lower jaw, near its angle. This muscle covers a great part of the *pterygoideus externus*; and along its posterior edge is a ligamentous band, that extends from the back part of the styloid process to the bottom of the angle of the lower jaw. This muscle raises the lower jaw, and pulls it a little to one side.

PTERYGOIDE'US MAJOR. See PTERYGOIDEUS INTERNUS.

PTERYGOIDE'US MINOR. See PTERYGOIDEUS EXTERNUS.

PTERYGOIDE'US PROCESSUS (*pterygoideus*, from πτερυξ, a *wing*, and ειδος, *resemblance*), the pterygoid, or wing-like process of the sphænoid bone.

PTILO'SIS (of the Gr. πτιλωσις, from πτιλος, *bald*); a synonyme of Madarosis. See MADAROSIS.

PTISA'N (*ptisana*; of the Gr. πτισανα, πτισσανη, from πτισσω, to *decorticate*, *bruise*, or *pound*), or PTISSAN; properly speaking, barley deprived of its hulls, or pounded, because formerly the barley was decorticated by pounding, after having been steeped a little in water, and then dried. But the cooling potion obtained by boiling pearl-barley in water, and afterwards sweetening the liquor with liquorice root, figs, raisins, &c. is what at present goes by the name of *ptisan*; and to render it laxative, some add a little senna or other ingredient of the same intention. The ptisan was much used by Hippocrates. See DIET. The manner in which the ancients prepared it was as follows: They first steeped the barley in water till it was plumped up; and afterwards they dried it in the sun, and beat it to take off the husk. They next ground it; and having let the flour boil a long time in the water, they put it out into the sun, and when it was dry they pressed it close. It is properly this flour, so prepared, that is called *ptisan*. They did almost the same thing with wheat, rice, lentils, and other grain: but they gave these ptisans the name of the grain from whence they were extracted, as *ptisan of lentils*, *rice*, &c. whereas the ptisan of barley was called simply *ptisan*, on account of the excellence of it. When they wanted to use it, they boiled one part of it in 10 or 15 of water; and when it began to grow plump in boiling, they added a little vinegar, and a very small quantity of anise or leek, to keep it from offending or filling the stomach with wind. Hippocrates prescribes this broth for women that have pains in the belly after delivery. "Boil some of this ptisan (says he), with some leek, and the fat of a goat, and give it to the woman in bed." This will not be thought very singular, if we reflect on what has been said by authors concerning the indelicate manner of living in those times. He preferred the ptisan to all other food in fevers, because it softened and moistened much, and was besides of easy digestion. If he was concerned in a continual fever, he would have the patient begin with a ptisan of a pretty thick consistence, and go on by little and little, lessening the quantity of barley-flour as the height of the distemper approached; so that he did not feed the patient but with what he called the *juice of the ptisan*; that is, the ptisan strained, where there was but very little of the flour remaining, "in order that Nature being discharged in part from the care of digesting the aliments, she might the more easily hold out to the end, and overcome the distemper, or the cause of it." With regard to the quantity, he caused the ptisan to be taken twice a-day, by such patients as in health used to take two meals a-day, not thinking it convenient that those who were sick should eat oftener than when they were well.

PTO'SIS (πτωσις, from πιπτω, to *fall*); a synonyme of Blepharoptosis. See BLEPHAROPTOSIS.

PTO'SIS I'RIDIS, or *Prolapsus iridis*; a prolapsus of the iris through a wound of the cornea. In this case a blackish tubercle prominates a little from the cornea in various forms. The species of ptosis are, 1. *Ptosis recens*, from a lateral wound of the cornea; as happens, though rarely, in or after the extraction of the cataract. 2. *Ptosis inveterata*. In this the incarcerated prolapsed iris is grown or attached to the wound or ulcer, and afterwards has become callous or indurated.

PTYALI'SMUS (πτυαλισμος, from πτυαλιζω, to *spit*), a ptyalism or salivation. It is an increased secretion of saliva from the mouth, produced by the use of masticatories, or, more commonly, by mercury. See SALIVATION.

PU'BES (from βυβον, the *groin*); the external part of the organs of generation of both sexes, which is covered with hair.

PUBESCENCE, in botany, the down, or hair, with which plants are covered.

PU'BIS, OS, the share-bone; one of the bones which forms the fœtal pelvis. See INNOMINATUM, OS. In the adult subject the *ossa pubis* form the middle, anterior, and internal part of the os innominatum. On their superior part is a ridge, which runs on a continued line with another of the os ilium. Situated between the pubes and ischium is the foramen magnum ovale, which, in the recent subject, is filled up with a ligament. The symphisis of the os pubis is a composition of two cartilages and a ligament; the two cartilages cover the surface of each bone, and the ligament intervenes. As a substitute for the Cæsarean operation, the section of the symphisis pubis was substituted by the French accoucheurs, who, however, have done little good with it hitherto, for the reasons stated under the article Pelvis. Dr. Hunter very early suggested the difficulties and disadvantages of this operation; and Dr. Walter, of Berlin, disputes its usefulness so much, as even to prefer the Cæsarean operation to it. See his work "De Dissectione Synchondroseos Ossium Pubis."

PUDE'NDA (from *pudor*, shame), the parts of generation in either sex; but most commonly applied to the female.

PUDICAL ARTERY, or *pudendal artery;* a branch of the internal iliac, distributed on the organs of generation. It is this artery which is in danger of being wounded in the operation of lithotomy.

PUERPERAL FEVER, a species of fever peculiar to women in child-bed; usually the most fatal of all the disorders to which the sex is liable at that period. But notwithstanding the prevalence of it in all ages, its real nature has remained, to the present time, a subject of much dispute and uncertainty. The critical period of its invasion, when febrile commotions are apt to be excited by various accidents, and the equivocal symptoms which accompany it, have even afforded room for questioning whether it be a primary or a secondary disease. Some writers have considered it as proceeding entirely from an inflammation of the uterus; others have imagined it to be the consequence of an obstruction to the secretion of the milk; while the greater number have been inclined, for reasons equally if not more plausible, to impute it to a suppression of the lochia. If we examine this fever attentively, however, according to its natural course, and independently of all the accidental concomitant symptoms with which it is not essentially connected, we may safely pronounce it to be a primary disease of a particular characteristic, and perhaps not the necessary consequence of any of the causes above mentioned.

This fever is most generally incident to women within forty-eight hours after delivery, though it may supervene on the fourth or fifth day, and sometimes considerably later. It is preceded, like other fevers, by a rigor, which is commonly violent; and, when happening during the time of labour, may be confounded with the pains of parturition. In its earlier stage it is attended with the signs of inflammation. A great pain is felt in the back, hips, and the region of the uterus; which, in the part last mentioned, is accompanied with a sense of heat and throbbing. A sudden change in the quality or quantity of the lochia now also takes place; the patient is frequently troubled with a tenesmus; and the urine, which is very high coloured, is discharged in small quantity and with pain. At the first attack of the fever, the woman is generally seized with a vomiting of porraceous matter, as in the cholera morbus, to which disease it then bears a strong resemblance; but, instead of this symptom, there is sometimes only a nausea, or loathing at the stomach, with a disagreeable taste in the mouth. The belly swells to a considerable bulk, and becomes susceptible of painful sensations from the slightest impression. The tongue is generally dry, though sometimes moist, and covered with a thick brownish fur. When the fever has continued a few days, the symptoms of inflammation usually subside, and the disease acquires a more putrid form. At this period, if not at the very beginning of the disorder, a bilious or putrid diarrhœa, of a dangerous and obstinate nature, supervenes, and accompanies it through all its future progress; each motion to stool being preceded by a temporary increase, and followed by an alleviation of pain. The patient usually nauseates all kind of food and drink, except what is cold and acidulated. A brown or blackish sordes, the consequence of putrid exhalations, adheres to the edges of the teeth; a troublesome hiccough is at length produced, which greatly exasperates the pains of the abdomen; petechiæ or vibices also appear, with sometimes a miliary eruption, but which produces no mitigation of the disease. Through the whole course of the fever, the patient is affected with great anxiety and dejection of spirits.

Such in general is the course of the puerperal fever; the symptoms of which, however, may be often varied, according to the constitution of the patient, the degree of the disease, and its earlier or later invasion. When the woman is naturally weak, or her strength has been greatly reduced by immoderate evacuations after delivery; when the disease is violent, and immediately follows that period; its progress and termination are proportionably rapid and fatal. In such unfortunate circumstances, many have been known to expire within twenty-four hours from the first attack of the disease; nay, there are some instances where the rigor has concluded the scene. The catastrophe, however, is most generally suspended for some days; and the number of these is variable, though the eleventh from the commencement of the fever may justly be fixed as the period which is usually decisive. In whatever stage of the disease an unfavourable termination may happen, it would seem as if the commencement of the patient's recovery were not marked with any critical revolution of the fever, as depending on an alteration of the humours; but that the cure is gradually effected, either by a spontaneous vomiting, or a long-continued discharge by stool of that porraceous matter, the existence of which in the stomach is usually evinced at the first attack of the disease. The most unfavourable prognostic, therefore, arises from such a weakness of the patient as renders her unable to support so tedious an evacuation as that by which the fever is overcome. When the lochia return to their former state, when the swelling and tenderness of the abdomen abate, and there is a moisture on the skin, we have reason to hope for a happy termination of the disease.

Though the puerperal fever may generally be ascertained from the description which has been given, and chiefly by that remarkable tenderness of the abdomen which particularly distinguishes it; yet, as some of its symptoms may be confounded with those arising from other diseases, and which require a different method of cure, it will be proper to mention here the circumstances whereby it may be known with greater certainty.

The pains of the abdomen, attending the child-bed fever, may be distinguished from those called *after-pains*, by their uninterrupted continuance through the course of the disease, though sometimes they suffer exacerbations: whereas, in the latter, they often totally intermit. They are also distinguishable by the absence of fever, with concomitant symptoms, in the one, and their evident existence in the other.

Many circumstances evince a dissimilarity between the puerperal and miliary fevers, notwithstanding the symptoms of anxiety and oppression are common to both; insomuch that the nature of the approaching disease may be ascertained at the commencement of its attack. In the puerperal fever the rigor is more violent, of longer duration, and not interrupted, as in the other. The pulse is fuller and stronger; the skin is more hot; and the tongue, whether moist or dry, though generally the latter, is not of a white but brownish appearance; and the urine is also higher coloured. Eruptions, which are critical in miliary fevers, procure no mitigation of the puerperal fever, and cordials generally increase it.

When the original attack of the puerperal fever happens to coincide with the febrile commotion which is excited in child-bed women by the milk, the nature of it may at first be misapprehended; but the concomitant symptoms, and greater violence of the disease, must in a short time dissipate such an error.

From all the most accurate accounts of this disease, and from the period at which it generally commences, there seems reason to conclude, that it owes its rise more immediately to accidents after delivery. For it is allowed that it may follow a labour under the best and most favourable circumstances, though endeavours to dilate the os internum are supposed frequently to produce it. The more immediate causes generally assigned by authors are a stoppage of perspiration, the too free use of spices, and the neglect of procuring stools after delivery; sudden frights, too hasty a separation of the placenta, and binding the abdomen too tight. The putrid appearance, however, which this disease so soon assumes, affords ground to suspect that the predisposing cause of it is a vitiated state of the humours; for it is generally observed to be most prevalent in an unhealthy season, and among women of a weakly and scorbutic constitution.

Within these few years this fever has been treated of by several writers, most of whom have differed from each other in their sentiments of the nature of the disease. The first in the order of publication is Dr. Denman, who seems to be of opinion, that it may derive its origin either from a redundance or too great acrimony of the bile, the secretion of which appears to be much interrupted in the time of gestation. In Dr. Manning's treatise on this fever, he mentions its being highly probable, that such a cause contributes greatly to produce the disease, especially where the putrid tendency of the humours is increased by unwholesome air and diet.

It has likewise been the fate of the puerperal fever, that no disease has more divided the sentiments of physicians in regard to the method of cure. The apparent indications and contraindications of bleeding and other remedies, arising from the complication of inflammatory and putrid symptoms; the equivocal appearance of the vomiting and purging, as whether they be critical or symptomatic; and the different causes whence symptoms similar to each other may arise in pregnant women: all these circumstances concur to involve the subject in great obscurity and indecision. If we carefully attend to the several characteristics of the disease, however, so as to be able to distinguish it from every other puerperal complaint, and observe at the same time the usual manner of its declension, our judgment may be guided in the method of cure by the salutary efforts of nature. But in order to obtain a clearer view of the genuine indications, it will be proper to consider them under the several lights in which they have been generally viewed by authors.

One of the most essential points to be ascertained in the cure of the child-bed fever, respects the propriety of bleeding. A free use of the lancet has been generally regarded as the most successful expedient in practice; and there are some instances of critical hemorrhages which would seem to confirm its utility. But Dr. Denman thinks he can safely affirm from experience, that for one who will be benefited by large bleeding, a much greater number will be injured, and that even almost irretrievably. Nor can this seem surprising, when we consider the situation of child-bed women. In most, the evacuations consequent upon delivery are sufficient to diminish any undue superabundance of the fluids; and if, as frequently happens, the disease be produced by too hasty a separation of the placenta, the consequence of which is generally a very copious discharge of blood, we can never suppose that nature will be assisted in overcoming the febrile commotion, by the further evacuation of the vital fluid, through the defect of which she is now rendered unequal even to the ordinary support of the animal economy. We may appeal to every practical physician, how much he has known the pulse to sink, and what a train of nervous symptoms he has observed to succeed an excess of the discharge above mentioned. Besides, it is an axiom in physic, that a remedy which cures any disorder will always prove sufficient to prevent it; and therefore, if bleeding were the proper cure in the child-bed fever, the disease ought to have been prevented by a large evacuation of blood, when that happened previous to its seizure. Experience, however, in this, as in all other diseases, is the only unerring guide we can follow; and whoever regulates his practice by fact and observation, will be convinced that bleeding, especially in a large quantity, is, in general, very far from being attended with success. Bleeding is seldom proper, except in women of plethoric constitutions, and in whom the signs of inflammation rise high. Nor even in such patients ought it to be repeated without great caution, and the existence of strong indications. Bleeding, when used in proper circumstances, may unquestionably palliate the fever; but that it often shortens the duration of it appears to be a matter of much doubt. On this account the practice becomes still more suspicious and exceptionable, when we consider, that by venæsection improperly used, the person's strength may be so far reduced as not to support the tedious looseness by which the disease is generally carried off. Though bleeding, however, ought in general to be used with great caution, there are certainly many cases in which it is both necessary and advantageous.

The genuine nature and effects of the looseness in this disease is another controverted point of the highest importance, and which merits the most attentive enquiry. Physicians, observing that women who die of the puerperal fever are generally molested with that evacuation, have been induced to consider this symptom of the most dangerous and fatal tendency; and what, therefore, we should endeavour by every means to restrain. In this opinion, however, they would seem to have been governed by too partial an observation of facts. For experience certainly authorises the assertion, that more women appear to have recovered of the child-bed fever, through the intervention of a diarrhœa, than have been destroyed by that cause. If it also be considered, that purging is usually almost the only sensible evacuation in the more advanced state of the disease, and is that which accompanies it to its latest period, we shall have the strongest reason to think that it is critical rather than symptomatic, and ought therefore to be moderately supported, instead of being unwarily restrained. Nay, the advantage which is found to attend vomiting as well as purging, in the earlier stage of the disease, would seem to evince, that the matter discharged by these evacuations is what chiefly foments the disease. Emetics and purgatives, therefore, in the opinion of Dr. Manning, are the only medicines on which any rational dependence is to be placed in this fever; at least, they are certainly such as are found the most successful. It is an established rule in practice to prescribe a vomit at the beginning of every fever attended with any nausea or loathing of the stomach, and where there is not any reason to apprehend an inflammation of that organ. Nor does the state of child-bed women afford the smallest ground for prohibiting our recourse to the same expedient in answering a similar indication.

It is so seldom a physician is called during the rigor preceding the puerperal fever, that he has few opportunities of trying the effects of remedies in that early state of the disease. When such occur, however, we should endeavour as much as possible to abate and shorten that period, as the succeeding fever is generally found to bear a proportion to the violence and duration of it. For this purpose, warm diluting drinks should be plentifully used, with a small quantity of volatile spirits or brandy. When Dr. Manning apprehended such an accident, he sometimes ordered the nurse to give immediately a dish or two of warm sack-whey; taking care that it was not too strong, which is a caution that ought always to be remembered: for though a freer use of the more cordial and spirituous kinds of liquors might perhaps soon abate the rigor, there is danger to be feared from their influence on the approaching fever, especially in women of a strong and healthy constitution. In all cases, warm applications to the extremities, such as heated bricks, towels, or toasted grains in a linen bag, may be used with perfect safety, and some advantage.

When the hot fit is advanced, the first thing Dr. Manning orders is some emollient injection, as chicken-water, or water and milk, which ought to be frequently repeated through the course of the disease. These prove beneficial, not only by promoting the discharge from the intestines, which seems in fact to be the solution of the disease; but also by acting as a kindly fomentation to the uterus and adjacent parts. With this intention they are particularly serviceable when the lochia are suppressed. Great care, however, is requisite in administering them, on account of the tenderness and inflammatory disposition which at that time render the parts in the pelvis extremely susceptible of pain.

The next step in the method of cure ought to be, to promote the discharge of the morbid matter both by the stomach and intestines. This intention is best answered by the following antimonial remedy prescribed by Dr. Denman:

℞ Antim. tartar. gr. ii.
Cetæ præp. ℈i.
Intime misceantur; et fiat pulvis.

Of this Dr. Denman gives from two to six grains, and repeats it as circumstances may require. If the first dose do not procure any sensible operation, he repeats an increased quantity at the end of two hours, and proceeds in that manner, not expecting any benefit but from its sensible evacuation.

Should the disease be abated, but not removed (which sometimes happens), by the effect of the first dose, the same medicine must be repeated, but in a less quantity, till all danger be over. But if any alarming symptoms remain, he does not hesitate one moment to repeat the powder, in the same quantity as first given; though this is seldom necessary, if the first dose operates properly.

"It is to be observed," says Dr. Denman, "that as the certainty of cure depends upon the proper repetition of the medicine, the method of giving it at stated hours does not appear eligible. If the first dose produce any considerable effect by vomiting, procuring stools, or plentifully sweating, a repetition of the medicine in a less quantity will seldom fail to answer our expectations; but great judgment is required in adapting the quantity first given, to the strength of the patient and other circumstances. We are not to expect that a disease, which from the first formation carries so evident marks of danger, should instantly cease, even though a great part of the cause be removed."

Frequent effervescing saline draughts ought also to be given, which not only promote the evacuation by the intestines, but likewise increase the salutary discharges of urine and perspiration. These medicines are particularly serviceable in subduing the remains of the fever, after its violence has been broken by the more efficacious remedies above mentioned; but when they are used even in the decline of the disease, gentle laxatives of rhubarb and magnesia are advised by Dr. Denman, and ought to be frequently interposed; since, as he justly observes, without stools we can do little service.

Notwithstanding the discharge by the intestines appears to have the most salutary effect in this disease, yet when the stomach has not been properly unloaded of offensive matter, though a great nausea and sickness had indicated the expediency of such an evacuation at the beginning of the fever, the continuance of the looseness is sometimes so long protracted as in the end to prove fatal. In this alarming state of the disease, when the stools are very frequent and involuntary, and all appearances threaten danger, Dr. Denman says, that a moderate clyster of chicken-water injected every one, two, or three hours, or as often as possible without fatiguing the patient too much, with the following draught taken every six hours, has produced better effects than could be expected:

℞ Pulv. rad. ipecacuan. gr. i.
Confect. opiat. ℈j.
Aq. menth. sativ. vel
Aq. Cinnamom. ℥iss. M. f. Haustus.

While these medicines are using, we should endeavour to mitigate the pains of the belly by relaxing applications. During the course of the disease, the patient ought to drink freely of diluting liquors, and abstain from every thing of a heating quality, unless great faintness should indicate the use of a small quantity of some cordial medicine.

Such is the practice recommended in this disease by Dr. Denman, a practitioner of the soundest judgment and most extensive practice. It would lead us far beyond our prescribed limits to state seriatim the opinions and practice of those who see the disease in a different point of view. The writings of Drs. Hulme, White, Kirkland, Butter, and Leake, must be consulted for further information. It deserves however to be remarked, that though the several authors who treat of this subject have conducted their method of cure conformably to their particular idea of the cause of the disease, respecting which their sentiments are very different, they seem to have been equally successful in the treatment of their patients. Indeed the several writers differ less from each other in their method of cure than might be expected, where so great an opposition of theoretical sentiments prevails. For after endeavouring to establish indications corresponding to their particular systems, those who contend for the expediency of promoting the intestinal discharge dissuade not from a recourse to phlebotomy when the disease is attended with inflammatory symptoms; while, on the other hand, the most strenuous advocates for bleeding admit the utility of the former evacuation. It appears, therefore, that a due regulation of the alvine discharge is necessary through the whole course of the fever, but venæsection only sometimes.

PUFF-BALL. See LYCOPERDON.

PUGIL, in pharmacy; such a quantity of flowers, leaves, or the like, as may be taken up between the thumb and two fore-fingers. It is reckoned the eighth part of the *manipulus* or handful.

PULE'GIUM (from *pulex*, a flea; because the smell of its leaves is supposed to destroy fleas), pennyroyal; the *Mentha pulegium* Linn. *Mentha floribus verticillatis, foliis ovatis obtusis subcrenatis, caulibus subteretibus repentibus.* Class, *Didynamia.* Order, *Gymnospermia.* This plant was formerly in high estimation; and is even now considered as a good carminative, stomachic, and emmenagogue; and very commonly used in hysterical disorders. The officinal preparations of pennyroyal are, a simple water, a spirit, and an essential oil.

PULE'GIUM CERVINUM, hart's pennyroyal; the *Mentha cervina* Linn. This plant possesses the virtues of common pennyroyal in a very great degree; but it is remarkably unpleasant, for which reason it is seldom employed, except by the country people, who substitute it for the latter.

PU'LEX, the flea, an insect notoriously troublesome, from the punctures it inflicts on the human skin. The *Pulex minimus, cutem penetrans,* the *Americanus* of Catesby, is a very small animal found in warm climates, where it greatly annoys the negroes and such as are slovenly or go barefooted. These penetrate the skin, under which they lay bunches of eggs, which swell to the bigness of a small pea or tare. They are exceedingly painful; and unless great care is used in taking them out, they are dangerous. It is about one-fourth the size of a common flea. From the head issues a hollow proboscis like that of a common flea, between a pair of antennæ. It has six jointed legs, and something like a tail. These animals are a great nuisance to most parts of America between the tropics, as Sir Hans Sloane has observed in his *History of Jamaica.*

PULICA'RIA (from *pulex*, a flea; so named because supposed to destroy fleas if hung up in a chamber). See PSYLLIUM.

PULMONA'RIA (from *pulmo*, the lungs; so called because of its virtues in affections of the lungs), the plant named lung-wort.

PULMONA'RIA ARBO'REA, also called *Musus pulmonarius quercinus*, a subastringent and rather acid plant, the *Lichen pulmonarius* Linn. This was once in great estimation in diseases of the lungs, especially coughs, asthmas, and catarrhs. Its virtues are similar, and in no way inferior, to those of the lichen islandicus so much applauded of late.

PULMONA'RIA MACULA'TA, the spotted lung-wort; popularly named Jerusalem cowslip, or Jerusalem sage: *Pulmonaria officinalis* Linn. This plant is rarely found wild in England; but it is very commonly cultivated in gardens, where its leaves become broader, and approach more to a cordate shape. The leaves are the part medicinally used. These have no peculiar smell; but, in their recent state, they are slightly astringent and mucilaginous; whence they have been supposed to be demulcent and pectoral. They have been recommended as such in hæmoptoë, tickling coughs, and catarrhal defluxions. The name pulmonaria, however, seems to have arisen, rather from the speckled appearance of these leaves, resembling that of the lungs, than from any intrinsic virtues which they possess in pulmonary complaints.

PULMONA'RIA OFFICINA'LIS; the systematic name of the spotted lungwort. See PULMONARIA MACULATA.

PULMONARY, an epithet applied to such parts, or things, as relate to the lungs. Thus the blood-vessels of the lungs are termed *pulmonary;* and so also are the diseases. See LUNGS, BLOOD-VESSELS, CIRCULATION, PNEUMONIA, &c.

PULMONARY VESSELS. The *arteria pulmonalis* arises from the right ventricle of the heart, and soon divides into the right and left, which ramify throughout the lungs, and form a beautiful net-work on the air vesicles, where they terminate in the *venæ pulmonales.* The branches of the latter at length form four trunks, which empty themselves into the left auricle of the heart. See HEART.

PU'LPA, pulp; is the soft part of fruits, roots, or other bodies, which is extracted by infusion, or boiling, and is passed through a sieve. The following are directions for the preparation of pulps:

Set pulpy fruits, if they be unripe, or ripe and dry, in a moist place, that they may become soft, then press the pulps through a hair sieve; afterwards boil them first with a gentle heat, and stir them frequently, then evaporate the water in a water-bath, saturated with sea salt, until the pulps acquire the proper consistency.

Pour boiling water on the bruised pods of the cassia fistularis, so as to wash out the pulp; then press the matter first through a coarse sieve, and then through a hair sieve; lastly, evaporate the moisture in a water-bath, saturated with sea salt, so as to reduce the pulp to a proper consistency.

Express the pulps of ripe recent fruits through a sieve, without boiling them.

Some fruits are not sufficiently juicy to afford a pulp by simple expression. The better to reduce these, a watery decoction of them is ordered, by the Edinburgh and Dublin colleges, to be boiled down to the consistence of honey. This is much more certain, and in every respect preferable to exposing them to a moist air, which is not only often inefficacious, but is apt to render them vapid and mouldy. On the other hand, the precaution used by the London college, of finishing the evaporation in a water-bath, is highly proper, as otherwise they are extremely apt to become empyreumatic. The pulps expressed from recent fruits without coction, are less mucilaginous, and more apt to allow their fluid parts to separate when left at rest, than when they have been previously boiled; and very succulent vegetables, such as apples, pears, and lily roots, may be roasted in hot ashes instead of being boiled.

PULSATI'LLA NI'GRICANS (from *pulso,* to beat about; so called from its being perpetually agitated by the air), the *Anemone pratensis* Linn. *Anemone pedunculo involucrato, petalis apice reflexis, foliis bipinnatis.* Class, *Polyandria.* Order, *Polygynia.* This plant was received into the Edinburgh Pharmacopœia upon the authority of Storck, who has recommended it as a remedy for most of the chronic affections of the eye; particularly amaurosis, cataract, and opacity of the cornea. He likewise found it of great service in venereal nodes, nocturnal pains, ulcers, caries, indurated glands, suppressed menses, serpiginous eruptions, mania, and palsy. The plant, in its recent state, has scarcely any smell; but its taste is extremely acrid, and, when chewed, it corrodes the tongue and fauces.

PULSE *(pulsus,* from *pulso,* to beat); that stroke which is felt on applying the finger to a large artery, situated near the surface, in a living animal. It is occasioned by the reciprocal action of the heart and arteries, the blood being propelled from the left ventricle of the heart into the arteries, so as to be distributed through the whole machine, and in so perceptible a manner, that the distension of the arterial tube can be felt by the finger. But before the time of Hippocrates, the pulses were not attended to, and indeed very slightly by him, as there are only one or two places in which he makes mention of them, throughout the whole of his works. Herophilus was the first who considered the subject with accuracy, and wrote elaborate treatises on it. Celsus, however, very much attended to it, though he calls the pulse *res fallacissima;* and Galen wrote voluminously upon it. Boerhaave, in his Institutes, gives an account of all the ancients knew concerning the pulse in a short compass, which is well explained by his commentator, Haller. Long experience, however, has rather confirmed than contradicted the opinion of Celsus, as will sufficiently appear to an accurate observer: for, notwithstanding the multiplicity of pulses which have been enumerated by later writers, it is to the different degrees of irritability in constitutions, that the varieties in the pulse are chiefly owing, with respect to their being quick or slow; every accident that happens to the body, and every affection of the mind, having an influence on it.

Modern physicians however judge, as well as they are able, of the state of the circulation by that of *the pulse;* though indeed it is very various, as well with regard to its frequency, as to the strength and equality of its strokes and intervals. Its common quickness in a healthy grown-up person is about 70 strokes in a minute. In a fœtus, perhaps, it is more than double; and in an infant a few months old, hardly less than 120. As we grow up, this quickness gradually diminishes; so that in extreme old age it sometimes does not exceed 50, or is even slower. This rule, however, is not without exceptions: for many, especially those of an irritable habit, have the pulse much quicker; while others, even in the vigour of their age, have the pulse remarkably slow. It is for the most part somewhat quicker in women than in men.

The pulse is also rendered quicker, both in a healthy and diseased body, by the application of stimuli of many different kinds. Exercise especially, by accelerating the return of the blood through the veins, increases the quickness of the pulse to a surprising degree. Various kinds of irritations affecting the nervous system, as intense thinking, passions of the mind, pain, heat, stimulating medicines, wine, spices, &c. likewise produce the same effect. The acrimony of the blood itself also is thought to quicken the pulse.

When a person first awakes in the morning, his pulse is slow, but becomes quicker by degrees on account of the many irritating matters applied to the body. Its quickness is increased after taking food, especially of the animal kind, or such as is hot or seasoned with spices. In the evening a slight fever comes on, for which rest and sleep are the remedy. These things, however, are scarcely to be observed in a healthy person, but are very evident in one that is feverish, especially when the disease is a hectic.—Again, even debility itself often renders the pulse quicker than usual; because the ventricle of the heart not being quite emptied, is sooner dilated again, and of consequence contracts the sooner. For this reason a physician can never judge of the strength of the circulation from the frequency of the pulse.

Lastly, in all fevers, however different from one another, the pulse is found to be too quick, partly perhaps from debility, partly from the acrimony of the fluids, and partly from the repulsion of the blood from the surface of the body, and the accumulation of it in the large vessels where it acts as a stimulus; though it must be owned, that a great deal of this is obscure, if not totally unknown; nor in truth are we able to understand in what manner the *autocrateia* acts with regard to the frequency of the pulse.

The pulse is seldom observed too *slow*, unless when the mobility of the body is much diminished, as in decrepid old age, or from a compression or disease of the brain; but a greater compression of the brain usually produces a still more remarkable slowness of the pulse, as in the hydrocephalus, apoplexy, &c.—Sometimes also the pulse is too slow in those who are recovering from tedious fevers. But this is a matter of little moment, and seems to be owing to some kind of torpor. Indeed it has generally been considered as a mark of a thorough and complete solution of the fever; for it is commonly observed, that when this state of the pulse takes place, the patient seldom suffers a relapse.

While the *frequency* of the pulse continues the same, its strokes may be either full, great, strong, and hard; or soft, small, and weak. A full, great, and strong pulse takes place when the ventricle strongly and completely empties itself; throwing out a great quantity of blood into the arteries, which fully distends them and stimulates them to a strong contraction. A pulse of this kind is common in strong healthy men, and is seldom to be accounted a symptom of disease. But if it be too strong, and strike the finger of the person who feels it, violently and sharply, it is called a *hard pulse*. This hardness is produced by a sudden and violent contraction of the heart and arteries, which distends even the remote branches, as those of the wrist, too suddenly and smartly, and excites them also to sudden and violent contractions.

A *hard pulse* therefore denotes too great an action of the heart and arteries. It may arise from various causes: in the first place, from too great a tension of the vessels; for instance, from their being too full, and by that means more prone to motion, and the more fit for receiving violent motions. It may arise also from too great a density and firmness of the solids; and hence it is most frequent in cold countries, among strong robust people, and such as are accustomed to hard labour. It may likewise arise from various causes irritating the whole nervous system, or only the heart and arteries. Lastly, it accompanies many fevers, as well as most inflammatory disorders, whether the inflammation arises from a general stimulus applied to the whole body, or from the irritation of particular parts, by degrees extended over the whole body. In such a state of the circulation, the patient frequently stands in need of blood-letting, and almost always bears it well.

A *small*, *weak*, and *soft* pulse is generally owing to causes opposite to the foregoing, and indicates a contrary state of the circulation and nervous system. It frequently requires stimulants; nor does it generally require blood-letting, or easily bear it. Sometimes, however, a pulse of this kind is observed even in the case of a dangerous inflammation, of the stomach for instance, or intestines. But in these and the like examples, we ought to attend to the nature of the malady, much more than to the state of the pulse.

The pulse is said *to intermit*, when the stroke does not return after the usual interval, and perhaps not till after twice, thrice, or four times the usual space. A pulse of this kind seems to be almost natural and constant in some animals, and is common to some men even in the most perfect health; and if these happen to be seized with a fever, the pulse sometimes becomes equal, nor can the disease be removed until the intermission has returned.

Moreover, in some people, though the pulse beats equally while in health, yet the slightest illness makes it intermit; and in others, especially those who have a great deal of mobility in their constitutions, such as hypochondriac and hysteric people, the intermission of the pulse is felt, without applying the finger to the artery, merely by the uneasiness which they perceive in their breasts during those intervals in which the pulse is deficient. An intermittent pulse likewise occurs in many diseases of the breast, especially when water is collected in it; and the like happens in the end of all diseases, especially fevers, when the strength is nearly exhausted, and death approaches, of which it is frequently the forerunner.

An intermitting pulse therefore seems to arise from an unequal influx of the circulating fluid into the heart, or from the decay and exhaustion of the nervous power, by which means the heart is not able to contract till it has been distended beyond its due pitch. Or lastly, it may arise from diseases of the organ itself, or the neighbouring parts; from swellings, water, &c. pressing upon them, and impeding the action of the heart: which indeed is a very dangerous disorder, and almost always mortal.

It may not be amiss, in this place, to introduce the late Dr. George Fordyce's *Table of the pulse*, which may not only convey to the reader that able physician's ideas on the subject, but serve also as a convenient guide to the young practitioner.

Indicates,	*by*	*It is called*
1. The strength of the contraction of the heart,	Strength, Weakness,	Strong. Weak.
2. The quantity of blood thrown out at each contraction,	Fulness, Smallness,	Full. Small.
3. The number of contractions.	Frequency, Slowness,	Frequent. Slow.
4. The regularity of its action as to strength, quantity, or frequency,	Regularity, Irregularity, Intermission,	Regular. Irregular. Intermittent.
5. The strength of the action of the arteries,	Hardness, Softness, Redoubling, Trembling,	Hard. Soft. Redoubling. Trembling.
6. The irritability of the vessels,	Quickness, Regularity, Slowness,	Quick. Regular. Slow.
7. The medium diameter of the arteries,	Dilatation, Contraction,	Great. Small.
8. The quantity of blood in the vessels,	Oppression, Smallness,	Oppressed. Empty.
9. The contraction of the capillaries,	Obstruction, Freedom,	Obstructed. Free.

This table needs no explanation; yet it is in fact no easy matter, in many cases, to make the proper distinctions. In attempting to decide on the state of the pulse, it is of great importance, to know *the usual pulsations of the patient when in health;* as these differ materially in different subjects. Many other variations of the pulse are enumerated by physicians, but most of them uncertain, and not confirmed by experience.

Dr. Heberden has published some observations, tending to shew, how little the pulse is to be depended on, without the conjunction of other symptoms of a disease. The various distinctions concerning the pulse, he confines to the quick and the slow pulses, as those alone on which usefulness and certainty attend. He says, the pulse of a child under two years old should be felt whilst it is asleep, because it is so easily quickened by every new sensation. The pulse of a healthy infant on the day of its birth, and when it is asleep, is between 130 and 140 in a minute, the mean rate during the first month 120, and rarely, if ever, below 108. During the first year, the limits may be from 108 to 120, the second year at 90 and 100, the third year at 80 and 100; the fourth, fifth, and sixth, nearly the same as the third. The seventh year it is sometimes at 72, but generally more; the twelfth about 70. In adults it is usually from a little below 60 to a little above 80.

A full meal quickens the pulse to about 10 or 12 strokes in a minute more than its number of pulsations were before the advantage of refreshment.

If the pulse be quickened so as to exceed the healthy standard by ten *pulsations* in a minute, there is some disorder; but the irritability of a child is such that a very slight fever will make the artery beat 140, or even 160, in a minute, when no danger attends; and as there is much difficulty in counting the pulse, when it is at 180 and upwards, we are better enabled to judge of the danger of fevers in children, by the thirst, quickness of breathing, aversion from food, and want of sleep, than by the pulse.

PULVERISATION, an operation, commonly employed in the apothecary's shop, by means of pestles and mortars. The bottom of the mortars should be concave; and their sides should neither be so inclined as not to allow the substances operated on to fall to the bottom between each stroke of the pestle, nor so perpendicular as to collect it too much together, and to retard the operation. The materials of which the pestles and mortars are formed, should resist both the mechanical and chemical action of the substances for which they are used. Wood, iron, marble, siliceous stones, porcelain, and glass, are all very properly employed; but copper, and metals containing copper, are to be avoided, especially where the article operated upon has a tendency to corrode the metal.

PU'LVIS, a powder; a form in which various medicinal remedies are exhibited. See POWDER and PULVERISATION.

PU'LVIS JACO'BI, James's Powder; a celebrated antimonial remedy for which the original patent receipt is given under the article JAMES'S POWDER. Dr. Pearson, however, says, it cannot be prepared by following the directions of the specification in the court of Chancery. His observations and experiments on this composition, tend not only to explain the nature and manner of preparing it, but also to extend the history of antimony. The result of the whole is as follows: 1. James's powder consists of phosphoric acid, lime, and antimonial calx; with a minute quantity of calx of iron, which is considered to be an accidental substance. 2. Either these three essential ingredients are united with each other, forming a triple compound, or phosphorated lime is combined with the antimonial calx, composing a double compound in the proportion of about 57 parts of calx and 43 parts of phosphorated lime. 3. This antimonial calx is different from any other known calx of antimony, in several of its chemical qualities. About three-fourths of it are soluble in marine acid, and afford Algaroth powder; and the remainder is not soluble in this menstruum, and is apparently vitrified. It also appears that, by calcining together bone-ashes, that is, phosphorated lime, and antimony in a certain proportion, and afterwards exposing the mixture to a white heat, a compound was formed, consisting of antimonial calx and phosphorated lime in the same proportion, and possessing the same kind of medicinal properties as Dr. James's powder.

PUMPION, COMMON. See Cucurbita.

PUNCH, a sort of compound drink formerly much in use here, but still more in Jamaica, and other parts of the West Indies. Its basis is water; which being rendered cooler, brisker, and more acid, with lemon or lime juice, and sweetened again to the palate with sugar, makes what they call *sherbet*. To these a proper quantity of any spirituous liquor, as brandy, rum, or arrack, being added, the liquor becomes punch. The wholesomeness of this mixture may be very fairly disputed: but at all events, it is objectionable on account of the greater quantity of spirits that may be unsuspectedly taken, thus softened, and rendered palatable, by the sugar and vegetable acid.

PU'NCTA LACHRYMA'LIA; two small orifices, one of which is seen in each eyelid, at the extremity of the tarsus, near the internal canthus.

PU'NCTUM SA'LIENS, in physiology, the first rudiments of the heart in the formation of the fœtus, where a throbbing motion is perceived. This is said to be easily observed with a microscope in a brood-egg, in which, after incubation, there appears a little speck or cloud, having in the middle a spot that appears to beat or leap a considerable time before the fœtus is formed for hatching. See Fœtus.

PU'NCTURE, a wound made with a sharp-pointed instrument. In this case there is both distension and laceration, and but little hæmorrhage. See Wound.

PU'NICA. See Granatum.

PU'NICA GRANA'TUM; the systematic name of the pomegranate. See Granatum.

PUPIL. See Pupilla.

PUPI'LLA (from *pupa*, a puppet; because it reflects the diminished image of the person who looks upon it); the pupil; a round opening in the middle of the iris. In this dark spot we see our own image reflected in the eye of another person whose eye we are examining.

PURGATIVE, a medicine which evacuates by stool. It is called also a *cathartic*. See Cathartica.

PURGING FLAX. See Linum catharticum.

PURGING NUT. See Ricinus major.

PURSLANE. See Portulaca.

PUS, a white or yellowish cream-like fluid, found in phlegmonous abscesses, and designed by nature for the healing and cementing of wounds and ulcers. The origin and formation of pus is as much unknown as that of any other animal fluid. In an inaugural dissertation published at Edinburgh by Dr. Hendy, the author supposes pus to be a secreted fluid. It has been thought by many, that pus is either a sediment from serum when beginning to putrefy, or that it is the same fluid inspissated by the heat of the body. But both of these opinions are refuted by some experiments of that writer, which shew, that pus is much less inclined to putrefaction than serum, and the putrefaction of both is hastened by an addition of some of the red part of the blood. Some other experiments were made in order to try whether pus could be artificially produced. A thin piece of lamb's flesh, applied to an ulcer discharging laudable pus, and covered over with lead, did not assume the appearance of pus, but became fetid, and was much lessened. Serum, in its inflammatory and in its ordinary state, and lymph in different states, were applied to the same ulcer, which still discharged good pus; but none of these were converted into pus; on the contrary, they became very putrid.

In opposition to these arguments, however, it may be alleged, that if pus were a secreted fluid, the vessels by which it was secreted would certainly be visible; but no such thing has ever been observed: on the contrary, it is certain, that pus cannot be formed unless the air be excluded from the wound. These disputes, however, are of no great consequence: but in some cases it becomes a matter of real importance to distinguish pus from mucus; as thus we may be enabled to know whether a cough is consumptive, or merely catarrhous. See Mucus. Mr. Home, in a dissertation on the properties of pus, in which he avails himself of the experiments of Mr. Hunter, as delivered in his *Physiological Lectures*, says, that the characteristic of pus is its being composed of globules; and, he thinks, that the presence of globules seems to depend upon the pus being in a perfect state. It differs from the blood in the colour of the globules; in their not being soluble in water, which those of the blood are; and from the fluid in which they swim being coagulable by a solution of sal ammoniac, which serum is not. Respecting the formation of pus, our author adopts the idea suggested by Mr. Hunter, that the vessels of the part assume the nature of a gland, and secrete a fluid which becomes pus. Mr. Home ascertains, by experiment, that pus, at its formation, is not globular, but a transparent fluid, of a consistence, in some sort, resembling jelly; and that the globules are formed while lying upon the surface of the sore: requiring, in some instances, while the influence of the external air is excluded, fifteen minutes for that purpose. According to this gentleman's account,

1. In its chemical analysis, pus is found to contain similar substances with the blood.

2. It is, in a recent state, free from any tendency to putrefaction.

3. It is always in harmony with the parts which form it, having no power of irritating them, even when the surrounding parts are affected by it. This seems to be peculiar to secretions; and may be illustrated by the tears excoriating the cheek, although no such effect is produced on the lachrymal gland or ducts.

4. Its appearances vary according to the state of the constitution at the time; and are affected by very slight changes in the general habit, similar to secretions; which could not be made up of the solids and fluids of the part.

5. It is readily absorbed or taken back into the circulation, without producing any ill effect upon the constitution.

6. The parts which form it assume a structure similar to that of a gland, by becoming exceedingly vascular: and what is curious, and deserving of observation, is, that parts appear to require more time to be rendered fit for carrying on this process in proportion as they are different in structure from a gland. In in-

ternal canals, which have naturally a secreting surface, pus is formed in five hours. On the cutis, which is very vascular, in less than twenty hours: and in common muscles, nearly in forty-eight hours.

7. It is composed of globules swimming in a transparent fluid; which is the case with many secretions.

8. It is thinner at the time of leaving the vessels than afterwards, similar to secretions in general.

9. It is highly probable, from what we know of the secretions in general, that they must, in every instance, leave the terminations of the secreting vessels in a very fluid state; and must take on the consistence they are found to possess, either immediately, or soon after they are secreted, similar to pus.

Mr. Hunter says, the final intention of this secretion is not yet understood, although many writers have attempted the subject, and attributed various uses to it. It is by some supposed to carry off humours from the constitution. It is sometimes supposed a constitutional disease changed into a local one, and so discharged or thrown out of the body, either in form of, or with, the pus, as in those cases usually called critical abscesses; but even those who see this final intention are very ready to overturn it, by supposing that this matter is capable of being taken back again into the constitution by absorption, and producing much worse evils than those it was meant to relieve. Mr. Hunter believes, that the supposed cases of absorption are more numerous than those where it is supposed to relieve; if so, then, by their own account, nothing is gained. Or it is presumed to carry off local complaints from other parts of the body by way of derivation, or revulsion: for this reason sores, as issues, are made in sound parts, to allow other sores to be dried up; or even with a view to oblige parts to dissolve themselves into pus, as indurated swellings; but, in his Treatise on inflammation, &c. Mr. Hunter has endeavoured to shew, that the solids make no part of pus.

A secretion of pus is also looked upon as a general prevention of many, or of all, the causes of disease; issues, therefore, are made to keep off both universal disease as well as local. But the fact is, we are not yet well, or perhaps at all, acquainted with its use, for pus is common to all sores; takes place in the most perfect degree in those sores which may be said to be the most healthy, and especially in those where the constitution is most healthy. We find also that very large discharges, when proceeding from a part which is not essential to life, produce very little change in the constitution, and as little upon being healed up, whatever some people may suppose to the contrary.

One might naturally imagine, that pus was of service to the sore which formed it, to keep it moist, &c. for all internal surfaces have their peculiar moisture; but a sore is to heal, and if allowed to dry, so as to form a scab, then a sore is disposed to form no more pus, and will heal faster. It is our mode of dressing external sores that keeps up this secretion, which in this respect maintains the sore in the state of an internal one: but this will not account for the formation of an abscess, which is the formation of pus we can best account for, since it produces the exposure of internal surfaces. In many cases it is of singular service, to procure the second mode of cure, and open a communication between the disease and the external surface of the body, as in suppurations of the liver, &c. Pus also forms a passage for the exit of extraneous bodies: all these, however, are only secondary uses. See Abscess.

PU'STULA (dim. of *pus*, matter); a pustule or elevation of the cuticle, sometimes globate, sometimes conoidal in its form, and containing pus, or lymph, which is in general discoloured. Pustules are various in their size, and there are many different kinds, distinguished, in medical authors, by specific appellations, as, 1. *Phlyzacium*, a small pustule containing pus, and raised on a hard, circular, inflamed base, of a vivid red colour. It is succeeded by a thick, hard, dark-coloured scab. 2. *Psydracium*, a minute pustule, irregularly circumscribed, producing but a slight elevation of the cuticle, and terminating in a laminated scab. Many of these pustules usually appear together, and become confluent. When mature, they contain pus; and after breaking, discharge a thin watery humour.

PUTAMEN (from *puto*, to pare), in vegetable physiology, the bark or paring of any vegetable. The putamen, or green rind, of the walnut, has been celebrated as a powerful antivenereal remedy, for more than a century and a half; and Petrus Borellus has given directions for a decoction not unlike that which is commonly called the Lisbon diet drink, in which the walnut, with its green bark, forms a principal ingredient. See Lues Venerea. Ramazzini, whose works were published early in the last century, likewise asserts, that the green rind of the walnut was then esteemed a good antivenereal remedy in England. This part of the walnut has been much used in decoctions, during the last fifty years, both in the green and dry state; it has been greatly recommended by writers on the continent, as well as by those of our own country; and is, without doubt, a very useful addition to the decoction of the woods. Mr. Pearson, surgeon of the Lock Hospital in London, employed it during many years, in those cases where pains in the limbs and indurations of the membranes remained, after the venereal disease had been cured by mercury; and he informs us, that he has seldom directed it without manifest advantage. But he positively denies its *antivenereal* virtues; having given it, in as large doses as the stomach could retain, and for as long a time as the strength of the patients, and the nature of their complaints, would permit; but without any effect being produced on the syphilitic symptoms. He says he uniformly observed, that if they who took it had not been previously cured of the disease, it proceeded in its usual course, in defiance of the powers of this medicine. The *decoctum lusitanicum*, it is said, may be given with great advantage in many of those cutaneous diseases which are attended with aridity of the skin; and Mr. Pearson had some opportunities of observing, that when the putamen of the walnut was omitted, the same good effects did not follow the taking of the decoction.

PUTAMINE'Æ (from *putamen*, a shell), in botany, the name of the 25th order in Linnæus's Fragments of a Natural Method. It consists of a few genera of plants allied in habit, whose fleshy seed-vessels or fruit are frequently covered with a hard woody shell.

PUTI CARAJA, in botany, a genus of Indian plants, of which the characters, as given by Sir William Jones in the Asiatic Researches, vol. ii. p. 351, are these: The calyx is five-cleft, the corolla has five equal petals, the pericarpium a thorny legumen and two seeds, the leaves oval and pinnated, and the stem armed. "The seeds (says the learned president) are very bitter, and perhaps tonic; since one of them, bruised and given in two doses, will, as the Hindoos assert, cure an intermittent fever."

PUTREFACTION, one of the natural processes, directly opposite to the *life* of animals and vegetables; by which organised bodies are dissolved, and reduced to what may be called their *original elements.*

Putrefaction differs from chemical solution; because, in the latter, the dissolved bodies are kept in their state of solution by being combined with a certain agent from which they cannot easily be separated; but in putrefaction, the agent which dissolves the body appears not to combine with it in any manner of way, but merely to separate the parts from each other. It differs also from the resolution of bodies by distillation with violent fire; because in distillation new and permanent compounds are formed, but by putrefaction every thing seems to be resolved into substances much more simple and indestructible than those which are the result of any chemical process.

The bodies most liable to putrefaction are those of animals and vegetables, especially when full of juices. Stones, though by the action of air and water they will moulder into dust, yet they undergo nothing like a real putrefaction, as they are not resolved into any new substance: the sand, or small dust, which is thus produced still preserves its lapideous nature. In like manner, vegetables of any kind, when deprived of their juices by drying, may be preserved for many ages without being subjected to any thing like a putrefactive process. The same holds good with respect to animals; the parts of which, by simple drying, may be preserved in a sound state for a much longer time than they could be without the previous exhalation of their juices.

Putrefaction is generally allowed to be a kind of fermentation, or rather to be the last stage of that process; which, beginning with the vinous fermentation, goes on through the acetous, to the stage of putridity, where it stops. It is argued, however, and seemingly not without a great deal of reason, that if putrefaction be a fermentation, it must necessarily be a kind distinct from either the vinous or acetous; since we frequently observe that it takes place where neither the vinous nor the acetous stages have gone before: of consequence, it must be, in some cases at least, entirely independent of and unconnected with them. In several other respects it differs so much from these processes, that it seems in some degree doubtful, whether it can with propriety be called a *fermentation* or not. Both the vinous and acetous fermentations are attended with a considerable degree of heat; but in the putrefaction of animal matters especially, the heat is for the most part so small, that we cannot be certain whether there is any degree of it or not produced by the process. In cases, indeed, where the quantity of corrupting animal matter is very great, some heat may be perceived: and accordingly Dr. Monro tells us, that he was sensible of heat on thrusting his hand into the flesh of a dead and corrupting whale. But the most remarkable difference between the putrefactive fermentation and that of the vinous and acetous kinds is, that the end of both these processes is to produce a new and permanent compound; but that of the putrefactive process is not to produce any new form, but to destroy, and resolve one which already exists into the original principles from which all things seem to proceed. Thus, the vinous fermentation produces ardent spirits; the acetous, vinegar: but putrefaction produces nothing but earth and some azotic effluvia, which, though most disagreeable, and even poisonous to the human body, yet, being imbibed by the earth and vegetable creation, give life to a new race of beings. It is commonly supposed, indeed, that volatile alkali is a production of the putrefactive process: but this seems liable to dispute. The vapour of pure volatile alkali is not hurtful to the human frame, but that of putrefying substances is exceedingly so; and, excepting in the case of urine, the generation of volatile alkali in putrid substances is very equivocal. This substance, which produces more alkali than any other, is much less offensive by its putrid fetor than others; and all animal substances produce a volatile alkali on being exposed to the action of fire, of quick-lime, or of alkaline salts. In these cases the volatile alkali is not supposed to be produced by the quick-lime or the alkali, but only to be extricated from a kind of ammoniacal salt pre-existing in the animal matters: the probability is the same in the other case, viz. that volatile alkali is not produced, but only extricated, from these substances by putrefaction.

The only thing in which the putrefactive fermentation agrees with the other kinds is, that in all the three there is an extrication of carbonic acid gas. To understand the cause of this process, we must take notice of the circumstances in which it goes on most rapidly. These are heat, a little moisture, and confined air. Extreme cold prevents putrefaction, as well as perfect dryness; and a free circulation of air carries off the putrid effluvia; a stagnation of which seems to be necessary for carrying on the process. It seems also to hold pretty generally, that putrefying bodies swell and become specifically lighter; for which reason the carcases of dead animals, after having sunk in water, rise to the top and float. This last phenomenon, as has been observed under the article Blood, shews that these bodies have received a certain quantity of an elastic principle from the air, which thus swells them up to such a size. It may be said indeed, that this increase of size in putrefying bodies is owing only to the extrication of air within themselves: but this amounts to the same thing; for the air which exists internally in the body of any animal, is entirely divested of elasticity while it remains there, and only shews its elastic properties upon being extricated. The elastic principle which combines with the air fixed in the animal substance, therefore, must come from the external atmosphere; and consequently the agent in putrefaction must be the elastic principle of the atmosphere itself, probably the same with elementary fire.

But, granting this to be true, it is difficult to shew why putrefaction should not take place in a living body as well as in a dead one; seeing the one is as much exposed to the action of the air as the other. This difficulty, however, is not peculiar to the present hypothesis; but will equally occur whatever we may suppose the cause of putrefaction to be. The difficulty seems to be a little cleared up by Dr. Priestley, who shews, that, by means of respiration, the body is freed from many noxious effluvia which would undoubtedly destroy it; and by the retention of which, he thinks, a living body would putrefy as soon as a dead one. The way in which respiration prevents the putrefaction of the body, is evidently the same with that in which the wind prevents fish or flesh hung up in it from becoming putrid. The constant inspiration of the air is like a stream of that element continually blown upon the body, and that not only upon its surface, but into it; by which means putrefaction is prevented in those parts that are most liable to become putrid. On the other hand, the elastic principle received from the air by the blood (see Blood), by invigorating the powers of life, quickening the circulation, and increasing the perspiration, enables the system to expel noxious particles from other parts of the body which cannot conveniently be expelled by the lungs.

This leads us to consider the reason why a free exposure to the air prevents the coming on of putrefaction, or why the confining of the putrid effluvia should be so necessary to this process. Here it will be proper to recollect, that putrefaction is a simple resolution of the body into earth, air, &c. of which it seems originally to have been composed. This resolution is evidently performed by an expansive power seemingly situated in every particle of the body. In consequence of this principle, the body first swells, then bursts, flies off in vapour, and its particles fall asunder from each other. The action of the putrefactive process, then, is analogous to that of fire, since these are the very properties of fire, and the very effects which follow the action of fire upon any combustible body. It is therefore exceedingly probable, that the agent in the air, which we have all along considered as the cause of putrefaction, is no other than fire itself: that is, the ethereal fluid expanding itself every-where, as from a centre to a circumference. The force of the fluid, indeed, is much less in putrefaction than in actual ignition; and therefore the effects also take place in a much smaller degree, and require a much longer time: nevertheless, the same circumstances that are necessary for keeping up the action of fire, are also necessary for keeping up the putrefactive process. One of these is a free access of air, yet without too violent a blast; for as fire cannot burn without air, neither can it endure too much of it: thus a candle goes out if put under a receiver, and the air exhausted; and it will do the same if we blow violently upon it. In like manner, putrefaction requires a certain quantity of air, much less indeed than fire: and as it requires less to support it, so it can also endure much less air than fire; for a stream of air which would not put out a fire, will effectually prevent putrefaction. The cause of this in both is the same. Fire cannot burn because the vapour is carried off too fast; and thus the latent heat, which ought to support the flame, is entirely dissipated. In like manner putrefaction is as certainly attended with azotic and carbonic gas as fire is with an emission of flame. These gases contain a great quantity of latent heat, or of the expansive principle already mentioned; and if these be carried off with greater rapidity than the heat of the atmosphere can produce them, the consequence must be, that an opposite principle to that which produces putrefaction, namely, a principle of cold, or condensation, instead of expansion, must take place, and the body cannot putrefy. That this must be the case, is evident from the property which all evaporations have of producing cold; and it is well known that a brisk current of air promotes evaporation to a great degree. Hence also the reason is evident why bodies are preserved uncorrupted by cold; for thus the action of the expansive principle is totally overcome and suspended, so that none of its effects can be perceived.

Thus we may see, that one reason why an animal body does not putrefy while alive, is its ventilation, as we may call it, by respiration; and another is, the continual accession of new particles, less disposed to putrefy than itself, by the food and drink which are constantly taken in. But if either of these ways of preventing the commencement of this process is omitted, then putrefaction will take place as well in a living as in a dead body. Of the truth of this last fact we have innumerable instances. When air is infected with the putrid effluvia of marshes, and thus the natural effluvia are not carried off from the human body, but, on the contrary, some enter into it which are not natural to it, the most putrid diseases are produced. The same thing happens from the putrid effluvia of dead bodies. Of this we have a remarkable instance in the fever which took place in Germany in the war of 1755: one reason of which is said to have been an infection of the air by the vast numbers of people killed in battle, to which was added a calm in the atmosphere for a long time; the putrid effluvia being by this prevented from flying off. When Mr. Holwell with 145 others were imprisoned in the black-hole, at Calcutta, after passing a night in that dismal habitation, he found himself in a high putrid fever. When sailors in long voyages are obliged to feed upon putrid aliments; when, through stormy weather, they are much exposed to wet; in the one case the putrescent effluvia being kept from flying off, and in the other a greater quantity being thrown into the body than what it naturally contains, the scurvy, malignant fevers, &c. make their appearance. Neither can these diseases be removed without removing every one of the causes just now mentioned: for, as putrid diseases will be the consequence of confined air, nastiness, &c. though the provisions be ever so good; so, on the other hand, if the provisions be bad, the best air, and most exact cleanliness, nay, the best medicines in the world, will be of no service; as hath been often observed in the scurvy.

From this account of the nature, cause, and method of preventing putrefaction by means of a current of air, we may easily see the reason why it does not take place in some other cases also. Bodies will not putrefy *in vacuo*, because there the atmosphere has not access to impart its elastic principle; and though in the vacuum itself the principle we speak of does undoubtedly exist, yet its action there is by far too weak to decompose the structure of an animal body. In extreme cold, the reason why putrefaction does not take place has been already shewn. If the heat be extremely great, the process of ignition or burning takes place instead of putrefaction. If the body be very dry, putrefaction cannot take place, because the texture is too firm to be decomposed by the weak action of the elastic principle. Putrefaction may also be prevented by the addition of certain substances; but they are all of them such as either harden the texture of the body, and thus render it proof against the action of the elastic fluid, or, by dissolving its texture entirely, bring it into a state similar to what it would be brought by the utmost power of putrefaction, so that the process cannot then take place. Thus various kinds of salts and acids harden the texture of animal substances, and thus are successfully used as antiseptics. The same thing may be said of ardent spirits; while oils and gums of various kinds prove antiseptic by a total exclusion of air, which is necessary in some degree for carrying on the process of putrefaction. Many vegetables, by the astringent qualities they possess, harden the texture of animal substances, and thus prove powerfully antiseptic; while, on the other hand, fixed alkaline salts, quick-lime, and caustic volatile alkali, though they prevent putrefaction, yet they do it by dissolving the substances in such a manner that putrefaction could do no more though it had exerted its utmost force. There is only one other antiseptic substance whose effects deserve to be considered, and that is sugar. This, though neither acid nor alkaline, is yet one of the most effectual means of preventing putrefaction: and this seems to be owing to its great tendency to run into the vinous fermentation, which is totally inconsistent with that of putrefaction; and this tendency is so great, that it can scarcely be counteracted by the tendency of animal substances to putrefy in any circumstances whatever.

Some kinds of air are remarkably antiseptic, though this subject has not been so fully enquired into as could be wished. The most powerful of them in this respect is the nitrous air; next to it, is carbonic gas; but the powers of the other airs are not so well known. It is probable that the antiseptic properties of fixed and nitrous air, are owing to their quality of extinguishing fire, or at least that the principle is the same; but, till the nature of these properties be better known, we must allow our hypothesis to be questionable.

Sir John Pringle has made experiments to determine the powers of certain substances to promote or to prevent putrefaction. From these experiments he has formed the following table, shewing the relative antiseptic powers of the saline substances mentioned. Having found that two drachms of beef put in a phial with two ounces of water, and placed in a heat equal to 90° of Fahrenheit's thermometer, became putrid in 14 hours, and that 60 grains of sea-salt preserved a similar mixture of beef and water more than 30 hours, he made the antiseptic power of the sea-salt a standard, to which he compared the powers of the other salts. The algebraic character + signifies that the substance to which it is annexed had a greater antiseptic power than is expressed by the numbers;

Sea-salt, the standard	1
Sal gemmæ . . .	1+
Kali vitriolatum .	2
Aq. ammon. acet. .	2
Tartarised kali . .	2
Acetated kali . .	2+
Muriated ammonia	3
Neutral mixture .	3
Nitre	4+
Salt of hartshorn .	4+
Salt of wormwood (prepared kali) . .	4+
Borax	12
Salt of amber . .	20
Alum	30

It is to be observed, that the quantities of aq. ammon. acet. and of the neutral mixture, were such, that each of them contained as much alkali as the other neutral salts.

Myrrh, aloes, asafœtida, and catechu, were found to have an antiseptic power 30 times greater than the standard. Gum ammoniacum and sagapenum shewed little antiseptic power. Of all resinous substances, camphor was found to resist putrefaction most powerfully. Sir John Pringle believes that its antiseptic power is 300 times greater than that of sea-salt. Chamomile flowers, Virginian snake-root, pepper, ginger, saffron, contrayerva-root, and galls, were found to be 12 times more antiseptic than sea-salt. Infusions of large quantities of mint, angelica, ground-ivy, green tea, red roses, common wormwood, mustard, and horse-radish, and also decoctions of poppy-heads, were more antiseptic than sea-salt. Decoctions of wheat, barley, and other farinaceous grains, checked the putrefaction by becoming sour. Chalk, and other absorbent powders, accelerated the putrefaction, and resolved meat into a perfect mucus. The same powders prevented an infusion of farinaceous grains from becoming mucilaginous and sour.

One drachm of sea-salt was found to preserve two drachms of fresh beef in two ounces of water, above 30 hours, uncorrupted, in a heat equal to that of the human body, or above 20 hours longer than meat is preserved in water without salt: but half a drachm of salt did not preserve it more than two hours longer than pure water. Twenty-five grains of salt had little or no antiseptic quality. Twenty grains, 15 grains, but especially 10 grains only of sea-salt, were found to accelerate and heighten the putrefaction of two drachms of flesh. These small quantities of sea-salt did also soften the flesh more than pure water.

The doctor also made experiments to discover the effects of mixing vegetable with animal matters. Two drachms of raw beef, as much bread, and an ounce of water, being beaten to the consistence of pap, and exposed to 90° of heat according to Fahrenheit's thermometer, began to ferment in a few hours, and continued in fermentation during two days. When it began to ferment and swell, the putrefaction had begun; and in a few hours afterwards, the smell was offensive. Next day the putrid smell ceased, and an acid taste and smell succeeded. Fresh alimentary vegetables, as spinach, asparagus, scurvy-grass, produced similar effects as bread on flesh, but in a weaker degree. From several other experiments he found, that animal substances excite the fermentation of vegetable substances, and that the latter substances correct the putrescency of the former.

By adding saliva to a similar mixture of flesh, bread, and water, the fermentation was retarded, moderated, but rendered of twice the usual duration, and the acid produced at last was weaker than when no saliva was used. By adding an oily substance to the common mixture of flesh, bread, and water, a stronger fermentation was produced, which could not be moderated by the quantity of saliva used in the former experiment, till some fixed alkaline salt was added; which salt was found, without saliva, to stop suddenly very high fermentations He did not find that small quantities of the following salts, sal ammoniac, nitre, vitriolated tartar, kali acetat. salt of hartshorn, salt of wormwood, were septic, as small quantities of sea-salt were. Sugar was found to resist putrefaction at first, as other salts do, and also to check the putrefaction after it had begun by its own fermentative quality, like bread and other fermentative vegetables. Lime-water made some small resistance to putrefaction. Port-wine, small-beer, infusions of bitter vegetables, of bark, and the juice of antiscorbutic plants, retarded the fermentation of mixtures of flesh and bread. But an unstrained decoction of bark considerably increased that fermentation. Crabs-eyes accelerated and increased the fermentation of a mixture of flesh and bread. Lime-water neither retarded nor hastened the fermentation of such a mixture: but, when the fermentation ceased, the liquor was neither putrid nor acid, but smelt agreeably.

Flesh pounded in a mortar was found to ferment sooner than that which had not been bruised. The tough inflammatory crust of blood was found to be most putrescent: next to which the crassamentum, or red coagulated mass; and lastly the serum.

Dr. Macbride's experiments confirm many of those above related, especially those which shew that the fermentation of vegetable substances is increased by a mixture of animal or putrescent matter; that the putrescency of the latter is corrected by the fermentative quality of the former; and that the putrefaction and fermentation of mixtures of animal and vegetable substances are accelerated by additions of absorbent earths and cinchona. He also found, that although unburnt calcareous earths were septic, quick-lime and lime-water prevented putrefaction, but that they destroyed or dissolved the texture of the flesh.

The experiments of the author of the *Essai pour servir à l'Histoire de la Putrefaction*, shew that metallic salts, resinous powders, extracts of bark, and opium, are very powerfully antiseptic, and that salts with earthy bases are less antiseptic than any other salts. Charcoal possesses this property in a very high degree; and we have now a powerful means of obviating the dangerous effects of putrid effluvia by means of nitrous fumigation. See FUMIGATION, NITROUS.

PUTREFACTIVE FERMENTATION; the spontaneous decomposition of vegetable substances beyond the production of the acetous acid. In that case, the vinegar gradually becomes viscid and foul; air is emitted with a fetid odour; an earthy sediment is deposited; and when the whole process is finished, scarcely any thing remains but the salts, the charcoal, and the earths which formed the constituent parts of the vegetable. The fluid, if any is left, is water and acetous acid. This decomposition is called putrefactive fermentation: its properties are more striking in animal matter.

PUTRID FEVER; a species of typhus. See TYPHUS GRAVIOR.

PUZZOLA'NA, or PUZZULANA; a kind of earth found about Puteoli, Baiæ, and Cumæ, in the kingdom of Naples. It is thrown out from the burning mouths of volcanoes in the form of ashes; sometimes in such large quantities, and with so great violence, that whole provinces have been covered with it at a considerable distance. Pozzolana is of a grey, brown, or blackish colour; of a loose, granular, or dusty and rough, porous or spongy texture, resembling a clay hardened by fire, and then reduced to a gross powder. It has various heterogeneous substances mixed with it. Its specific gravity is from 2500 to 2800; and it is, in some degree, magnetic: it scarcely effervesces with acids, though partially soluble in them. It easily melts *per se;* but its most distinguishing property is, that it hardens very suddenly when mixed with one-third of its weight of lime and water; and forms a cement which is more durable in water than any other. According to Bergman's analysis, 100 parts of it contain from 55 to 60 of siliceous earth, 20 of argillaceous, 5 or 6 of calcareous, and from 15 to 20 of iron. Its effects, however, in cement may perhaps depend only on the iron which has been reduced into a particular substance by means of subterraneous fires; evident signs of which are observable in the places where it is obtained.

PYLO'RICA ARTE'RIA, the pyloric artery; a branch of the hepatic artery.

PYLO'RUS (*πυλωρος*, from *ϖυλοω*, to *guard an entrance;* because it guards, as it were, the entrance of the bowels); the inferior aperture of the stomach, which opens into the intestines. On the inner surface of the small extremity of the stomach, at the place where it ends in the intestinal canal, we observe a broad, thin, circular border, with a roundish hole in the middle, which is the *pylorus*. This border is a fold or duplicature of the two inner coats of the stomach, the nervosa and villosa; and it is formed in part by a fasciculus of fleshy fibres fixed in the duplicature of the tunica nervosa, and distinguished not only from the other fleshy fibres of the extremity of the stomach, but also from those of the intestines, by a thin, whitish circle, which appears even through the external or common coat, round the union of the stomach and intestines. The figure of the pylorus is that of a ring transversely flatted; the inner edge of which, or that next the centre, is turned obliquely toward the intestines. This inner edge runs naturally more or less into little plaits or gathers, like the mouth of a purse almost shut; all which particulars are very different from what figures and dried preparations would make us believe. It is therefore a kind of sphincter, which can contract the inferior orifice of the stomach, but seems not capable of shutting it quite close.

PYRAMIDA'LIS (from *πυραμις, a pyramid),* so called by Fallopius, who is considered as the first accurate describer of this muscle; on account of its shape. Vesalius seems, however, to have been acquainted with it, and to have described it as a part of the rectus. It is a very small muscle, situated at the bottom of the fore part of the rectus, and is covered by the same aponeurosis that forms the anterior part of the sheath of that muscle. It arises, by short tendinous fibres, from the upper and fore part of the pubis. From this origin, which is seldom more than an inch in breadth, its fibres ascend somewhat obliquely, to be inserted into the linea alba, and inner edge of the rectus, commonly at about the distance of two inches from the pubis, and frequently at a greater or less distance, but always below the umbilicus. Now and then, the pyramidalis is wanting on one or both sides, and when this happens, the internal oblique muscle is usually found to be thicker at its lower part. Sometimes, though rarely, there are two at one side, and only one at the other, and Sabbatier has even seen two on each side. Fallopius, and many others after him, have considered it as the congener of the internal oblique; but its use rather seems to be to assist the lower part of the rectus.

PYRAMIDA'LIS FACIE'I. See LEVATOR LABII SUPERIORIS ALÆQUE NASI.

PYRE'THRUM (*πυρεθρον*, from *ϖυρ, fire,* because of the hot taste of its root), called also *Dentaria, Herba salivaris,* and *Pes Alexandrinus;* pellitory of Spain: *Anthemis pyrethrum* Linn. *Anthemis caulibus simplicibus unifloris decumbentibus, foliis pinnato-multifidis.* Class, *Syngenesia.* Order, *Polygamia superflua.* The ancient Romans, it is said, employed the root of this plant as a pickle. In its recent state it is not so pungent as when dried, and yet, if applied to the skin, it produces inflammation. Its qualities are stimulant; but it is never used, except as a masticatory, for relieving tooth-achs, rheumatic affections of the face, and paralysis of the tongue, in which it affords relief by stimulating the excretory ducts of the salivary glands.

PYRE'THRUM SYLVE'STRE. See PTARMICA.

PYRETOLO'GIA (*πυρετολογια*; from *πυρ, fire,* or *heat,* and *λογος,* a *discourse),* pyretology; a discourse or theoretical doctrine of fevers.

PYRE'XIA (of the Gr. *πυρεξια,* from *πυρ, fire);* fever. See FEBRIS.

PYRE'XIÆ, febrile diseases; the first class of Dr. Cullen's nosology. These are characterised by frequency of pulse after a cold shivering; with increase of heat, and especially, among other impaired functions, a diminution of strength. See NOSOLOGY.

PYRIFO'RMIS (from *pyrus,* a pear, and *forma,* a shape, shaped like a pear); the *Pyriformis,* seu *Iliacus externus,* of Douglas. Spigelius first gave it the name of *pyriformis,* from its supposed resemblance to a pear. It is a small radiated muscle, situated under the glutæus maximus, along the inferior edge of the glutæus minimus. It arises by three, and sometimes four, tendinous and fleshy origins, from the anterior surface of the second, third, and fourth pieces of the os sacrum, so that this part of it is within the pelvis. From these origins the muscle grows narrower, and passing out of the pelvis, below the niche in the posterior part of the ilium, from which it receives a few fleshy fibres, is inserted, by a roundish tendon of an inch in length, into the upper part of the cavity at the root of the trochanter major. This muscle assists in moving the thigh outwards, and a little upwards.

PYRI'TES (*πυριτες,* from *πυρ, fire;* so called because it strikes fire with steel); a genus of inflammable substances, composed of sulphur which has dissolved or saturated itself with metals. Thus there are many kinds of pyrites; as of gold, arsenic, iron, &c. It is also the principal ore of sulphur; particularly that called *martial pyrites, copperas-stone,* or *marcasite.* This is a very common species, containing a large quantity of sulphur in proportion to the iron; and, when thoroughly inflamed, burning by itself. It is either of a compact texture, steel-grained, coarse-grained, or crystallised. In this last form, it shoots mostly into cube and octohedral figures, though it is met with also in innumerable other forms. The liver-coloured marcasite has an appearance between that of the preceding and the blue copper-ore. The iron predominates in this kind, so that it is less fit than the other for extracting sulphur from it, or for the smelting of copper-ores. It is possessed of no medicinal properties but what belong to its component parts.

PYRI'TES ARSENICA'LES. See ARSENIC.

PYRMONT-WATER, a celebrated mineral spring, discovered at Pyrmont, a village in the circle of Westphalia. It is of an agreeable, though strongly acidulated, taste, and emits a large portion of *gas;* which affects the persons who attend at the well, as well as those who drink the fluid, with a sensation somewhat resembling that produced by intoxication. A general view of the analysis of this water will shew, that it stands the first in rank of the highly carbonated chalybeates, and contains such an abundance of carbonic acid, as not only to hold dissolved a number of carbonic salts, but to shew all the properties of this acid uncombined, and in its most active form. Pyrmont-water is likewise a strong chalybeate, with regard to the proportion of iron; and it is, besides a very hard water, containing much selenite and earthy carbonats. The diseases to which this mineral-water may be advantageously applied, are the same as those for which the Spa and others of the acidulated chalybeates are resorted to, that is, in all cases of debility that require an active tonic that is not permanently heating; various disorders in the alimentary canal, especially bilious vomiting and diarrhœa, and complaints that originate from obstructed menstruation. Bergman says the Swedish kanneful, containing

42,351 grains of this water, is sometimes impregnated with ninety cubic inches of carbonic acid, though in general the quantity is smaller; which is in the proportion of $130\frac{1}{2}$ cubic inches from the English gallon of 61,440 grains. The solid contents, on his analysis, were, from the English gallon, of aërated iron, $4\frac{2}{4}$ grains; of aërated lime, $29\frac{1}{62}$; of vitriolated lime-selenite, $55\frac{1}{2}$; of aërated magnesia, $65\frac{1}{21}$; of vitriolated magnesia $36\frac{1}{31}$; of common salt, $10\frac{1}{6}$. At *Pyrmont*, the company generally drink this water by glassfuls, in a morning, to the quantity of two, three, or more, English pints. Its common operation is by urine, but if taken copiously it generally proves laxative; and when it has not this effect, and that effect is wanted, they commonly mix with the first glass drunk in the morning, from one to five or six drachms of some purging salt.

PY'ROLA (from *pyrus*, a pear; so named because its leaves resemble those of the pear-tree), the round-leaved winter-green: *Pyrola rotundifolia* Linn. It is now forgotten in the practice of medicine. It possesses, however, gently astringent qualities, and has a bitterish taste.

PY'ROLA ROTUNDIFO'LIA; the systematic name of the winter-green. See PYROLA.

PYRO-LIGNEOUS ACID; an acid liquor of a brown colour, of a pretty strong and peculiar smell, obtained by distillation from wood, especially the beech, birch, and box. It has been long known that the hardest woods afford an acid principle, mixed with an oil, which partly disguises its properties; but no one had directly attended to a determination of the habitudes of this acid, until Mr. Goettling published his researches on the acid of wood, and the ether it affords. In order to obtain this acid, Mr. de Morveau distilled small pieces of very dry beech in an iron retort, by a reverberatory furnace. He changed the receiver when the oil began to rise, and rectified the product by a second distillation. Fifty-five ounces of very dry chips afforded seventeen ounces of rectified acid, of an amber colour, not at all empyreumatic; whose specific gravity, compared with that of distilled water, was as 49 : 48. This acid strongly reddens blue vegetable colours, and one ounce of it required twenty-three ounces and a half of lime-water for its complete saturation. It supports the action of heat very well when it is engaged in an alkaline base; but by a strong heat it is burned, like all the vegetable acids. It does not precipitate martial solutions of a black colour, but it unites with alkalis, earths, and metals; and does not give up lime or barytes to combine with caustic alkalis. The action of the pyro-ligneous acid from metallic substances, and upon alumine, may be compared with that of the acetous acid, and appears to follow the same order. This acid dissolves near twice its weight of the oxid of lead.

PYRO-LIGNITES, in the new chemistry, salts formed by the union of the pyro-lignic acid with different bases.

PYRO-MUCITES; salts formed by the union of the pyro-mucic acid with different bases.

PYRO-MUCOUS ACID, or *syrupous acid;* an acid liquor obtained by distillation from insipid, saccharine, gummy, or farinaceous mucilages. This acid is afforded, in distillation, by all plants which contain saccharine juices. In preparing this acid, a quantity of sugar is put into a very capacious retort on account of the matter swelling up very much; and a receiver, sufficiently ample to condense the vapour, is to be adapted. A large quantity of carbonic acid and hydrogen gas is disengaged by the first impression of the fire; and a brown fluid remains in the receiver, most of which consists of a weak acid, which colours blue paper, and is rendered dark by a portion of oil. The retort contains a spongy coal. Mr. Schrickel recommends the rectification of the product of the first distillation from clay, in order to purify the acid: but Mr. de Morveau has redistilled it without intermedium; and the acid he obtained had only a slight yellow tinge. This acid rises at the same temperature as water: it is therefore not possible to concentrate it by distillation. But this purpose may be effected by freezing; and it was in this manner that Mr. Schrickel prepared the acid he made use of to ascertain its combinations. This concentrated acid has a very penetrating taste. It strongly reddens blue colours. If it be exposed to heat in open vessels, it is dissipated, and leaves only a brown spot; but if it be heated in closed vessels, it leaves a more considerable residue, of the nature of the coal of sugar.

This acid speedily attacks the earthy and alkaline carbonates, and forms salts differing from the oxalates. According to the experiments of Mr. Schrickel, it dissolves gold, but silver is not attacked by it; mercury, however, combines with it by means of a long digestion, as has been observed by Mr. de Morveau. This acid corrodes lead, and forms a very styptic salt in long crystals; and with copper it forms a green solution. It also partly dissolves tin, and affords green crystals with iron. The celebrated Gren is of opinion, that it is a mixture of acetic with oxalic acids, and does not deserve to be received in the system of chemistry as a peculiar acid.

PYRO-TARTRITES; salts formed by the combination of the pyro-tartrous acid with different bases.

PYRO-TARTROUS ACID. See TARTAR, SPIRIT OF.

PYRO'METER (from *πυρ, fire*, and *μετρον, measure*); an instrument calculated to measure those higher degrees of heat to which the thermometer cannot be applied. The most celebrated invention of this kind, and which has been adopted into general use, is that invented by the late Mr. Wedgwood. It consists of two pieces of brass fixed on a plate so as to be $\frac{6}{10}$ of an inch asunder at one end, and $\frac{3}{10}$ at the other; a scale is marked upon them which is divided into 240 equal parts, each $\frac{1}{10}$ of an inch; and with this his gauge, are furnished a sufficient number of pieces of baked clay, which must have been prepared in a red heat, and must be of given dimensions. These pieces of clay, thus prepared, are first to be applied cold, to the rule of the gauge, that there may no mistake take place in regard to their dimensions. Then any one of them is to be exposed to the heat which is to be measured, till it shall have been completely penetrated by it. It is then removed and applied to the gauge. The difference between its former and its present dimensions, will shew how much it has shrunk; and will consequently indicate, to what degree the intensity of the heat to which it was exposed, amounted. High temperatures can thus be ascertained with accuracy. Each degree of Wedgwood's pyrometer is equal to 130° of Fahrenheit's.

PYROPHORUS (formed of πυρ, *fire*, and φερω, to *bear)*, the name usually given to that substance called by some *black phosphorus;* a chemical preparation, possessing the singular property of kindling spontaneously when exposed to the air. This substance was accidentally discovered by M. Homberg, who prepared it of alum and human fæces; but since his time, the process has been very much simplified. In order to prepare pyrophorus, equal parts of powdered alum and brown sugar are to be melted over the fire, and kept stirring, till reduced to dryness. The mixture is then to be finely powdered, and introduced into a common phial, coated with clay, to which a glass tube, open at each end, is luted, to allow the escape of the gases that are produced. The phial must then be set in the fire, surrounded by sand, in a crucible. Gas will issue from the open end of the tube, and may be inflamed by a lighted paper. When this ceases to escape, the crucible may be removed from the fire; and a little moist clay pressed down upon the open end of the tube, to prevent the access of air to the contents of the phial. The pyrophorus thus formed is a black and very light powder, which instantly takes fire, when poured out of the bottle into the air; and inflames vividly in oxigen gas.

The accension of pyrophorus is thus accounted for by Gren. Part of the charcoal decomposes, in a red heat, part of the sulphuric acid of the sulphate of alumine, and becomes converted into carbonic acid gas, which escapes; the sulphuric acid is thus partly converted into sulphur, which sublimes and burns. During these changes, the potash, which is present in the alum of commerce, unites to part of the sulphur, and forms with it a sulphuret of potash; and there remains the superfluous part of the coal that had been blended with the sulphate of alumine. The constituent parts of the pyrophorus are consequently exceedingly dry potash, sulphur, charcoal, and alumine. On exposure to air, the first rapidly attracts its moisture, and is heated with it. This heat is sufficient to inflame the sulphur, because sulphur is already, by its own nature, when combined with alkaline substances, by far more disposed to decompose oxigen gas. Lastly, this ignition of the sulphur in the pyrophorus is communicated to the coaly particles, that, at the beginning of its preparation, were mingled with the sulphate of alumine.

PYRO'SIS (from ϖυροω, to *burn)*, a disease called, in Scotland, the *Water-brash;* in England, *Black-water*. Dr. Cullen places it as a genus of disease in the class *Neuroses*, and order *Spasmi*, which he defines, a burning pain of the epigastrium, with a quantity of aqueous humour, for the most part insipid, sometimes acrid, discharged by the mouth. This disorder is named *pyrosis Suecica* by Sauvages, but Linnæus calls it *cardialgia sputatoria*, whence probably the error of some who have confounded it with cardialgia. Dr. Cullen considers the pyrosis as an idiopathic disease, and seems to be the first who has treated of it in a system. He observes, that it is a disease frequent among people in lower life, but that it occurs also, though more rarely, in people of better condition. It appears, he says, most frequently in persons under middle age, but seldom in any persons before the age of puberty. When it has once taken place, it is ready to recur occasionally for a long time after, but it seldom appears in persons considerably advanced in life. It affects both sexes, but more frequently the female; it sometimes attacks pregnant women, and some women *only* when they are in that condition. Of other women, it more frequently affects the unmarried; and of the married, most frequently the barren: it frequently happens to women labouring under the fluor albus. The fits of this disease usually come on in the morning, and forenoon, when the stomach is empty. The first symptom of it is a pain at the pit of the stomach, with a sense of constriction, and as if the stomach was drawn towards the back; the pain is increased by raising the body into an erect posture, and therefore the body is bended forward. This pain is often very severe; and after continuing for some time, it brings on an eructation of a thin watery fluid in considerable quantity: this fluid has sometimes an acid taste, but very often is without this, and absolutely insipid. The eructation is for some time frequently repeated, and does not immediately give relief to the pain which preceded it, but does so at length, and puts an end to the fit. The fits come on without any evident exciting cause: they attack persons using animal food, but more frequently those who live on milk and farinacea. Cold applied to the lower extremities seems often to be an exciting cause, and so is every considerable emotion of the mind.

The doctor goes on to observe, that the nature of this affection is not very obvious, but he thinks it may be explained as follows: it seems to begin by a spasm of the muscular fibres of the stomach, which is afterwards, in a certain manner, communicated to the blood-vessels and exhalants, so as to increase the impetus of the fluids in the vessels, while a constriction takes place on their extremities. The increased impetus pours out a larger quantity of fluid than usual, while the constriction upon their extremities allows only the pure watery parts to be poured out: analogous, as Dr. Cullen conceives in every respect, to what happens in the diabetes hystericus. As to the cure, Dr. Cullen says, little can be done; but opium relieves the paroxysm, and the vitriolic æther, volatile alkali, &c. are sometimes of service. Linnæus speaks of the *nux vomica* as being of service in this complaint; and Dr. Temple speaks positively of its having radically cured the disease. He prescribes from ten grains to a scruple, three times a-day. No effect, he says, has been produced by tonics and astringents in preventing its recurrence.

PY'RUS CYDO'NIA; the systematic name of the quince-tree. See Cydonium malum.

PY'RUS MA'LUS; the systematic name of the apple-tree. See Apples.

PY'XIS (of the Gr. πυξις), properly a *box;* but, from its resemblance, the cavity of the hip-bone, or acetabulum, has been sometimes called *Os Pyxidis*.

Q.

Q. P. in prescription, an abreviation of *quantum placet*, as much as you please.

Q. S. The contractions for *quantum sufficit*.

Q. V. An abbreviation of *quantum vis*, as much as you will.

QUACK, a medical impostor, who "*for the good of the public*," and "*by the blessing of God*," undertakes with his powders, potions, or balsam, to cure "*all disorders*." Thus ignorance and blasphemy unite in picking the pockets and ruining the constitution of thousands of credulous people in this and other countries. The pretension to infallibility in any one medicine, as a cure for any one disorder, is next to absurd; much more ridiculous is it then to suppose, that any medicine will remove *all kinds* of complaints. Every medicine possesses active properties, or it does not. If it be active, it must be dangerous to apply it, indiscriminately, to persons of every age, and without regard to their habits of living. An active medicine which might be very useful in strengthening a debilitated constitution, would be highly injurious if exhibited in an acute rheumatism, or other inflammatory disorder, and *vice versa*; consequently, an application of the same remedy in all cases can hardly fail of being *fatal* in some. Should the medicine be inactive, which happily is often the case, it can be of no other utility than to work upon the patient's imagination, and amuse him while his pocket is picked. No bad illustration of this, occurs in the case of "*Dr. Lehndart's liquor*," which lately has made a very great noise on the continent. Several letters, addressed to the doctor and to the public, were published in the German newspapers, full of gratitude towards the inventor for his excellent remedy, and of praise of the liquor, as a most important discovery for the community. By the help of this liquor, *women were said to be safely delivered, without the application of any instrument, to which they had in former labours been obliged to have recourse*; and, according to the reports, which were loudly spread, of the remedy, Juno Lucina ought to be in future represented with a bottle of this wonderful liquor in her hand. It is sold in square bottles sealed, with a ticket, on which is printed in German, "Dr. Lehnhardt's new-invented salubrious liquor for pregnant women." The results of an analysis undertaken by Prof. Manthey of Copenhagen, were, that it consists of a solution of Epsom and Glauber's salt, a little muriate of magnesia, which frequently is present in the Epsom salt, and some colouring ingredient which was extracted by alcohol. What efficacy is to be expected from this famous liquor, after the knowledge of its constituent parts, may be easily judged.

It is to be lamented, that whilst the credulous are robbed of their money and health by mercenary and rapacious impostors, not a few are led into error and danger by the nostrums of those who are actuated by the purest motives in recommending them to the public, through the channel of various periodical publications. Thus we read of a table-spoonful of vinegar to be given *nine* nights successively, to prevent mischief from the bite of a mad dog; and many similar instances, in which delusive expectations are raised in situations the most difficult and dangerous. Nor is the injury done to society inconsiderable by the practice of *domestic quackery*, in which improper or insufficient remedies are employed in cases where the patient's life depends on a judicious application of medicine on the earliest appearance of the disease. But it is in the weakness of human nature, that quacks and quackery have found, and ever will find, their encouragement; nor, till the stock of good sense in the nation is augmented, by a better education of *all the classes* that compose it, can we expect to see these triumphant nostrum-mongers put down.

QUACKERY; the practice of giving medicines at random, and without any previous knowledge of the state of the patient or of his disease. See QUACK.

QUADRA'TUS FEMORIS (*quadratus*, from *quadra*, a square; so called from its supposed shape); a muscle of the thigh, situated on the outside of the pelvis. It is flat, thin, and fleshy, but not of the shape its name would seem to indicate. It is situated immediately below the gemini. It arises tendinous and fleshy from the external surface and lower edge of the tuberosity of the ischium, and is inserted, by short tendinous fibres, into a ridge which is seen extending from the basis of the trochanter major to that of the trochanter minor. Its use is to bring the thigh outwards.

QUADRA'TUS GE'NÆ. See PLATISMA MYOIDES.

QUADRA'TUS LA'BII INFERIO'RIS. See DEPRESSOR LABII INFERIORIS.

QUADRA'TUS LUMBO'RUM, the *Quadratus*, seu, *Lumbaris externus*, of Winslow; a muscle seated within the cavity of the abdomen. It is small, flat, and oblong; and has gotten the name of *quadratus* from its shape, which is that of an irregular square. It is situated laterally, at the lower part of the spine; arising tendinous and fleshy, from about two inches from the posterior part of the spine of the ilium. From this broad origin it ascends obliquely inwards, and is inserted into the transverse processes of the four superior lumbar vertebræ, into the lower edge of the last rib, and, by a small tendon, that passes up under the diaphragm, into the side of the last vertebra of the back. When this muscle acts singly, it draws the loins to one side; when both muscles act, they serve to support the spine, and perhaps to bend it forwards. In laborious respiration, the quadratus lumborum probably assists in pulling down the ribs.

QUADRA'TUS MAXI'LLÆ INFERIO'RIS. See Platysma myoides.

QUADRA'TUS RA'DII. See Pronator radii quadratus.

QUARANTINE; a trial which ships undergo when suspected of having on board persons infected with a pestilential disease. Physicians are occasionally consulted on this subject by government; who regulate this unpleasant restriction on the commerce of the country by their judgment, as to the period of time within which the effects of any infection received by any individual on board, would be shewn. The usual quarantine is forty days. This may be ordered by the king, with advice of the privy-council, at such times, and under such regulations, as he judges proper. Ships ordered on quarantine must repair to the place appointed, and must continue there during the time prescribed, without having any intercourse with the shore, except for necessary provisions, which are conveyed with every possible precaution. When the time is expired, and the goods opened and exposed to the air as directed, if there be no appearance of infection they are admitted to port. Ships infected with the pestilence must proceed to St. Helen's pool in the Scilly islands, and give notice of their situation to the custom-house officers, and wait till the king's pleasure be known. Persons giving false information to avoid performing quarantine, or refusing to go to the place appointed, or escaping; also officers appointed to see quarantine performed, deserting their office, neglecting their duty, or giving a false certificate; suffer death as felons. Goods from Turkey, or the Levant, may not be landed without license from the king, or certificate that they have been landed and aired at some foreign port. See Pestis.

QUARTA'NA, the quartan fever. Of this species, as well as the other kinds of ague, there are several varieties noticed by authors. The most frequent of these are: 1. The double quartan, with two paroxysms or fits on the first day, none on the second and third, and two again on the fourth day. 2. The double quartan, with a paroxsm on the first day, another on the second, but none on the third. 3. The triple quartan, with three paroxysms every fourth day. 4. The triple quartan, with a slight paroxysm every day, every fourth paroxysm being similar. Besides these, authors have distinguished the *remitting* quartan, and the quartan complicated with other diseases, and with the symptoms of other diseases. But these divisions are rejected by Dr. Cullen, as of no practical utility.

The genuine quartan, according to Juncker, keeps its form more exactly than other intermittents; scarcely coming on at any other time than four or five in the afternoon. The cold is less violent than in the tertian; but is very perceptible, though it does not proceed to such a height as to make the limbs shake; and continues for about two hours. It is preceded and accompanied by a languor both of body and mind. There is seldom any vomiting unless when the stomach is manifestly overloaded with aliment; neither is there any diarrhœa, but the belly in general is rather bound, not only on the days on which the paroxysm takes place, but also on the intermediate ones. The heat, which slowly succeeds the cold, is less troublesome to the patient by its violence than by the uneasy dryness of the skin, which is scarcely ever moistened with sweat. This heat rarely continues longer than four or six hours, unless perhaps at the first or second paroxysm. It is accompanied also with a giddiness and dull pain of the head. On the termination of the paroxysm, the patient returns to a middling state of health, and continues in the same for the rest of the intermediate days; only there remains somewhat of a loathing, and a deep-seated pain as if the body was all over bruised or broken, which kind of sensation the old physicians called *osteocopus*. The fit always returns every fourth day, and that precisely at the same hours, being rarely postponed.

The same general causes concur in producing this as in other intermittents, namely marsh miasmata, and whatever can dispose the body to be easily affected by them. Studious people, and those of a melancholy turn, are said to be particularly subject to quartans; but what are the immediate causes which produce a return of the fits every fourth day, instead of every day, or every third day, must probably lie for ever concealed, as depending upon the secret and inexplicable mechanism of the human body. A simple quartan, where there is no reason to dread any induration of the viscera, may very certainly admit of a cure; and the prognosis can never be unfavourable, unless in cases of extreme weakness, or where the disease has been unskilfully treated. The treatment does not in the least differ from that which has been laid down for the simple tertian. See Tertian.

QUARTATION, so called on account of the proportion of materials employed in the process; the same as parting. See Parting.

QUARTZ, a genus of siliceous earths very common in Europe. According to Kirwan, the quartz are in general the purest of the siliceous kind, though most of them contain a slight mixture of other earths: the most obvious distinction among them arises from their opacity or transparency. Cronstedt gives the following characteristics of it: 1. It is generally cracked throughout, even in the rock itself, whereby, as well as by its own nature, it breaks into irregular and sharp fragments. 2. It cannot be easily made red hot, without cracking still more. 3. It never decays in the air. 4. Melted with fixed alkali in a due proportion, it gives a more solid and fixed glass than any of the other siliceous stones. 5. When there has been no interruption in its natural accretion, it always crystallises into hexagonal prisms pointed at both ends. 6. It is met with in clefts, fissures, and small veins, in rocks; it seldom forms large veins, and still more rarely whole mountains, without a mixture of heterogeneous substances. It is found,

1. *Pure*, consisting of several varieties. 2. *Crystallised quartz*, or *rock crystal*. 3. *Impure quartz;* of

which there are two kinds. One is mixed with iron, in form of a black calx; the other with copper, and of a red colour, both found in Sweden.

QUA'SSIA (so named from a slave of the name of *Quassi*, who, it is said, first used it secretly as a remedy in the malignant endemic fever at Surinam), bitter quassia; the *Quassia amara* of Linnæus. *Quassia floribus hermaphroditis, foliis impari-pinnatis, foliolis oppositis sessilibus, petiolo articulato alato, floribus racemosis.* Suppl. Plant. Class, *Decandria.* Order, *Monogynia.* The root, bark, and wood, of this tree, are all comprehended in the catalogues of the materia medica. The tree is a native of South America, particularly of Surinam, and also of Jamaica and some other of the West-India islands. The botanical character of this species of quassia was known long before that of the simarouba, as it is noticed in its proper place in the Spec. Plantarum, upon the authority of Dahlberg, when it was thought peculiar to Surinam. Afterwards, Linnæus, in his Materia Medica, referred it to the *Nux Americana, foliis alatis bifidis* of Commelin.

The roots are perfectly ligneous; they may be medically considered in the same light as the wood, which is now most generally employed, and seems to differ from the bark in being less intensely bitter; the latter is therefore thought to be a more powerful medicine. Quassia has no sensible odour; its taste is that of a pure bitter, more intense and durable than that of almost any other known substance; it imparts its virtues more completely to watery than to spirituous menstrua, and its infusions are not blackened by the addition of vitriolated iron. The watery extract is from a sixth to a ninth of the weight of the wood, the spirituous about a twenty-fourth. Various experiments with quassia have been made, with a view to ascertain its antiseptic powers. From them it appears to have considerable influence in retarding the tendency to putrefaction; and this, Professor Murray thinks, cannot be attributed to its sensible qualities, as it possesses no astringency whatever; nor can it depend upon its bitterness, as gentian is much bitterer, yet less antiseptic. The medicinal virtues ascribed to quassia are those of a tonic, stomachic, antiseptic, and febrifuge. It has been found very effectual in restoring digestion, expelling flatulencies, and removing habitual costiveness, produced from debility of the intestines, and common to a sedentary life. Dr. Cullen, in his Lectures on the Materia Medica, speaking of quassia, says, "We can find nothing in this wood but a pure and simple bitter. In several specimens I have found the bitterness to be pretty strong; but for the most part it is, to my taste, not more bitter than the columba, nor even than good gentian. We are obliged to Professor Murray for his compilation on the subject of quassia; but after all that has been said by him and Mr. Ebeling, we find hardly any virtues ascribed to quassia which have not been to other bitters. Upon the whole, I believe quassia to be an excellent bitter, and that it will do all that any pure and simple bitter can do: but our experience of it in this country does not lead us to think it will do more; and the extraordinary commendations given of it are to be ascribed to the partiality so often shewn to new medicines, and especially by those who first introduce them, and by those who have a connection with the country from whence they are brought."

Quassia may be given in infusion, or in pills made from the watery extract; the former is generally preferred, in the proportion of three or four drachms of the wood to twelve ounces of water.

QUA'SSIA SIMAROU'BA; the systematic name of the simarouba. See Simarouba.

QUA'SSY. See Quassia.

QUEEN OF THE MEADOW. See Ulmaria.

QUE'RCULA (dim. of *quercus*, the oak; so called because it has leaves like the oak); an antiquated name of the germander. See Chamædrys.

QUE'RCUS (from *quero*, to enquire; because divinations were formerly given from oaks by the Druids), the oak; *Quercus robur* of Linnæus. *Quercus foliis oblongis glabris sinuatis, lobis rotundatis, glandibus oblongis.* Class, *Monœcia.* Order, *Polyandria.* This valuable tree is indigenous to Britain. Its astringent effects were sufficiently known to the ancients, but it is the bark which is directed for medicinal use by the pharmacopœias. Oak bark manifests to the taste a strong astringency, accompanied with a moderate bitterness. Like other astringents, it has been recommended in agues, and for restraining hæmorrhages, alvine fluxes, and other immoderate evacuations, but it is very difficult to reduce it to a sufficiently fine powder. A decoction of it has likewise been advantageously employed as a gargle, and as a fomentation or lotion in *procidentia recti et uteri.* In general, however, the bark of the cinchona is preferred in all cases where these remedies are indicated. Galls are found upon the leaves of the oak. These are occasioned by a small insect with four wings, called *Cynips querci folii*, which deposits an egg in the substance of the leaf, by making a small perforation through the under surface. See Gallæ.

QUE'RCUS CE'RRIS; the systematic name of the tree which affords the Turkey galls. See Quercus.

QUE'RCUS E'SCULUS; the systematic name of the Italian oak, whose acorns are said, in times of scarcity, to afford a meal of which bread is made.

QUE'RCUS MARI'NA; sea-oak, or sea-wrack; the *Fucus vesiculosus* Linn. See Fucus.

QUE'RCUS PHE'LLOS; the systematic name of the willow-leaved oak, whose acorns are much sweeter than chesnuts, and much eaten by the Indians. They afford, by expression, an oil little inferior to oil of almonds, and capable of being applied to the same uses.

QUE'RCUS RO'BUR; the systematic name of the oak-tree. See Quercus.

QUICK-GRASS; a name sometimes given to the *Triticum repens* of Linnæus. See Gramen caninum.

QUICK-LIME. See Lime.

QUICKSILVER. See Hydrargyrus.

QUINCE. See Cydonium malum.

QUINCE, BENGAL. See Bengal quince.

QUINCY, or Quinsey; the *Cynanche tonsillaris* of Cullen. See Cynanche.

QUINQUEFO'LIUM (from *quinque*, five, and *folium*, a leaf; so called because it has five leaves on each footstalk), the common cinque-foil, or five-leaved grass. See Pentaphyllum.

QUINQUI'NA; a name for the Peruvian bark. See Cinchona.

QUINSEY, a species of cynanche. See Cynanche.

QUOTIDIA'NA (from *quotidie*, daily), or Quotidiana continua; a fever that intermits, but returns every day. Dr. Cullen places this disease in the class *Pyrexiæ*, and order *Febres;* and defines it a *quotidian fever*, wherein similar paroxysms occur in the space of twenty-four hours; the paroxysms attacking in the morning. It usually comes on as early as six or seven o'clock in the morning, beginning with a considerable degree of cold and shivering, which lasts for about an hour; and is often accompanied with vomiting, or spontaneous diarrhœa, or both. It is succeeded by a pretty strong heat, accompanied with thirst, restlessness, and pain of the head. When the heat abates a little, a spontaneous sweat commonly follows, and the whole paroxysm rarely exceeds six hours. It returns, however, every day, almost always at the same hour, unless it be evidently disturbed. The same general causes are to be assigned for the quotidian as for other intermittents. This kind occurs but rarely, and is said to attack people of a phlegmatic temperament rather than any other; also old people rather than young, and women rather than men. The prognosis and method of cure are not different from those of the tertian and quartan fevers.

A variety of this fever is the *Partial Quotidian*, so called because it attacks only some particular part of the body, as the head, the eye, arm, &c. producing periodical affections of those parts returning once in twenty-four hours. These symptoms, however, are to be cured by the bark, like those of other intermittents. They are known to belong to this class, by the evident intermission of the pain or other affection of the part. The *quotidiana hysterica*, *quotidiana catarrhalis*, and *quotidiana stranguriosa*, of *Sauvages*, seem rather to be symptomatic disorders.

Dr. Cullen describes another species of quotidian, called the *remitting*. Nothing however is necessary to be said of it in this place, as it requires only the treatment usual in other remitting fevers. Many of the varieties of these fevers mentioned by authors are merely symptomatic.

R.

R. This letter is placed at the beginning of a prescription as a contraction of *recipe*, take: thus, ℞ *Magnesiæ* ʒj, signifies, Take one drachm of magnesia.

RA'BIES CANI'NA. See Hydrophobia.

RACHIA'LGIA (from ραχις, the *spine*, and αλφυ, *pain);* a pain in the spine. This term was formerly applied to several species of colic which induced pain in the back.

RACHI'TIS (ραχιτις; from ραχις, the *spine of the back;* so called because it was supposed to originate in a fault of the spinal marrow), the rickets; a species of disease in the class *Cachexiæ*, and order *Intumescentiæ*, of Cullen, known by a large head, prominent forehead, protruded sternum, flattened ribs, big belly, and emaciated limbs, with great debility. This is one of the diseases peculiar to infancy. It seldom attacks children till they are nine months, nor after they are two years, old; but it frequently happens in the intermediate space between these two periods. The disease shews itself by a flaccid tumor of the head and face, a loose flabby skin, a swelling of the abdomen, and falling away of the other parts, especially of the muscles. There are protuberances of the epiphyses of the joints; the jugular veins swell, while the rest decrease, and the legs grow crooked. If the child has begun to walk before he be seized with this disease, there is a slowness, debility, and tottering in his motion, which soon brings on a constant desire of sitting, and afterwards of lying down; insomuch that nothing at last is moveable but the neck and head. As the child grows older the head is greatly enlarged, with ample sutures; the thorax is compressed on the sides, and the sternum rises up sharp, while the extremities of the ribs are knotty. The abdomen is protuberant, and the teeth black and carious. In such patients as have died of this disease, all the solids appeared soft and flaccid, and the fluids dissolved and mucous.

The rickets are said to proceed from a scrofulous or scorbutic taint in the parents, and may, perhaps, be increased by that of the nurse. It is likewise promoted by feeding the child with aqueous and mucous substances, crude summer-fruits, fish, unfermented farinaceous aliment, and too great a quantity of sweet things. Sometimes it follows intermittent fevers and chronic disorders; and, in short, is caused by any thing which tends to debilitate the body, and induce a viscid and unhealthy state of the juices.

Dr. Bobba, an Italian physician, presented to the Medical Society at Paris, some remarks on the cause of rickets. He says, it is known that the bones owe their solidity to the phosphat of lime, and that consequently the cause of rickets has been ascribed to a want of that substance. However plausible this theory may be, there are cases recorded by Morgagni, Portal, and Pinel, where a mollification of the bones was observed to be complicated with the gout. Such a complication seems at first sight to be impossible, as one disease originates in a want, and the other in a superabundance, of the phosphat of lime. This contradiction, however, is but apparent; for, when the bones begin to mollify, we are not always entitled to conclude, that the phosphat of lime is entirely wanting in the system, but it is sometimes probable, that, on account of an inactivity in the vessels which carry this substance to the bones, it is directed to other parts, producing arthritic concretions, preternatural ossifications, &c. Frequently it is deposited in the urinary system, partly from being absolutely superabundant, partly because some morbific cause prevents its being carried to the bones; and it is remarkable that, in almost all the diseases of the bones, the urine deposits a calcareous sediment. There are besides some rare cases, where this calcareous matter has deviated to the genitals and urethra, and given rise most probably to that species of blenorrhagy, called by Swediaur arthritic. By a derivation, therefore, of the phosphat of lime from the bones to the joints, symptoms of gout are produced, at the same time a mollification of the bones, which complication is named *arthritis rachitica.* Dr. Bobba further observes, that a bad quality of the milk with which children are nourished is likely to be a frequent remote cause of the rickets; but this is inadmissible.

This disease does not usually prove fatal of itself, but if not resisted in time, it deforms the person, through life, in various ways; and often produces very pernicious effects, such as carious bones in different parts of the body. The cure is to be attempted by mild cathartics, alteratives, and tonics, such as are used in other diseases attended with a debility of the system. In the Western Islands of Scotland, the medicine used for the cure of the rickets, is an oil extracted from the liver of the skate-fish. The method of application is as follows: First, the wrists and ankles are rubbed with the oil in the evening: this immediately raises a fever of several hours' duration. When the fever from the first rubbing subsides, the same parts are rubbed again the night following; and repeatedly, as long as the rubbing of these parts continues to excite the fever. When no fever can be excited by rubbing the wrists and ankles alone, they are rubbed again along with the knees and elbows. This increased unction brings on the fever again; and is practised as before, till it no longer has that effect. Then the vertebræ and sides are rubbed along with the former parts; and this unction, which again brings on the fever, is repeated as the former. When no fever can be any longer excited by this unction, a flannel shirt dipped in the oil is put upon the body of the patient: this brings on a more violent and sensible fever than any of the former unctions; and is continued till the cure be completed, which it commonly is in a short time. No doubt the cod-liver oil would answer the same purpose. See LIVER OIL.

Dr. Strack, a German physician, published a paper, in which he recommends the filings of iron as a certain remedy in the rickets. But we should rely more on the treatment recommended by Dr. Zaviani, who prescribes the *ferrum ammoniacale.* More recently we have found the exhibition of alkali extolled in this disease. In the 4th vol. of the Edinb. Med. Comm. is given an account of a boy of seven years old, who was ricketty to a great degree. His inferior extremities were become stiff and immoveable; the abdomen flaccid. He was emaciated with a diarrhœa and constant sweatings, and had five fistulous ulcers all discharging at the same time. The following was prescribed:

℞. Decoct. cort. cinchon. ℥viii.
Kali præp. ʒss. Misce.

Half of this was taken every day. In the course of one month, the patient was so far recovered as to be able to rise from his bed, and to walk with some support. At that time the bark was changed for the *rubia tinctorum;* and in less than four months, the boy was so recovered as to walk with a crutch, and the ulcers by that time were nearly healed. Many ricketty people, it is said, have been cured by a watery solution of the fixed vegetable alkali, without any other means being used; but the dose was much larger.

For effecting a cure, it is, he affirms, a matter of the utmost consequence, to be able to distinguish, very early, whether a child will be afflicted with rickets or not. And this, he assures us, may be determined by the following symptoms: Paleness and swelling of the countenance; and in that part of the cheeks which should naturally be red, a yellow colour approaching to that of sulphur. When that is the case, he directs that a medicine should be immediately had recourse to, which will retard the further progress of the disease, and remove what has already taken place. For this purpose, he advises the following:

℞. Limaturæ ferri;
Rhabarb. pulv. sing. gr. v.
Sacch. alb. gr. x.
Fiat pulv. omn. mane et vesp. sumend.

If considerable looseness should be produced, it will be necessary, at first, to persist in the use of one dose only every day.

After a month's continuance in this course, according to Dr. Strack, there in general ensues a keen appetite for food, quick digestion, and a copious flow of urine; by means of which the fulness of the face and yellowness of the complexion are by degrees removed, while the natural colour of the countenance, and firmness of the body in general, are gradually restored. This practice, he assures us, has never failed of success in any one instance; not even in those children born of parents greatly afflicted with the rickets.

Dr. Smith says, the indications of cure will consist in strengthening the habit, and restoring to their tone, or figure, the parts that may have been vitiated or distorted. As from the relaxed state of the *primæ viæ,* a quantity of pituitous humours are, for the most part, lodged in the stomach and intestines, a few grains of ipecacuanha, as an emetic, may be administered; and now and then a gentle purge of rhubarb, with nutmeg, the tinct. aloes, or some other warm stomach purgative. But we are principally to depend upon a bracing strengthening regimen, chalybeates, the bark, the cold bath, and exercise of the body. Chalybeate preparations in proper doses, according to the age of the patient, will be extremely adviseable. Or, the *mars saccharatus* of the former Edinburgh Pharmacopœia, which is an elegant and agreeable form of a chalybeate for children, may be given, from a drachm to two, three or four times every day. The infusion of the Peruvian bark, with or without the diluted acid of vitriol, will be useful; more particularly, if any feverish heat, or hectical symptoms, should forbid the use of iron till their removal. In addition to the use of chalybeates, great benefit is often also obtained in this disease from the use of the cold bath; which, under prudent administration, is doubtless one of the most effectual remedies for this complaint with which we are yet acquainted.

They who die of this disease, says Hoffman, have the mesenteric glands enlarged and scirrhous; the liver and spleen obstructed and increased in size: the intestines are much inflated, and are loaded with black and fœtid matters, and the muscles, more especially of the abdomen, waste away.

RACK, a spirituous liquor made by the Tartars of Tongusla, of mares' milk; which is left to become sour, and afterwards distilled twice or thrice between two earthen pots closely stopped; whence the liquor runs through a small wooden pipe. This liquor is more intoxicating than brandy. It differs from an East-Indian liquor of the same name. See Arack.

RACKASI'RA BA'LSAMUM. See Balsamum rackasira.

RACO'SIS (*ϱακωσις*, from *ϱακος* , a *rag)*; a raggedness or excoriation of the relaxed scrotum.

RADCLIFFE (John), an English physician of great eminence in his time, born at Wakefield in Yorkshire in 1650, and educated at Oxford. It was remarkable of this gentleman that he recommended himself more by his ready wit and vivacity, than by any extraordinary acquisitions in learning. He began to practise at Oxford in 1675; but never paid any regard to established rules, which he censured whenever he thought fit, with great freedom and acrimony; and by this means drew all the old practitioners upon him. Nevertheless, his reputation increased with his experience; so that, in 1684, he removed to London, and settled in Bow-street, Covent Garden. In 1687 the Princess Anne of Denmark made him her physician: yet when her husband and she joined the Prince of Orange, Dr. Radcliffe, either not choosing to declare himself, or unwilling to favour the measures then in agitation, excused himself from attending them, on the plea of the multitude of his patients. Nevertheless, he was often sent for to king William and other great personages, though he did not court their favours. He incurred some censure for his treatment of queen Mary, who died of the small-pox; and soon after lost his appointment as physician to the Princess Anne, by his attachment to the bottle. He also totally lost the favour of King William by his indecent freedom; for, in 1699, when the king shewed him his swollen ankles, while the rest of his body was emaciated, and asked him what he thought of them? "Why truly I would not have your majesty's two legs for your three kingdoms," replied Radcliffe. He continued increasing in business and insolence as long as he lived, continually at war with his brethren; who considered him in no other light than that of an active ingenious empiric, whom constant practice had at length brought to some degree of skill in his profession. He died in 1714; and, if he never attempted to write any thing himself, he at least perpetuated his memory by founding a fine library at Oxford, to preserve the writings of other men.

RADIA'LIS ARTERIA, the radial artery; a branch of the humeral artery, that runs down the side of the radius.

RADIA'LIS EXTERNUS BREVIOR. See Extensor carpi radialis brevior.

RADIA'LIS EXTERNUS LONGIOR. See Extensor carpi radialis longior.

RADIA'LIS EXTERNUS PRIMUS. See Extensor carpi radialis longior.

RADIA'LIS INTERNUS. See Flexor carpi radialis.

RADIA'LIS SECUNDUS. See Extensor carpi radialis brevior.

RADI'CULA (dim. of *radix*, a root), a little root. Botanists call by this name the stringy or fibrous part, which generally terminates the stock or main root, and penetrating into the soil, attracts moisture and nourishment for the support of the vegetable. The radicle is, in fact, the principal and essential part of every root, and is therefore never wanting, not even in those plants improperly styled imperfect: for the mosses, lichens, and submarine plants, discover a remarkable analogy in the *lamellæ* and *striæ*, by which they adhere to the bodies placed under them, to the radicles, or stringy fibres, which exist in other plants.

The properties of the whole root, for the most part, exist equally in the radicles; nay, in some instances, there is reason to believe, in a greater degree, as in the *serpentaria*, and some others.

RADISH, HORSE. See Raphanus rusticanus.

RADISH, GARDEN. See Raphanus hortensis.

RA'DIUS; a bone of the fore-arm so called from its imagined resemblance to a spoke of a wheel or to a weaver's beam. This bone is placed at the inside of the fore-arm. Its upper end is formed into a circular little head, which is hollowed for an articulation with the tubercle at the side of the pulley of the os humeri; and the half of the round circumference of the head next to the ulna is smooth, and covered with a cartilage, in order to be received into the semilunated cavity of that bone. Below the head, the radius is much smaller; therefore this part, which is made round by the action of the supinator radii brevis, is named its *cervix.* At the external root of this neck, a tuberous process rises; into the outer part of which the biceps flexor cubiti is inserted. From this a ridge runs downwards and inwards, where the supinator radii brevis is inserted; and a little below, and behind this ridge, there is a rough scabrous surface, where the pronator radii teres is fixed.

The body of the radius is not straight, but convex on its internal and posterior surfaces; where it is also made round by the equal pressure of the circumjacent muscles, particularly of the extensors of the thumb; but the surfaces next to the ulna are flatted and rough, for the origin of the muscles of the hand; and both terminate in a common sharp spine, to which the strong ligament extended between the two bones of the fore-arm is fixed. A little below the beginning of the plain surface, on its fore-part, where the flexor muscle of the last joint of the thumb takes its origin, the passage of the medullary vessels is seen slanting upwards. The radius becomes broader and flatter towards the lower end, especially on its fore-part, where its pronator quadratus muscle is situated.

The lower end of the radius is larger than the superior; though not in such a disproportion as the upper end of the ulna is larger than its lower end. Its back part has a flat strong ridge in the middle, and fossæ on each side. In a small groove, immediately on the outside of the ridge, the tendon of the extensor tertii internodii pollicis plays. In a large one beyond this, the tendons of the indicator and of the common extensor muscles of the fingers pass. Contiguous to the ulna there is a small depression made by the extensor minimi digiti. On the inside of the ridge there is a broad depression, which seems again subdivided, where the two tendons of the bicornis, or extensor carpi radialis, are lodged. The internal side of this end of the radius is also hollowed by the extensors of the first and second joint of the thumb; immediately above which a little rough surface shews where the supinator radii longus is inserted. The ridges at the sides of the grooves, in which the tendons play, have an annular ligament fixed to them, by which the several sheaths for the tendons are formed. The fore-part of this end of the radius is also depressed, where the flexors of the fingers and flexor carpi radialis pass. The external side is formed into a semilunated smooth cavity, lined with a cartilage, for receiving the lower end of the ulna. The lowest part of the radius is formed into an oblong cavity; in the middle of which is a small transverse rising, gently hollowed, for lodging mucilaginous glands; while the rising itself is insinuated into the conjunction of the two bones of the wrist that are received into the cavity. The internal side of this articulation is fenced by a remarkable process of the radius, from which a ligament going out to the wrist, as the styloid process of the ulna with its ligament, guards it on the outside.

The ends of both the bones of the fore-arm being thicker than the middle, there is a considerable distance between the bodies of these bones; in the larger part of which a strong tendinous, but thin ligament, is extended, to give a large enough surface for the origin of the numerous fibres of the muscles situated here, that are so much sunk between the bones as to be protected from injuries, to which they would otherwise be exposed. But this ligament is wanting near the upper end of the fore-arm, where the supinator radii brevis, and flexor digitorum profundus, are immediately connected. Both ends of the bones of the fore-arm are first cartilages, and then epiphyses, in children.

As the head of the radius receives the tubercle of the os humeri, it is not only bended and extended along with the ulna, but may be moved round its axis in any position; and, that this motion round its axis may be sufficiently large, the ligament of the articulation is extended, further down than ordinary, on the neck of this bone, before it is connected to it; and it is very thin at its upper and lower part, but makes a firm ring in the middle. This bone is also joined to the ulna by a double articulation: for above, a tubercle of the radius plays in a socket of the ulna; whilst below, the radius gives the socket, and the ulna the tubercle. But then the motion performed in these two is very different: for, at the upper end, the radius does no more that turn round its axis; while, at the lower end, it moves in a sort of cycloid upon the round part of the ulna; and as the hand is articulated and firmly connected here with the radius, they must move together.—When the palm is turned uppermost, the radius is said to perform the *supination:* when the back of the hand is above, it is said to be *prone.* But then the quickness and large extent of these two motions are assisted by the ulna, which, as was before observed, can move with a kind of small rotation on the sloping sides of the pulley. This lateral motion, though very inconsiderable in the joint itself, is conspicuous at the lower end of such a long bone; and the strong ligament connecting this lower end to the carpus, makes the hand more readily obey these motions. When we design a large circular turn of our hand, we increase it by the rotation of the os humeri, and sometimes employ the spine and inferior extremities to make these motions of pronation or supination of the hand large enough.

RA'DIX, in vegetable physiology, the root, or lower part, of a plant. This is generally hidden below the surface of the earth, and destined for attracting the moisture from the soil, and communicating it to the other parts, *viz.* the herb and the fructification which are produced from it. The root consists of two parts; the *caudex*, stock, or main root, and the *radiculæ*, or small stringy roots, depending from the other. Main roots, with respect to form, are of three kinds; bulbous, tuberous, and fibrous. The first sort has been fully considered under the article BULBUS.

Tuberous or knotted roots, are fleshy, solid, hard, commonly thicker than the base of the stem, and composed either of one knob, as in radish, turnep, and carrot; or of many collected into a bunch, as in pœony, sun-flower, and drop-wort: in the last of which plants, several small roundish bodies hang, or are fastened together by a number of slender filaments. In tuberous roots, the radicles or small stringy roots are generally dispersed over the whole surface: in which respect, they differ essentially from bulbous roots, in which the radicles are confined to the bottom of the bulb, that part only being the genuine root; the bulb itself serving as a large bud under ground, for inclosing and protecting the embryo plant.

The roots of arum, orchis, and some other plants, although tuberous, send out fibres at the top, from a knot formed betwixt the trunk and the thicker part of the root. Such roots, from the fibres which adhere to the top of the fleshy mass resembling a bush of hair, have been distinguished by the name of *radices comosæ*.

Fibrous roots are slenderer than the base of the trunk, and are either divided by equal branches, as in the greater number of trees, in which, likewise, the substance is woody; or consist of a number of single fibres like hairs, which proceed from the small knot, or base of the stem, as in many grasses. This last kind of fibrous root is termed *radix capillacea*, a hairy root.

Roots are said to be perpendicular, which run directly downwards. It is exemplified in carrot, parsnep, radish, and such-like roots, which, from their tapering shape, have properly enough obtained the name of *radices fusiformes*, or spindle-shaped roots. Spindle-shaped roots are a species of tuberous root, as appears from the situation of the strings or fibres, which are dispersed over the whole surface of the stock or principal root, and divided into numerous branches, which, after several subdivisions, become as fine as hairs. This kind of tapering root is frequently changed by culture into a round, knobbed, or tuberous root properly so called, as in some umbelliferous plants. Horizontal roots extend themselves laterally under the surface of the ground; as in iris, masterwort, hop, bishop's weed, cinquefoil, and all creeping roots. Some run very near the turf, as woodbine and wild anemone; others lower down, as couch-grass. The direction of roots is also sometimes compounded. Thus, the main root or stock of primrose, is level; the radicles, or strings, run perpendicular.

Roots are *entire*, as liquorice, or *parted*, as St. John's wort; forked, or parted at the bottom, as in most roots, or at the top, as in dandelion. They have indeed an infinite variety of forms.

In point of duration, roots are either annual, biennial, or perennial; that is, of one, two, or many years' continuance: the first two are attributes of herbaceous vegetables only; the latter, is applicable both to herbs and trees. In some plants, both root and stem subsist for many years. Of this kind are all trees; the roots of which Dr. Milne has termed, by way of distinction, *radices fruticosæ*. In others, the roots only subsist during the winter, whilst the stalks, which decay and perish, are annually renewed from the root. Of this kind are all those herbs from this circumstance termed perennial. Biennials renew their stalk only twice; annuals exist but for a year, at the end of which time, both stem and root perish, and the individual is at an end. These last, as is evident, can only be propagated from seed.

Uniform and constant as Nature is in all her productions, there are many perennial roots which become annual, when transplanted into cold climates. Nay, there are not wanting examples of shrubs losing their stems annually in such climates, in the same manner as the stalks of herbaceous vegetables perish in autumn, whilst the root continues in full vigour: sometimes even, in such circumstances, the shrub not only divests itself of its woody stem, and becomes herbaceous, but is metamorphosed, in every respect, into an annual plant, and loses both its stem and root at the end of one year. Culture, on the other hand, may prolong the life of annuals. Duhamel mentions a root of barley, which put forth new stalks after the old ones were cut down in harvest, and produced a spike of flowers the following year. An enormous growth is also to be reckoned among the accidents that happen to roots from an excess of culture. Of this the potatoe and turnep are instances. The latter is sometimes found to increase to the enormous size of nine or ten inches in diameter, though, in general, not exceeding three or four.

Though roots are generally found below the surface of the ground, as deriving their nourishment immediately from the soil, yet this, like most other general laws, admits of exceptions. The roots of mistletoe, vanelloe, dodder, *hypocistis*, and some others, do not penetrate into the soil, and seek nourishment for themselves, but derive it from other plants, to which they attach themselves. Such plants, from this circumstance, are termed *parasitic*. But the manner in which these plants attach themselves to others, is not uniform. The seed of dodder germinates in the ground, and puts forth a stem, which attaches itself to the first plant it encounters in its progress. From this plant it attracts the nourishing juices, by means of certain secretory glands with which the stem is furnished. In the mean time, the lower part of the stem, which is detached from the supporting plant, and receives no part of the nourishment, dries up; its first root dies, and the plant continues to live and be nourished at the expence of that upon which it is fixed. Other parasitical plants, consisting of small tubercles, emit fibrous roots, which often penetrate the bulbs of saffron, extract all the substance, and hence occasion the sudden death of the parent or supporting plant.

Some roots attach themselves to the hardest bodies, as the mosses to the bark of trees, the lichens to stones and rocks, nourished, without doubt, by the humidity of the air absorbed by their leaves, or branches. Other plants swim upon the surface of the water, as *lemna*, or duck's-weed, which grows upon standing waters, and, if not disturbed, will soon cover the whole surface. Some plants appear to be totally devoid of roots; such are many of the *Algæ*, particularly the genera *Byssus* and *Tremella*. For delineations of roots see pl. XI. vol. I. and the description under the article Botany.

In assimilating the animal and vegetable kingdoms, Linnæus compares the root in plants to the lacteal vessels in animals. The soil, or earth, is the vegetable stomach; the trunk, its bones; the leaves, its lungs; and the heat, its heart: analogies, which probably suggested the epithet of *inverted animal*, so frequently bestowed upon plants by the ancient naturalists.

For their medicinal properties, the roots of plants, are, in various instances, distinguished; whilst, in other cases, some other part of the vegetable is preferred. The article BOTANY, MEDICAL, may be consulted on this subject.

RA'DULA, a wooden spatula or scraper.

RAGOUT, a French sauce, or seasoning, intended to rouse the appetite when lost or languishing. This term is also used for any high-seasoned dish prepared of flesh, fish, greens, or the like; by stewing them with bacon, salt, pepper, cloves, and the like ingredients. We have ragouts of celery, of endive, asparagus, cocks' combs, giblets, craw-fish, &c. The ancients had a ragout called *garum*, made of the putrified guts of a certain fish kept till it dissolved into a mere sanies, which was thought such a dainty, that, according to Pliny, its price equalled that of the richest perfumes. The physician, the nurse, and the undertaker, are greatly indebted to these inventions.

RAG-WORT. See JACOBÆA.

RAISINS. See UVA PASSA MAJOR.

RAMIFICATION, the production of boughs or branches, or of figures resembling them. The term is used figuratively by anatomists to denote the minute divisions and subdivisions of arteries and other vessels.

RA'MUS, in botany, the first or lateral branches, which go off from the petiolum, or middle rib of a leaf. The subdivisions of these are called *surculi;* and the final divisions into the most minute of all, are by some called *capillamenta;* but both kinds are generally denominated *surculi.*

RAMAZZINI (Bernardin), an Italian physician, born at Carpi near Modena in 1633. He was professor of physic in the university of Modena for 18 years; and in 1700 accepted an invitation from Padua, where he was made rector of the college; and died in 1714. His works were collected and published in London, 1716; of which his treatise "*De Morbis Artificum,*" will always be esteemed useful and curious.

RAME'NTA; the little slips, shreds, or filings, of any thing.

RA'NA ESCULE'NTA; the esculent frog. The flesh of this reptile, with the use of which we are little acquainted in this country, seems, from the analysis of Mr. Geoffroy, to be, both in solution and distillation, of the same qualities with that of the tortoise, though, as less gelatinous, to be therefore less nourishing. But however that may be, Dr. Cullen says, their qualities are in nowise peculiar; nor can he find any foundation for introducing them into *bouillons*, or broths, in that nice proportion in which they are frequently prescribed in France and Germany.

RANCIDITY; the putrefaction of fatty or oily substances. These are said to have become *rancid*, when, by keeping, they acquire a strong offensive smell, and altered taste.

RANI'NA ARTERIA, the *raninal*, or sublingual artery. It is the second branch of the external carotid.

RA'NULA (from *rana*, a frog; so called from its resemblance to a frog, or because it makes the patient croak like a frog), an indolent tumor under the tongue. These tumors are of various sizes, and their contents of various degrees of consistence. They are usually seated on either side of the frænum; and children, as well as adults, are sometimes affected with them. In the former they impede the action of sucking; in the latter, of mastication, and even of speech. The contents in some cases resemble the saliva, in others, the glairy matter found in the cells of swelled joints. Sometimes, a fatty matter has been found in them; but as these tumors are not usually attended with much pain, they are sometimes neglected, till they burst of themselves, which they commonly do when arrived at the bulk of a large nut. Although the cyst be divided throughout its whole length, in order to let out the fluid, the disease will be very likely to return, unless some care be taken to prevent it. One of the modes recommended for this purpose, and which is often effectual, is to mix a quantity of mel rosæ, with as much diluted acid of vitriol as will make it very sour, to dip a probe in this liquid, and to rub the cyst with it. Mr. Justamond says, he once succeeded in curing this little disease by a different contrivance. As the patient would not suffer him to put a lancet into it, he directed her to make a strong solution of alum, and dipping a piece of lint fastened to the end of a skewer, to rub the tumor smartly every day, as long as she could bear it. By following these directions, she got rid of the ranula in a few days, though she had been troubled with it a long time; and latterly, it had grown exceedingly alarming and inconvenient to her.

Wiseman treats on this disease very fully. He says, "It is a soft tumor without pain or alteration of colour in the skin. It yieldeth to the impression of your fingers, but riseth upon the taking them off, and containeth a matter not unlike the white of an egg, or such as we meet with in *atheroma*. It is also discovered by a croaking in the speech." He says the cure is difficult, that the treatment should be similar to that of *strumæ;* but if topics prove ineffectual, then recourse must be had to the *actual cautery*.

RANU'NCULUS (from *rana*, a frog; because it is found in fenny places, where frogs abound), the water crow-foot. The great acrimony of most of the species of ranunculus is such, that, on being applied to the skin, they exite itching, redness, and inflammation, and even produce blisters, tumefaction, and ulceration of the part. On being chewed, they corrode the tongue; and, if taken into the stomach, bring on all the deleterious effects of an acrid poison. The corrosive acrimony which this family of plants possesses, was not unknown to the ancients, as appears from the writings of Dioscorides; but its nature and extent had never been investigated by experiments, before those instituted by C. Krapf, at Vienna, by which we learn, that the most virulent of the Linnæan species of ranunculus, are the bulbosus, sceleratus, acris, arvensis, thora, and illyricus. The acrimony of the different species is often confined to certain parts of the plant, manifested either in the roots, stalks, leaves, flowers, or buds: the expressed juice, extract, decoction, and infusion, of the plants, were also subjected to experiments. In addition to these species mentioned by Krapf, we may also notice the Ranunculus flammula, and especially the Ranunculus Alpestris, which, according to Haller, is the most acrid of this genus. This acrimonius quality of these plants, however, is not of a fixed nature; for it may be completely dissipated by heat; and the plant, on being thoroughly dried, becomes perfectly bland. Krapf attempted to counteract this venomous acrimony of the ranunculus by means of various other vegetables, none of which was found sufficiently to answer the purpose. The virulence of most of the plants of this genus, depends much upon the situation in which they grow, and is greatly diminished in the cultivated plant.

RANU'NCULUS ABORTI'VUS; the systematic name of a species of ranunculus which possesses acrid and vesicating properties.

RANU'NCULUS A'CRIS; the systematic name of the meadow crow-foot. See RANUNCULUS PRATENSIS.

RANU'NCULUS ALBUS. The plant which bears this name in the pharmacopœias, is the *Anemone nemerosa* Linn. The bruised leaves and flowers are employed to cure tinea capitis. The inhabitants of Kamskatka are said to poison their arrows with the root of this plant.

RANU'NCULUS BULBO'SUS, the bulbous-rooted crow-foot: *Ranunculus bulbosus; calycibus retroflexis, pedunculis sulcatis, caule erecto multifloro, foliis compositis*, Linn. This plant has no considerable smell, but a highly acrid and fiery taste. If taken internally, the leaves and roots appear to be deleterious, even when so far freed from their caustic matter by boiling in water, as to discover no activity to the palate. The effluvia, likewise, even when freely inspired, is said to occasion head-achs, anxieties, vomitings, &c. The leaves and roots applied externally, inflame and ulcerate, or vesicate the parts, and are liable to affect also the adjacent parts to a considerable extent.

RANU'NCULUS FICA'RIA; the systematic name of the pile-wort. See CHELIDONIUM MINUS.

RANU'NCULUS FLA'MMULA; the systematic name of the smaller water crow-foot or spear-wort. Its virtues and qualities are similar to those of the RANUNCULUS BULBOSUS.

RANU'NCULUS PALU'STRIS; water crow-foot; *Ranunculus sceleratus* Linn. The leaves of this species are so extremely acrid, that the beggars in Switzerland are said, by rubbing their legs with them, to produce ulceration,

RANU'NCULUS PRATE'NSIS; the meadow crow-foot; *Ranunculus acris* Linn. This, and some of the foreign species of ranunculus, have, for medical purposes, been chiefly employed as vesicatories. They are said to have the advantage of a common blistering plaster, in producing a quicker effect, and never causing strangury; but, on the other hand, it has been observed, that this stimulant is less certain in its operation, and sometimes occasions ulcers, which prove very troublesome and difficult to heal. Therefore their use seems to be confined to certain fixed pains, and such complaints as require a long-continued topical stimulus or discharge from the part, in the way of an issue.

RANU'NCULUS SCELERA'TUS; the systematic name of the marsh crow-foot. See RANUNCULUS PALUSTRIS.

RA'PA, or RAPUM, turnep; the *Brassica rapa* of Linnæus. Turneps are accounted a salubrious food, demulcent, detergent, somewhat laxative and diuretic, but liable, in weak stomachs, to produce flatulencies, and prove difficult of digestion. The liquor pressed out of them, after boiling, is sometimes taken medicinally, in coughs and disorders of the breast. The seeds are occasionally taken as diuretics; they have no smell, but a mild acrid taste.

RAPE. See RAPUS.

RAPHA'NIA (from *raphanus*, the radish or sharlock; because the disease was said to be produced by eating the seeds of that plant), a genus of disease in the class *neuroses*, and order *spasmi*, of Cullen; characterised by a spasmodic contraction of the joints, with convulsive motions, and a most violent pain returning at various periods. It begins with cold chills, lassitude, pain in the head, and anxiety about the præcordia. These symptoms are followed by spasmodic twitchings in the tendons of the fingers and of the feet, discernible to the eye; heat, fever, stupor, delirium, sense of suffocation, aphonia, and horrid convulsions of the limbs. After these, vomiting and diarrhœa come on, with a discharge of worms. About the eleventh or the twentieth day, copious sweats succeed, or purple exanthemata, or tabes, or rigidity of all the joints.

RAPHA'NUS HORTE'NSIS, also called *Radicula*, and *Raphanus niger*; the radish: the *Raphanus sativus* Linn. Some of the varieties of this plant have been employed in the cure of calculous affections. The juice made into a syrup, is given to relieve hoarseness. Mixed with honey or sugar, it is administered in pituitous asthma; and as antiscorbutics, their efficacy is generally acknowledged, though in fact, not very considerable.

RAPHA'NUS NIGER. See RAPHANUS HORTENSIS.

RAPHA'NUS RUSTICA'NUS (*ραφανος, παρα το ραδιως φαινεσθαι*, from its quick growth), also named *Armoracia*; horse-radish. This plant is the *Colchearia armoracia; foliis radicalibus lanceolatis crenatis, caulinis incisis*, of Linnæus. Class, *Tetradynamia*. Order, *Siliculosa*. Horse-radish root has long been received into the materia medica, and is also well known at our tables. It affects the organs both of taste and smell with a quick penetrating pungency; nevertheless it contains in certain vessels a sweet juice, which sometimes exudes in little drops upon the surface. Its pungent matter is of a very volatile kind, being totally dissipated in drying, and carried off in evaporation, or distillation by water; and rectified as the pungency exhales, the sweet matter of the root becomes more sensible, though this also is, in a great measure, dissipated or destroyed. It impregnates both water and spirit, by infusion or by distillation, very richly, with its active matters. In distillation with water, it yields a small quantity of essential oil, exceedingly penetrating and pungent.

Dr. Cullen says, the root, which only is employed in medicine, affords one of the most acrid substances of the order *siliquosa*. It therefore proves a powerful stimulant, whether externally or internally employed. Externally, it readily inflames the skin, and proves a rubefacient that may be employed with advantage in palsy and rheumatism; and, if its application be long continued, it produces blisters. If taken internally, Dr Cullen says it may be so managed as to relieve hoarseness, by acting on the fauces. Received into the stomach, it stimulates that organ, and promotes digestion; and therefore is properly employed as a condiment with animal food. If it be infused in water, and a portion of this infusion be taken with a large draught of warm water, it readily proves emetic, and may either be employed by itself to excite vomiting, or to assist the operation of other emetics. Infused in water, and taken into the stomach, it proves stimulant to the nervous system, and is thereby useful in palsy; and, if employed in large quantity, it proves heating to the whole body; and hereby it proves often useful in chronic rheumatism, whether arising from scurvy or other causes. Bergius has given us a particular method of exhibiting this root, which is, by cutting it down, without bruising it, into small pieces, and these, if swallowed without chewing, may be taken down in large quantities, to that of a table-spoonful. He alleges, that, in this way, taken in the morning for a month together, this root has been extremely useful in gouty cases; which, however, may rather have been of the rheumatic kind. Like the unbruised mustard seed, it gives out in the stomach, volatile parts, that stimulate considerably without inflaming. Its matter, like that of the other siliquose plants, carried into the blood-vessels, passes readily into the kidneys, and proves a powerful diuretic, and is therefore useful in dropsy. Dr. Cullen adds, that, in this manner, by promoting both urine and perspiration, it has been long known as one of the most powerful of our antiscorbutic remedies.

RAPHA'NUS SATI'VUS; the systematic name of the radish plant. See Raphanus hortensis.

RAPHA'NUS SYLVE'STRIS; a name for the poor-man's pepper. See Lepidium.

RA'PHE (of the Gr. ραφη, a *suture);* the rough eminence which divides the scrotum, as it were, into two portions. It proceeds from the root of the penis inferiorly towards the perinæum.

RA'PHE CE'REBRI, the longitudinal eminence of the corpus callosum of the brain; so called, because it appears somewhat like a suture.

RA'PUM. See Rapa.

RAPU'NCULUS (dim. of *rapa,* the turnep); the wild turnep. See Rapa.

RAPU'NCULUS VIRGINIA'NUS; the name given, by Morrison, to the blue cardinal-flower. See Lobelia.

RA'PUS, or Rapa, *Napus,* or *Napus dulcis;* the garden or sweet navew, or French turnep: *Brassica rapa* Linn. The seeds of this plant are sometimes used medicinally. They possess virtues similar to those of mustard. See Sinapi.

RARE, in physics, stands opposite to dense, and denotes a body that is very porous, whose parts are at a great distance from one another, and which is supposed to contain but little matter under a large bulk. See the following article.

RAREFACTION, the act whereby a body is rendered rare; that is, brought to possess more room, or appear under a larger bulk, without the accession of any new matter. This is very frequently the effect of fire, as has long been universally allowed. In many cases, however, philosophers have attributed it to the action of a repulsive principle. Nevertheless, from the many discoveries concerning the nature and properties of the electric fluid and fire, there is the greatest reason to believe that this repulsive principle is no other than elementary fire. See Repulsion.

RASH, a popular name for the *Exanthema.* It consists of red patches on the skin, variously figured. In general it is confluent, and diffused irregularly over the body, leaving interstices of a natural colour. Portions of the cuticle are often elevated in a rash, but the elevations are not acuminated. The eruption is usually accompanied with a general disorder of the constitution, and terminates in a few days, by cuticular exfoliations.

RASPBERRY. See Rubus idæus.

RATTLE-SNAKE ROOT. See Seneka.

RAUCE'DO (from *raucus,* hoarse), or Raucitas; hoarseness. This is always symptomatic of some other disease.

RAU'CITAS, hoarseness. See Raucedo.

RE-AGENTS, in chemistry, tests; such substances as enable the chemist to draw conclusions respecting the nature and properties of the bodies to be examined, by means of those alterations which they suffer themselves to produce in others. Thus the tests or re-agents employed for alkalies, are the *syrup of violets; paper stained red* with a decoction of *Fernambuc,* or *Brazil wood;* or *yellow* by the *tincture* of *turmeric root.* The *tincture* of *litmus* reddened by a very weak acid, and the red alkanet tincture, are also used for the same purpose.

REA'LGAR, a metallic substance of a red colour, more or less lively and transparent, and often crystalised in brilliant needles. It is a combination of arsenic with sulphur. See Arsenic.

RECEPTACLE, in botany, the base which connects all the parts of fructification. It is termed a *proper receptacle,* when it only belongs to the parts of a single fructification; and a *common receptacle,* when it connects several florets. When from a common centre it runs out into thread-shaped footstalks, of proportionate lengths, it is termed an *Umbel;* and *Cyma,* when it runs into long footstalks, proceeding from the same universal centre, but with irregular partial ones.

RECEPTA'CULUM CHY'LI (*receptaculum,* from *recipio,* to receive). The existence of such a receptacle in the human body is doubted. In brute animals the receptacle of the chyle is situated on the dorsal vertebræ where the lacteals all meet. See Thoracic duct.

RE'CIPE, take. This is usually placed at the beginning of a prescription, and is generally written thus ℞, or else with the charater for tin ♃, over which metal Jupiter was supposed to preside. Hence its use denoted the invocation of Jupiter, before prescribing, for the success of the remedy.

RECIPIENT, a kind of vessel used by chemists, which, in distillation, is made to contain what is drawn off.

RECTIFICA'TIO (from *rectifico,* to make clean);

rectification, or a redistillation, in which substances are purified by their more volatile parts being raised by heat carefully managed. Thus, spirit of wine, ether, &c. are rectified by their separation from the less volatile and foreign matter which altered or debased their properties.

RE'CTUM; the last of all the intestines. It is named *rectum*, or the *straight gut*, from its situation; for, when viewed directly forward, it appears to run down in a straight course from the last vertebra of the loins, on the foreside of the os sacrum, all the way to the os coccygis, where it ends in the *anus*. This intestine, properly speaking, is a true continuation of the last convolution of the colon; and it is the sink, or common sewer, of the whole intestinal canal. It has likewise a close connection with the bladder, and with the parts of generation in both sexes.

The rectum having passed below the last vertebra of the loins, to the inside of the os sacrum, is bent backward, on that concave side, to which it is connected; and having reached the os coccygis, it runs likewise in the direction of that bone, and bends a little forward, terminating beyond the extremity of the coccyx. Its figure varies according as it is full or empty. When empty, it is irregularly cylindrical, and sinks in by a kind of transverse folds; and in that state, it is about three fingers breadth in diameter more or less. When full, it is wider in proportion to the quantity of fæces, wind, or whatever else is contained in it; and it may be extended to the size of a large bladder, so as to represent a kind of stomach.

The membranous coat often contains a great quantity of fat, spread between it and the muscular coat, and forming all round, numerous eminences. The muscular coat is very thick; and the longitudinal fibres, which in the other intestines are very thin, are in this stronger than the circular fibres of the rest. The ligamentary bands continue to increase in breadth, and to approach each other, as they proceed downwards; and it is to the fleshy fibres of these bands that the thickness of the longitudinal fibres seems to be owing. The nervous or filamentous and internal coats, are larger here than in the other intestines; and when the rectum is empty, they form a great number of waving rugæ in its cavity, which disappear in proportion as that cavity is filled. The innermost coat is very improperly termed *villosa*, and scarcely deserves the name of *papillaris*, because of the smallness of the little corpuscles spread on its surface. It contains a great number of single or solitary glands; and it is always moistened by a mucus of different consistences, discharged by these glands or folliculi, and perhaps by the corpuscles also.

Near the extremity of this intestine the rugæ become in a manner longitudinal; and at last, towards the circumference of the inner margin of the anus, they form little bags or semilunar lacunæ, the openings of which are turned upward, toward the cavity of the intestine. These lacunæ are something like those of the lower extremity of the œsophagus, or upper orifice of the stomach.

At length the extremity of the rectum contracts, and terminates by a narrow orifice called the *anus*, the sides of which are disposed in close folds or gathers. This extremity of the intestine has several muscles belonging to it, some of which surround it like sphincters; the rest are broad fleshy planes inserted in it, and which, being likewise fixed to other parts, sustain it in its natural situation, and restore it to that situation after being disturbed by the force necessary for the exclusion of the fæces. These latter muscles are termed *levatores ani;* the first go by the general name of *sphincters*. See those articles.

This intestine is obnoxious to various diseases. Sometimes, there are hard, scirrhous lumps, without pain, seated at the bottom of the *rectum* or near the anus; these are thrust out at every effort to void the stool, and then indeed is perceived a degree of uneasiness; but at no other time, except after handling them. If they have a small basis, Mr. Pott advises to remove them as speedily as possible; for, if they continue, they certainly prove fatal. In the instances where they cannot be removed, the early symptoms do not throw any light on their nature: the first symptom is felt as if the patient wanted to void a large stool; on making the attempt, nothing is voided, though the efforts are frequently renewed. At length the patient tries a clyster; but when the pipe is about to be introduced into the gut, it is obstructed by a lump there, which occasions an alarm. The surgeon, on introducing a finger, soon perceives the nature of the case, but he can only offer a palliative remedy, the disease being incurable.

Another disease of this gut is a general relaxation of its whole substance. When it is extruded through the anus, it is bound by the sphincter muscle, and puts on the appearance of a uniform fungus with a narrow basis; soft to the touch, yet from the irritability of the part exceedingly painful. It is proper justly to distinguish this from the cancerous fungus, as the first may be cured, but the latter cannot. The cancerous fungus within the rectum is seldom uniform, but generally unequal, spreading from a large basis, and discharges an offensive ichor. In case of mere relaxation, the use of topical astringents may suffice, but the prolapsed tumor should be quickly restored, and kept in its place by mechanical means. See PROLAPSUS ANI.

An enlargement of the hæmorrhoidal veins, may also take place within the rectum; in which case the disease is popularly called the *inward piles*. See HÆMORRHOIDS.

RE'CTUS (of the Lat. *rectus*, straight), the name of several muscles, which are so called from the rectilinear direction of their fibres. The instances follow.

RE'CTUS ABDO'MINIS, a long and straight muscle, situated, with its fellow, at the middle and fore part of the abdomen, parallel to the linea alba, and between the aponeuroses of the other abdominal muscles. It sometimes arises by a single broad tendon from the upper and inner part of the os pubis, but more commonly by two heads, one of which is fleshy, and originates from the upper edge of the pubis, and the other tendinous, from the inside of the symphisis pubis, behind the pyramidalis muscle. From these beginnings, the muscle runs upwards the whole length of the linea alba, and, becoming broader and thinner as it ascends, is inserted, by a thin aponeurosis, into the edge of the catilago ensiformis, and into the cartilages of the fifth, sixth, and seventh ribs. This aponeurosis is placed under the pectoral muscle, and sometimes adheres to the fourth rib. The fibres of this muscle are commonly divided by three tendinous intersections, which were first noticed by Berenger, or, as he is commonly called, Carpi. One of these intersections is usually where the muscle runs over the cartilage of the seventh rib; another is at the umbilicus; and the third is between these two. Sometimes there is one, and even two, between the umbilicus and the pubis; however, they seldom extend more than half way across the muscle. As these intersections seldom penetrate through the whole substance of the muscle, they are all of them most apparent on its anterior surface, where they firmly adhere to the sheath: the adhesions of the rectus to the posterior layer of the internal oblique, are only by means of cellular membrane, and of a few vessels which pass from one to another. The celebrated anatomist Albinus, and some others, say they have seen this muscle extending as far as the upper part of the sternum.

The obvious use of the rectus abdominis, is to compress the fore part of the belly, but more particularly the lower part; and, according to the different positions of the body, it may likewise serve to bend the trunk forwards, or to raise the pelvis. Its situation between the two layers of the internal oblique, and its adhesions to this sheath, secure it in its place, and prevent it from rising into a prominent form when in action; and lastly, its tendinous intersections enable it to contract at any of the intermediate spaces.

RE'CTUS ANTE'RIOR BRE'VIS. See Rectus capitis internus minor.

RE'CTUS ANTE'RIOR LO'NGUS. See Rectus capitus internus major.

RE'CTUS CA'PITIS INTE'RNUS MA'JOR, the *Rectus anterior longus* of Winslow; a muscle situated on the anterior part of the neck, close to the vertebræ. It was known to most of the ancient anatomists, but not particularly named until Cowper gave it the present appellation, and which has been adopted by most other anatomists. It is a long muscle, thicker and broader above than below, where it is thin, and terminates in a point. It arises, by distinct flat tendons, from the anterior points of the transverse processes of the five inferior vertebræ of the neck, and, ascending obliquely upwards, is inserted into the anterior part of the cuneiform process of the occipital bone. This muscle bends the head forwards.

RE'CTUS CA'PITIS INTE'RNUS MI'NOR, the *rectus internus minor* of Cowper, which name was also adopted by Douglas and Albinus; but Winslow calls it *rectus anterior brevis*. This little muscle is in part covered by the rectus major. It arises fleshy from the upper and fore part of the body of the first vertebra of the neck, near the origin of its transverse process, and, ascending obliquely inwards, is inserted near the root of the condyloid process of the occipital bone, under the last-described muscle. It assists in bending the head forwards.

RE'CTUS CA'PITIS LATERA'LIS, a muscle said to have been first described by Fallopius. It is the *transversalis anticus primus* of Winslow. It is somewhat larger than the rectus minor, but resembles it in shape, and is situated immediately behind the internal jugular vein, at its coming out of the cranium. It arises fleshy from the upper and fore part of the transverse process of the vertebræ of the neck, and ascending a little obliquely upwards and outwards, is inserted into the occipital bone, opposite to the stylo-mastoid hole of the os temporis. This muscle pulls the head to one side.

RE'CTUS CA'PITIS POSTI'CUS MA'JOR; the *rectus major* of Douglas and Winslow. This is a small, short, and flat muscle, broader above than below, and is situated, not in a straight direction, as its name would insinuate, but obliquely, between the occiput and the second vertebra of the neck, immediately under the complexus. It arises, by a short thick tendon, from the upper and posterior part of the spinous process of the second vertebra of the neck; it soon becomes broader, and ascending obliquely outwards, is inserted, by a flat tendon, into the external lateral part of the lower semi-circular ridge of the os occipitis. This muscle extends the head, and draws it backwards.

RE'CTUS CA'PITIS POSTI'CUS MI'NOR; the *rectus minor* of Douglas and Winslow. This is a smaller muscle than that last described, but resembles it in shape, and is placed close by its fellow, in the space between the recti majores. It arises, by a short thick tendon, from the upper and lateral part of a little protuberance in the middle of the back part of the first vertebra of the neck, and, becoming broader and thinner as it ascends, is inserted, by a broad flat tendon, into the occipital bone, immediately under the insertion of the last-described muscle. The use of this muscle is to assist the rectus major in pulling the head backwards.

RE'CTUS EXTE'RNUS O'CULI, otherwise named *Abductor oculi*, or *Indignabundus*; the outer straight muscle of the eye. It arises from the bony partition between the foramen opticum and lacerum, being the longest of the straight muscles of the eye, and is inserted into the sclerotic membrane, opposite to the outer canthus of the eye. Its use is to turn the eye outwards.

RE'CTUS FE'MORIS, the *Rectus* sive *Gracilis anterior* of Winslow; a straight muscle of the thigh, situated immediately at the fore part. It arises from the os ilium by two tendons, the foremost and shortest of which springs from the outer surface of the inferior and anterior spinous process of the ilium. The posterior tendon, which is thicker and longer than the other, arises from the posterior and outer part of the edge of the cotyloid cavity, and from the adjacent capsular ligament. These two tendons soon unite, and form an aponeurosis, which spreads over the anterior surface of the upper part of the muscle; and through its whole length we observe a middle tendon, towards which its fleshy fibres run on each side in an oblique direction, so that it may be styled a penniform muscle. It is inserted tendinous into the upper edge and anterior surface of the patella, from whence it sends off a thin aponeurosis, that adheres to the superior and lateral part of the tibia. Its use is to extend the leg.

RE'CTUS INFE'RIOR O'CULI, also called, by different anatomists, *Depressor oculi*, *Deprimens*, and *Humilis;* the inferior of the straight muscles of the eye. It arises within the socket, from below the foramen opticum, and passes forwards to be inserted into the sclerotic membrane of the bulb on the wider part. It draws the eye downwards.

RE'CTUS INTE'RNUS FE'MORIS. See GRACILIS.

RE'CTUS INTE'RNUS O'CULI, the *Adducens oculi* and *Bibitorius* of authors; the internal straight muscle of the eye. This arises from the inferior part of the foramen opticum, between the obliquus superior, and the rectus inferior, being, from its situation, the shortest muscle of the eye. It is inserted into the tunica sclerotica, opposite to the inner angle. Its use is to draw the eye towards the nose.

RE'CTUS MA'JOR CA'PITIS. See RECTUS CAPITIS POSTICUS MAJOR.

RE'CTUS SUPE'RIOR O'CULI, *Attolens oculi*, *Levator oculi*, or *Superbus;* the uppermost straight muscle of the eye. This arises from the upper part of the foramen opticum of the sphænoid bone below the levator palpebræ superioris, and runs forward to be inserted into the superior and fore part of the sclerotic membrane by a broad and thin tendon.

RECURRENT NERVES. This name is given to two branches of the par vagum in the cavity of the thorax. The right is given off near the subclavian artery, which it surrounds, and is reflected upwards to the thyroid gland; the left a little lower, and reflected around the aorta to the œsophagus, as far as the larynx. They are both distributed to the muscles of the larynx and pharynx.

REDDLE, a sort of ochre or argillaceous earth, of a dark red colour, used medicinally as a tonic and antacid in the old practice, but neglected at present.

RED SAUNDERS. See SANTALUM RUBRUM.

REFLUENT, flowing back, a term generally ascribed to the veinous blood, because that flows back to the heart.

REFRIGERANTS (*refrigerantia;* from *refrigero*, to cool); medicines supposed to diminish the heat of the living body. Dr. Cullen, in many trials made on purpose, did not find that the supposed refrigerants diminish that temperature of the body which is the ordinary temperature of it in health. He is therefore disposed to define refrigerants to be such medicines as diminish the temperature of the body when preternaturally increased. It is especially upon such occasions that their power is supposed, and resorted to, by physicians: and as the heat of the body, whether from internal or external causes, is never increased beyond its ordinary degree, but with an increased action of the sanguiferous system; so the refrigerants, as they diminish this increased action, are justly put under the general title of *Sedatives;* but being substances, both in their quality and operation, very different from sedantia, they require to be treated of separately.

In what manner these remedies produce their effects, Dr. Cullen says, is not well ascertained. Whether they act by diminishing the temperature of the body, as being themselves of a temperature lower than that of the body itself, or whether they operate only by removing the cause of heat, are questions not yet settled by medical writers. The former opinion has been frequently supported, and that from a particular consideration. As the neutral salts, which are the refrigerants chiefly employed, do, upon being dissolved in water, generate a considerable degree of cold; so it has been supposed that they may in like manner generate cold in our bodies, and therefore produce their effects as by an actual cold applied. This conclusion, however, will readily appear to be a mistake, when it is considered, that the cooling power of these neutral salts in water appears only during the time of their solution. When taken indeed undissolved, they may, as in Dr. Brocklesby's and Mr. Alexander's experiments, *generate cold* in the stomach, and from thence have particular effects: but as after solution they produce no permanent cold; so, when taken in a dissolved state, as they commonly are, their refrigerant powers cannot be ascribed to any actual cold applied.

The conclusion drawn from their solution in water further appears to be very erroneous, from this; that acids, which are as powerfully refrigerant in the human body as the neutral salts, do however, upon being mixed with water, always generate heat; and even the neutral salts, when anyhow deprived of their water of crystallisation, do, upon that water being restored to them, always generate heat. It is not therefore any thing in the nature of the saline matter that has a power of generating heat or cold in water or in other bodies, but that the appearance of such a power depends entirely upon the circumstances of solution or mixture, and appears no longer than these circumstances exist.

It is not therefore by any actual cold applied, that our refrigerant remedies diminish the heat of the living body; although in what other manner they do it may be difficult to explain. Upon this subject Dr. Cullen ventures a conjecture, which is founded on one of Mr. Needham's theories. He assumes from that writer, what he thinks he has demonstrated in fact, that there is every-where in nature an expansive force and a resisting power; and that particularly under a certain degree of heat, the expansive power appears in all the parts of organised bodies, in consequence of which they shew a singular vegetating power; while at the same time, in other bodies, there is a power resisting and preventing the action of this vegetating power, or at least of diminishing its force. This resisting power was actually found in those saline bodies which we commonly suppose to be refrigerant with respect to the living body.

As heat is the great support of expansive force, so Dr. Cullen supposes that every increase of heat is no other than an increase of the expansive force in the heated parts; and from this he conceives it may be understood, how resisting powers may diminish any preternatural expansive force and heat in the human body. This the doctor thinks sufficient to account for the refrigerant power of saline bodies; and the doctrine seems to be illustrated and further confirmed by this, that besides organised bodies, there seems to be an expansive force in all bodies disposed to any fermentation. This seems always to begin by an expansion of air from a fixed to an elastic state; and it is very certain in fact, that by the contiguity of a sufficient quantity of saline substances, that is of resisting power, the beginning of every fermentation is prevented. Such resisting powers have been often taken notice of as antiseptic; but there is hardly any doubt that the more general term of *antizymic* may be fairly applied to them; and under this denomination many other substances besides the saline may perhaps come, but whether they are ever also refrigerant with respect to the human body, or why they are not, cannot easily be determined.

The operation of refrigerant powers, however, though here supposed different, seems in some respects to be *analogous to the operation of actual cold applied.* This indeed not only changes the temperature of bodies, but in a certain degree proves a resisting and antizymic power. The operation of cold upon the body is attended with this peculiar circumstance, that when applied in a moderate degree, and with no long continuance, it always increases the heat of the part to which it is applied; and from the redness which it at the same time produces, it is pretty certain that both effects are produced by its increasing the action of the blood-vessels in the parts. Its effects as a stimulant are upon no occasion more remarkable than when any substance is taken into the stomach, of such a temperature as to feel cold there; it commonly produces a sense of heat on the surface of the body, and a disposition to sweat, to be easily promoted, if at the same time the cold of the external air is avoided by proper coverings.

Precisely analogous to this is the action of refrigerants when taken into the stomach; for though Dr. Cullen denies their producing any actual cold there, he allows they always produce a determination to the surface of the body, and a disposition to sweat; which we may doubtless ascribe to a refrigerant power, or, if the expression may be allowed, to a *potential cold* which they are able to produce. How this is to be reconciled to the refrigerant power which they are supposed to exert with respect to the whole system, is not easy to explain.

For our present purpose, however, it is perhaps enough to say, that the stimulant operation of actual cold, which sometimes occurs, will not be sufficient to make us deny its power, when longer continued or frequently repeated, of diminishing the temperature of the body; so the stimulant power which refrigerants frequently exert in the stomach will not be sufficient to render their refrigerant power doubtful, with respect to the whole system, which indeed the experience of all ages has shewn.

But the substances which we suppose to be refrigerant, are not only such as act by potential cold, but at the same time by other operations that may contribute to diminish the action of the sanguiferous system. These operations are, their being laxative in the intestines, and diuretic in the kidneys; and Dr. Cullen also supposes their relaxing a febrile spasm on the surface of the body to be another means concurring to their general effect.

The particular refrigerants enumerated by Dr. Cullen are, the mineral and vegetable acids, the acid of borax, and the neutral salts, with the exception of common salt.

REFRIGERATORY, a cooler. It is that part of a distilling vessel, that is situated about the head of a still, and filled with water to cool and condense the rising vapours. This is now generally done by a worm, or spiral pipe, running through a tub of cold water.

RE'GIMEN, the regulation of diet, and, in a more general sense, of all the non-naturals, with a view to preserve or restore health. See ALIMENT, FOOD, DIET, &c. The vicissitudes of exercise and rest form also a necessary part of regimen. See EXERCISE. It is beneficial to be at rest now and then, but more so frequently to use exercise, because inaction renders the body weak and listless, and labour strengthens it. But a medium is to be observed in all things, and too much fatigue is to be avoided as much as inaction: for violent exercise overpowers the natural strength, and wastes the body. Moderate exercise ought always to be used before meals; and of all kinds of exercise, none is preferable to riding on horseback. If the person be too weak to bear this, riding in a coach, or open chair, is advisable. For the young and athletic, fencing, playing at ball, running, walking, &c are suitable. It is amongst the inconveniences of old age, that there is seldom sufficient strength for using bodily exercise, though it be extremely requisite for health: in that case frictions with the flesh-brush are necessary at this time of life; and these should be performed by the person himself, if possible, or if not, by a servant. Sleep, the sweet soother of care and restorer of strength, repairs the wastes that are made by the labour and exercise of the day. Yet excessive sleep blunts the senses, and renders them less fit for the duties of life. The proper time for sleep is the night, when darkness and silence invite and bring it on: day-sleep is less refreshing; and this rule, if it be proper for the multitude to observe, much more is the observance of it necessary for persons addicted to literary studies, whose minds and bodies are more susceptible of injury.

REGI'NA PRA'TI. See ULMARIA.

RE'GISTER, a contrivance in chemical furnaces to make the heat immediately more or less intense, by letting more or less air pass through the fire.

RRGULAR GOUT. See ARTHRITIS.

RE'GULUS (dim. of *rex*, a king; so called because the alchemists expected to find gold, the king of metals, collected at the bottom of the crucible after fusion); a name given by the alchemists to metallic matters when separated from other substances by fusion; as, regulus of antimony, regulus of arsenic, &c.

RE'GULUS OF ANTIMONY; the pure semi-metal antimony. See Antimony.

RE'GULUS OF ARSENIC, pure arsenic. See Arsenic.

REME'DIUM DIVI'NUM. See Imperatoria.

REMITTENT FEVER. See Febris continua.

RE'MORA ARA'TRI (*remora*, from *remoror*, to hinder, and *aratrum*, a plough; so called because it hinders the plough). See Ononis.

REMOTE CAUSE. See Exciting cause.

RENA'LES GLANDULÆ. See Capsulæ renales.

RENAL VESSELS. See Emulgent vessels.

RE'NES (απο τȣ ρειν; because through them the urine flows). See Kidneys.

RENNET, or Runnet; the gastric juice and contents of the stomach of a calf; commonly employed in preparing cheese, and, in pharmacy, for making whey. To about a pound of milk, in a silver or earthen bason placed on hot ashes, add three or four grains of rennet, diluted with a little water; as it becomes cold the milk curdles, and the whey, or serous part, separates itself from the caseous part. When these parts appear perfectly distinct, pour the whole upon a strainer, through which the whey will pass, while the curds remain behind. This whey is always rendered somewhat whitish, by a very small and much-divided portion of the caseous part; but it may be separated in such a manner, that the whey will remain limpid and colourless, and this is what is called clarifying it. Put into a bason the white of an egg, a glass of the serum of milk, and a few grains of tartareous acid in fine powder: whip the mixture with an ozier twig, and, having added the remainder of the unclarified whey, place the mixture again over the fire until it begins to boil. The tartareous acid will complete the coagulation of the white part of the milk which remains; the white of egg, as it becomes hot, coagulates and envelops the caseous part. When the whey is clear, filter it through paper; what passes will be perfectly limpid, and have a greenish colour. This is clarified whey, very suitable as a diluent in many diseases.

REPELLE'NTIA, also named *Repercutientia*, and *Reprimentia*; medicines suited to diminish the influx of the fluids into the parts to which the medicines are applied; or to drive backwards the fluids already in those parts. These terms, in whatever sense employed, being too general, Dr. Cullen thinks are therefore improper. Their operation is similar to that of astringents.

REPERCUTIE'NTIA. See Repellentia.

REPRIME'NTIA. See Repellentia.

REPULSION, the cause which opposes itself to *attraction*. This has been acknowledged by all who are conversant in physics, with respect to the celestial bodies; and it has been very justly termed a power as real as attraction, which repels bodies after they have approached each other to a certain point, and prevents their uniting together. Some philosophers have rejected this repulsion, which Sir Isaac Newton had allowed in sublunary things; but if we examine most of the operations of chemistry, it is impossible not to admit a retropulsive property in bodies.

RESIN, BLACK. See Resina nigra.

RESIN, ELASTIC. See Caoutchouc.

RESIN-TREE, ELASTIC. See Caoutchouc.

RESIN, WHITE. See Resina flava.

RESIN, YELLOW. See Resina flava.

RESI'NA (from ρεω, to *flow*), resins. These are concrete substances, possessing a certain degree of transparency, and are generally of an amber or brownish-red colour. Their texture is homogeneous, and their fracture vitreous. They are easily reduced to powder, which readily agglutinates. Their specific gravity varies from 1.0452 to 1.2289. They have little taste or smell. Exposed to a certain degree of heat, they melt without suffering alteration, but they are decomposed when converted into vapour. Their vapour is inflammable, and burns with a large strong flame and a great deal of soot. Resins unite by fusion with sulphur; but difficultly with phosphorus. They are soluble in alcohol, the fixed and the volatile oils, alkalis, and in nitric acid with evolution of nitrous oxid. They are insoluble in water, and are not acted upon by metallic oxids. The *officinal* resins are: Pine resins, dragon's-blood, guaiacum; the balsams of Peru, Tolu, Gilead, and Canada; turpentine, benzoin, storax, olibanum, tacamahac, mastiche, sandarac, and elemi. Amber, copal, and about one-fifth of sandarac, differ from the resins in not being soluble in alcohol without particular management. Their effects in medicine are described under their proper names.

RESI'NA A'LBA. See Resina flava.

RESI'NA ELA'STICA. See Caoutchouc.

RESI'NA FLA'VA; or Resina alba. Yellow resin is what remains in the still after distilling oil of turpentine, by adding water to the common turpentine. It is of very extensive use in surgery as an active detergent, and forms the base of the *unguentum resinæ flavæ*.

RESI'NA LUTEA NOVI BELGII, the New Holland or Botany Bay gum, the history of which is imperfectly known. The plant that produces it is low and small, with long grassy leaves; but the fructification of it shoots out in a singular manner from the centre of the leaves, on a single straight stem, to the height of twelve or fourteen feet. Of this stem, which is strong and light, like some of the reed class, the natives usually make their spears. The resin is generally dug up out of the soil under the tree, not collected from it, and may perhaps be that which Tasman calls 'gum lac of the ground.' Mr. Boles says, it commonly exudes in round tears, or drops, from the size of a large pea to that of a marble, and sometimes much larger. These are by the heat of the sun frequently so much softened, that they fall on the ground, and in this soft state adhere to whatever they fall upon; hence the gum is frequently found mixed with dirt, wood, the bark of the tree, and various other substances: so that one lump has been seen composed of many small pure pieces of various sizes united together, which weighed nearly half a hundred weight. It is produced in such abundance, that one man may collect thirty or forty pounds in the space of a few hours. Several experiments have been made principally with the view of determining what menstruum would dissolve this gum the most readily, and in the greatest quantity. The following table shews the quantity of gum that is dissolved by one ounce of various menstrua:

	Oz.	Dr.	Scr.	Gr.
Alcohol	2	—	—	—
Rectified spirit . . .	2	—	—	—
Æther	1	3	—	—
Sp. eth. vitriol. . . .	1	3	—	—
Sp. eth. nitros. . . .	1	3	—	—
Brandy	—	7	—	—
Aq. kali pur. . . .	—	1	—	—
Cyder	—	—	1	5
Calcavalla wine . .	—	—	—	18
Lime and water . .	—	—	—	10
Port-wine	—	—	—	8½
Ol. terebinth. . . .	—	—	—	4
Water	—	—	—	4
Aq. kali	—	—	—	3
Aq. ammon. pur. . .	—	—	—	2
Acid. vitr. dilut. . .	—	—	—	2
Acid. nitr. dilut. . .	—	—	—	2
Acet. distil.	—	—	—	2
Aq. calcis	—	—	—	2
Ol. olivæ	—	—	—	2

The diseases in which this resin is administered, are those of the primæ viæ, and principally such as arise from spasm, a debility, a loss of tone, or a diminished action in the muscular fibres of the stomach and bowels, such as loss of appetite, sickness, vomiting, flatulency, heart-burn, pains in the stomach, &c. when really idiopathic complaints, and not dependent upon any disease in the stomach, or affections of other parts of the body communicated to the stomach. When the gum itself is given, it should always be the pure unmixed part; if given in the form of a draught, it should be mixed in water with mucilage of gum-arabic; if made into pills, a small portion of Castile soap may be employed; it was found that the lixiv. sapon. dissolved it entirely. It is commonly, however, made into a tincture by mixing equal parts of the gum and rectified spirit. One drachm of this tincture (containing half a drachm of the pure gum), made into a draught with water and syrup, by the assistance of fifteen grains of gum-arabic in mucilage, forms a palatable and elegant medicine.

RESI'NA NI'GRA, or *Colophonia;* black resin. What remains in the retort after distilling the spirit of turpentine from the common turpentine, goes by this name.

RESINS, GUM. See Gum-resins.

RESOLVE'NTIA (from *resolvo*, to loosen), resolvents; a term often employed in the same sense as that of *Discutientia*, for medicines suited to remove those external tumors which are supposed to depend upon obstruction. Whether employed either externally or internally, they are supposed to produce their effects by destroying the cohesion of concreted fluids. Dr. Cullen thinks this term is employed upon a very uncertain foundation.

RESOLUTION; a termination of inflammatory affections in which the disease disappears without inducing any other disease. See Inflammation.

RESPIRATION (from *respiro*, to breathe); that motion of the lungs and thorax in which the external atmosphere is alternately drawn in and expelled. This important function is performed by organs of two kinds, one of which may be looked upon as active, the other as passive. The lungs are of the latter kind (see Lungs); and the first comprehends chiefly the diaphragm and intercostal muscles. See Diaphragm and Intercostales. As soon as the intercostal muscles begin to contract, the arches of the ribs are raised, together with the sternum, and placed at a greater distance from each other; by which means the cavity of the thorax is enlarged on the two lateral and anterior sides.

At the same instant the diaphragm is flatted or brought toward a plane by two motions, which are apparently contrary; that is, by the contraction of the diaphragm, and the dilatation of the ribs in which it is inserted. The external surface of the thorax being thus in a manner increased, and the cavity of the bronchia being at the same time, and by the same means, less resisted or pressed upon, the ambient air yields to the external pressure, and insinuates itself into all the places where the pressure is diminished; that is, into the aspera arteria, and into all the ramifications of the bronchia, all the way to the vesicles. This is what is called *inspiration*. This motion of inspiration is instantaneous, and ceases in a moment, by the relaxation of the intercostal muscles; the elastic ligaments and cartilages of the ribs bringing them back at the same time to their former situation. This motion, by which the ribs are depressed and brought nearer to each other, is termed *exspiration*.

These alternate motions, which constitute respiration, besides other uses to be hereafter ascribed to them, are of infinite importance in the assistance they give to the general circulation of the blood. The pulmonary arteries and veins, which accompany the bronchia through all their ramifications, and surround the vesicles, transmit the blood through their narrow capillary extremities; and its progressive motion is, of course, considerably augmented by the act of breathing, and by the occasional impulses which arise from the concussion of the bronchial tubes in the exercise of the voice. The quantity of blood which enters into the lungs is exceedingly great, equal to (or even perhaps greater than) that which is sent in the same time throughout the rest of the body. This circumstance, of itself, demonstrates some very considerable use proper to this viscus. Hence a dying animal is revived by inflating its lungs, and facilitating the passage of the blood to the left ventricle of the heart; and thus people, seemingly dead by being kept a long time under water, are again recovered. See Resuscitation.

The cartilages of the aspera arteria and bronchia serve in general to compose a canal, the sides of which will not sink in or subside by compression, but will nevertheless yield to certain pressures and impulses without breaking. As these cartilages are not complete circles or rings, and as their circumferences are completed by elastic membranes, they allow of those dilatations and contractions which modulate the voice; and as they are connected by elastic ligaments of a considerable breadth, the alternate elongation and contraction of the bronchia is facilitated in the motions of respiration.

The first change or modification which the blood undergoes in the lungs, is that of its intermixture with the oxygen of the atmosphere. The second consists in the evacuation of a certain quantity of water, which transpires through the lungs, forming what we commonly call the *breath.* A third office assigned to the act of respiration is the important one of the production of heat, as will be shewn presently. A fourth is its assistance in passing downwards the fœcal contents of the intestines. In a word, respiration constitutes one of those functions which are properly termed *vital,* as being essential to life; for to live and *to breathe* are in fact synonymous terms.

It will perhaps be easy to distinguish and point out the several phenomena of respiration; but *to explain their physical cause* will be attended with difficulty: for it will naturally be enquired, how the lungs, when emptied of the air, and contracted by exspiration, become again inflated, they themselves being perfectly passive? How the ribs are elevated in opposition to their own natural situation; and why the diaphragm is contracted downwards towards the abdomen? Were we to assert that the air, by forcing its way into the cavity of the lungs, dilated them, and consequently elevated the ribs, and pressed down the diaphragm, we should speak erroneously. What induces the first inspiration, it is not easy to ascertain; but after an animal has once respired, it would seem likely that the blood, after exspiration, finding its passage through the lungs obstructed, becomes a stimulus, which induces the intercostal muscles and the diaphragm to contract, and enlarge the cavity of the thorax, in consequence perhaps of a certain nervous influence, which we will not here attempt to explain. The air rushes into the lungs; every branch of the bronchial tubes, and all the cellular spaces into which they open, become fully dilated; and the pulmonary vessels being equally distended, the blood flows through them with ease. But as the stimulus which first occasioned this dilatation ceases to operate, the muscles gradually contract, the diaphragm rises upwards again, and diminishes the cavity of the chest; the ribs return to their former state; and as the air passes out in exspiration, the lungs gradually collapse, and a resistance to the passage of the blood again takes place. But the heart continuing to receive and expel the blood, the pulmonary artery begins again to be distended, the stimulus is renewed, and the same process is repeated, and continues to be repeated, in a regular succession during life.

Till within these few years, physiologists were entirely ignorant of one of the most important uses of respiration. The illustrious Dr. Priestley found, that the air exspired by animals was (to use his own terms) "phlogisticated;" and that the air was fitter for respiration, or for supporting animal life, in proportion as it was freer from the "phlogistic principle." It had long been observed, that the blood in passing through the lungs became more florid. He therefore suspected, that it was owing to its having imparted phlogiston to the air: and he satisfied himself of the truth of this idea by experiments, which shewed, that the crassamentum of extravasated blood, phlogisticated air in proportion as it lost its dark colour. He further found, that blood thus reddened, had a strong attraction for phlogiston; insomuch, that it was capable of taking it from phlogisticated air, thereby becoming of a darker colour. From hence it appeared, that the blood, in its circulation through the arterial system, imbibes a considerable quantity of phlogiston, which is discharged from it to the air in the lungs. This curious and important subject has since been further elucidated by the experiments of Dr. Crawford and other ingenious physiologists, who have established beyond all controversy, that both carbonic and azotic gas are imparted to the atmosphere from the lungs of animals, and that from the atmosphere they absorb oxygen.

Of *animal heat* the most rational theory is one which properly belongs to the 17th century: it is confirmed by modern discoveries, and has ascribed this heat to respiration. Many physiologists had observed, that those animals which respire most have the warmest blood. "*Quod autem animalia calidiora fortius respirent, non probat respirationem illis potius datam esse, ad sanguinis refrigerium.*" Lower demonstrated, that this blood received a new and a brighter colour in passing through the lungs. Verheyen and Borelli both proved, that the air lost something by coming in contact with that organ. Mayow shewed, that this something which the air loses is contained in nitre. Experience taught the workers in nitre, that this something was absorbed from the air; and Verheyen remarked, that it is also absorbed by the lungs; and it is probably that which maintains combustion, which qualifies the air for giving support to animal life, and imparts to the blood the vermilion colour.

How well the whole of this reasoning was founded, is proved by the later discoveries of Priestley and other chemists. There is now obtained, in a separate state, an aërial fluid, oxygen, which maintains both life and combustion, and gives a vermilion colour to the blood. It is extracted in a very large quantity from nitre; is one of the component parts of the atmosphere, and the vital principle of that element; without which, in most animals, life is extinguished. From some phenomena which happen in combustion, it has been termed *principium sorbile.* It was called *dephlogisticated air* by Priestley, the first discoverer; as the great acidifying cause in nature: the French nomenclature has given it the name of *oxygenous gas;* and, as one of the causes on which the existence both of fire and of life depends, it is named *empyreal* or *vital air.*

Late discoveries have shewn further, how this air may in respiration produce heat. From the most accurate investigations, it appears, that caloric, or the principle of heat, is a distinct substance in nature; that it combines with different bodies in different degrees; that it is the cause of fluidity in all; and that, in proportion to that capacity which they have for it, and to that distance at which they are removed from the fluid state, the more or less caloric they contain. Aëriform bodies being all therefore exceedingly fluid, it must be evident, that when they are fixed or condensed in the blood, and made to approach nearer solidity, a quantity of heat must be evolved. A part of this is very plainly evolved in the lungs, where the air is absorbed, as appears by the breath; and a part evolved by the action of vessels, as appears from nearly an equal heat over the system, from the partial heat of a morbid part, and the sudden transition from heat to cold, and from cold to heat, over the surface, when the vessels are affected by either internal or external stimuli. When the heat, thus evolved by the gradual fixation of that body with which it was combined, has been successful in making its escape by the lungs and integuments, the blood returns in a dark and sluggish stream by the veins, and mingles again with the genial fluid, which before gave it spring, activity, and life.

Of that oxygen which remains in the system, part is employed in forming different saline combinations, and supplying the waste occasioned by that constant reabsorption; which, from many experiments that have been made with solutions of matter, is known to take place in the solid bones. The use of that oxygenous gas which returns with the breath, is best understood after knowing its affinities. Its basis oxygen, combining with hydrogen, which is the basis of inflammable air, forms water; and, combining with carbon, the carbonic acid. It carries, therefore, back with the breath, a part of the carbon produced by the slight combustion of the blood, and a quantity of hydrogen arising from the watery fluid decomposed.

But oxygenous gas does not alone enter the lungs. Of 100 parts of the atmosphere, but 28 are oxygenous gas, $\frac{1}{200}$ is carbonic acid, and 72 are azotic gas. These last, though intended chiefly for other beings different from man, which are in immense numbers on the globe, but which, like him and the nobler animals, are not formed to breathe the empyreal air, must notwithstanding be of some important and essential use to all living bodies. It has accordingly been found by experiment, that pure and unmixed oxygenous gas cannot be breathed for any very considerable time without danger; that some azot is contained in the blood, and has been extracted from the muscular fibre, when properly treated with the nitric acid. According to Berthollet, five of its parts with one of hydrogen, form ammonia or volatile alkali; which dispels the glandular tumors of the body, and prevents the coagulation of blood and the thickening of mucus which arise from acids. The azotic gas may therefore in part unite with hydrogen, may prevent the coagulation of serum, the catarrhous formation of viscid mucus, and many combinations that oxygen might form, injurious to the system. The carbonic acid, which is $\frac{28}{100}$ of carbon and $\frac{72}{100}$ of oxygen, may also be necessary in regulating the effects of the other two. It is generated in the lungs of those animals which respire oxygen. In small proportions it favours the growth of the vegetable tribes, which readily decompose it; and, with the addition of other oxygen prepared from the water they contain, restore what is pure to the general mass of the vital fluid, that plants and animals might thus live by the mutual performance of kind offices.

Every theory that pretends to account for animal heat, ought also to account for that singular equality of heat which the system preserves, or endeavours to preserve, in different temperatures. The above theory explains it simply. Venous blood, if exposed to the air, is known to absorb a portion of oxygen, and assume that colour which it has in the pulmonary veins and aorta. Suppose an absorption of a similar kind taking place in the lungs, a fact which may be proved by decisive experiments; it is plain that the oxygen by this absorption must recede from its gaseous or fluid state; that a quantity of heat must be therefore evolved, which, along with the heat of the refluent blood, is carried away by that vapour which issues from the lungs. In the course of circulation, the oxygen will naturally incline, with hydrogen, to form water: it will tend likewise to the formation of many other compounds; and, as it enters into new states, and is further removed from gaseous fluidity, it must still be giving out a portion of heat. If the surrounding temperature be cold, this separation will be easily effected. The caloric will, in that case, be greedily absorbed from the interior surface of the lungs and exterior surface of the whole body. The oxygen, meeting with the necessary temperature, will readily pass into new forms; and the venous blood, returning to the lungs, will demand a supply which will be either greater or less according as the cold, by favouring the escape of the caloric and promoting new combinations with oxygen, had removed it from the point of usual saturation.

The gradual evolution of heat is a proof that the temperature must be sometimes reduced before the oxygen can properly enter into all the usual combinations of the system. Suppose the body, then, to be placed within a hot circumambient atmosphere. This atmosphere, if warmer than the animal, will be more apt to part with heat than to receive it; and the oxygen absorbed, being thus unable to dispose of its caloric, will be prevented from passing into those combinations and forms where heat is evolved. The venous blood will therefore conduct it back to the lungs, and make a demand for a new supply; but proportionably less according as the hot circumambient air, by preventing the escape of the caloric, and the usual facility of new combinations, has confined its removal to a smaller distance from the point of saturation.

In this last case, the thing principally entitled to notice is a very curious effort of nature to resist the growing increase of heat. In the warm atmosphere, as during violent muscular exertion, the exhaling vapour is commonly discharged in a greater quantity from the surface of the body; and consequently the heat furnished with an excellent temporary conductor, that in some measure counteracts the dangerous effects from without.

Dr. Crawford's curious theory of animal heat differs from the foregoing. Assuming as a fact, that heat and phlogiston are two opposite principles in nature, that ingenious writer says: "Animal heat seems to depend upon a process similar to a chemical elective attraction. The air is received into the lungs containing a great quantity of absolute heat; the blood is returned from the extremities highly impregnated with phlogiston; the attraction of the air to that of the phlogiston is greater than that of the blood. This principle will therefore leave the blood to combine with the air: by the addition of the phlogiston, the air is obliged to deposit a part of its absolute heat; and, as the capacity of the blood is at the same moment increased by the separation of the phlogiston, it will instantly unite with that portion of heat which had been detached from the air.

"We learn from Dr. Priestley's experiments with respect to respiration, that arterial blood has a strong attraction for phlogiston (become a vague word with different meanings in different authors). It will consequently, during the circulation, imbibe this principle from those parts which retain it with the least force, or from the putrescent parts of the system: and hence the venous blood, when it returns to the lungs, is found to be highly impregnated with phlogiston. By this impregnation its capacity for containing heat is diminished. In proportion, therefore, as the blood which had been dephlogisticated by the process of respiration becomes again combined with phlogiston in the course of circulation, it will gradually give out that heat which it had received in the lungs, and diffuse it over the whole system.

"To account for the stability of animal heat, he observes, that as animals are continually absorbing heat from the air, if there were not a quantity of heat carried off equal to that which is absorbed, there would be an accumulation of it in the animal body. The evaporation from the surface, and the cooling power of the air, are the great causes which prevent this accumulation: and these are alternately increased and diminished in such a manner as to produce an equal effect. When the cooling power of the air is diminished by the summer heats, the evaporation from the surface is increased: and when, on the contrary, the cooling power of the air is increased by the winter colds, the evaporation from the surface is proportionally diminished." See *Crawford on Animal Heat*, p. 73—84.

Taking the principles of fire and inflammability to be opposites in nature; this theory supposes that the blood, while in the lungs, gives out phlogiston and takes in heat; but that, during the remaining course of circulation, it gives out heat and takes in phlogiston. It supposes, that this phlogiston is collected from parts that retain it with little force, or from the putrescent parts of the system; it is not said where. It supposes that the blood, in passing through the lungs, receives heat only; that the whole of this heat is evolved in the lungs by precipitation; and is thence diffused over the system as from a centre or focus: in which case, we must also suppose that the lungs are the warmest part of the body; and that the heat of the other parts will be in proportion to their distance from the lungs, or the length of the vessels through which it has passed. As for the stability of animal heat, this theory ascribes it entirely to foreign causes; to the different degrees of evaporation; or to the varying states of the air.

The interruptions to which respiration is exposed, with the exceptions of hanging, suffocation, drowning, &c. are symptomatic of diseases that are considered under their proper names.

REST-HARROW. See Ononis.

RESTAURA'NTIA, restoratives; a term applied to medicines which are suited to restore lost strength; but commonly applied to those which restore that loss of strength depending upon the waste of fluids, and in that sense nearly the same with the term Nutrientia, which see.

RE'STA BO'VIS; the plant rest-harrow, popularly so called because it hinders the plough. See the article Ononis.

RESTRINGE'NTIA. See Astringentia.

RESUSCITATION (*resuscitatio*; from *resuscito*, to revive); the restoration of persons, apparently dead, to life. Under this head, strictly speaking, is to be considered, the restoring of those who are frozen, or who faint, or have breathed noxious and irrespirable air, or who may have been accidentally suffocated by any means whatever; yet it is chiefly confined to the restoring of those who are apparently dead from being immersed in a fluid, or by hanging, the means used in these last cases being applicable, with little variation, to all others. If we consider, that a drowned person is surrounded by water instead of air, and that in this situation he makes strong and repeated efforts to breathe, we should expect that the water would enter and completely fill the lungs. This opinion, indeed, directly avowed by the celebrated De Haen, was once very general, and it still continues to prevail among the common people. Experience, however, has shewn, that unless the body lies so long in the water as to have its living principle entirely destroyed, the quantity of fluid present in the lungs is either none at all, or inconsiderable in quantity; and it would seem, that some of what is occasionally found, is the natural moisture of the part accumulated. Upon drowning kittens, puppies, &c. in ink, or other coloured liquors, and afterwards examining the lungs, it has been found, that very little of the coloured liquor has gained admittance to them. Dr. Cullen indeed, at an early period, rejected De Haen's opinion on this point.

In explaining the reason why the lungs of drowned animals are so free from water, Dr. Curry, in his treatise on the subject, observes, that the muscles which form the opening into the wind-pipe are exquisitely sensible, and contract violently upon the least irritation, as we frequently experience when any part of the food or drink happens to touch them. In the efforts made by a drowning person, or animal, to draw in air, the water rushes into the mouth and throat, and is applied to these muscles, which immediately contract in such a manner as to shut up the passage into the lungs. This contracted state continues as long as the muscles retain the principle of life, upon which the power of muscular contraction depends; when that is gone, they become relaxed, and the water enters the wind-pipe, and completely fills it. On dissecting the body of a recently drowned animal, no particular fulness of the vessels within the skull, nor any disease of the brain or its membranes, is visible. The lungs also are sound, and the branches of the wind-pipe generally contain more or less of a frothy matter, consisting chiefly of air, mixed with a small quantity of colourless fluid. The *right* cavity of the heart, and the trunks of the large internal veins which open into it, and also the trunk and larger branches of the artery which carries the blood from this cavity through the lungs, are all distended with dark-coloured blood, approaching almost to blackness. The *left* cavity of the heart, on the contrary, is nearly, or entirely, empty, as are likewise the large veins of the lungs which supply it with blood, and the trunk and principal branches of the great artery which convey the blood from hence to the various parts of the body. The external blood-vessels are empty; and the fleshy parts are as pale as if the animal had been bled to death. When a body has lain in the water for some time, other appearances will also be observable; such as, the skin livid, the eyes bloodshot, and the countenance bloated and swoln; but these appearances, though certainly unfavourable, do not absolutely prove that life is irrecoverably gone. It is now known, that in the case of drowning, no injury is done to any of the parts essential to life; but that the *right* cavity of the heart, together with the veins and arteries leading to and from that cavity, are turgid with blood, whilst every other part is almost drained of it.

On these grounds the practices for effecting resuscitation in cases of drowning are to be observed as follows: It has been usual with the vulgar to hold up the bodies of drowned persons by the heels, or to roll them over a cask, with a view to discharge water from the mouth, &c. but this is unnecessary; the lungs not being filled with any thing that can be evacuated in this way. Therefore such a practice is highly dangerous, as the violence attending it may readily burst some of those vessels which are already overcharged with blood, and thus convert what was only suspended animation, into absolute and permanent death. The operation of inflating the lungs is a perfectly safe, and much more effectual, method of promoting the passage of the blood through them. This also renders the blood capable of stimulating the *left* cavity of the heart, and exciting it to contraction. As soon as the body is taken out of the water, it should be stripped of any clothes it may have on, and be immediately well dried. It should then be wrapped in dry warm blankets, or in the spare clothes taken from some of the by-standers, and be removed as quickly as possible to the nearest house that is convenient for the purpose. The fittest will be one that has a tolerably large apartment, in which a fire is ready, or can be made. The body may be carried in men's arms, or laid upon a door; or, in case the house be at a distance from the place, if a cart can be procured, let the body be placed in it, on one side, upon some straw, with the head and upper parts somewhat raised; and in this position a brisk motion will do no harm. Whatever be the mode of conveyance adopted, particular care should be taken that the head be neither suffered to hang backwards, nor to bend down with the chin upon the breast.

When arrived at the house, the assistants should lay the body on a mattress, or double blanket, spread upon a low table, or upon a door supported by stools; the head and chest being elevated by pillows. As the air of a room is very soon rendered impure by a number of people breathing in it, for this reason, as well as to avoid the confusion and embarrassment attending a crowd, no more persons should be admitted into the apartment where the body is placed, than are necessary to assist immediately in the recovery: in general, *six* will be found sufficient for this purpose, and these should be the most active and intelligent of the bystanders. It will be found most convenient to divide the assistants into two sets; one set being employed in restoring the heat of the body, while the other institutes an artificial breathing in the best manner they are able.

Mr. Hunter says, the loss of motion in drowning seems to arise from the loss of respiration; and the immediate effect this has upon the other vital motions of the animal; at least this privation of breathing, appears to be the first cause of the heart's motion ceasing. It is most probable, therefore, that *the restoration of breathing is all that is necessary to restore the heart's motion;* for if a sufficiency of life still remains to produce that effect, we may suppose every part equally ready to move the very instant in which the action of the heart takes place; their actions depending so much upon it. What makes it very probable that the principal effect depends upon throwing air into the lungs is, that children in the birth, when too much time has been spent after the loss of that life which is peculiar to the fœtus, lose altogether the disposition for the new life. In such cases there is a total suspension of the actions of life; the child remains to all appearance dead, and would die, if air was not thrown into its lungs, and the first principle of action by that means restored. To put this in a clearer light, Mr. Hunter made some experiments on a dog, with a pair of double bellows, so constructed, that by one action air was thrown into the lungs, and by the other the air was sucked out which had been thrown in by the former, without mixing them together. The muzzle of these bellows was fixed into the trachea of a dog, and by working them the animal was kept perfectly alive. While this artificial breathing was going on, the sternum was taken off, so that the heart and lungs were exposed to view. The heart then continued to act as before, only the frequency of its action was greatly increased. On stopping the motion of the bellows, the contractions of the heart became gradually weaker and less frequent, till it left off moving altogether; but by renewing the operation, the motion of the heart also revived, and soon became as strong and frequent as before. This process was repeated upon the same dog ten times; sometimes stopping for five, eight, or ten minutes. Mr. Hunter observed, that every time he left off working the bellows, the heart became extremely turgid with blood, and the blood in the left side became as dark as that in the right, which was not the case when the bellows were working. These situations of the animal, he observes, seem to be exactly similar to drowning.

The persons employed should be provided with a flexible tube of elastic gum, half a yard in length, to introduce into the wind-pipe; and also a similar tube to which a syringe can be affixed, to be passed into the œsophagus. Should these not be at hand, air should be thrown into the lungs in the best manner that can be suggested at the time. Should it however be found that the air does not pass readily into the lungs, immediate recourse must be had to the bellows now pretty generally employed on these occasions, and by which atmospheric air, or, what is far better, oxygen gas, may be forced into the lungs, instead of *the human breath* already deprived of its vivifying principle. As this method, however, requires address, and also some knowledge of the anatomy of the parts about the throat, it will be most likely to succeed in the hands of a medical gentleman. As a quantity of frothy matter sometimes occupies the branches of the wind-pipe and prevents the entrance of the air into the lungs, without its being accompanied with water, or some other fluid, which would be injurious, the utmost care should be taken to wipe away all moisture from about the epiglottis, before any attempt is made to force air into the lungs. This is a circumstance not sufficiently attended to; though nothing can more certainly preclude resuscitation than *the transmission of water*, or of watery fluids, into the air-vessels of the lungs.

While one set of the assistants are engaged in performing artificial respiration, the other should be employed in communicating heat to the body. The warm-bath has been usually recommended for this purpose; but wrapping the body in blankets, or woollen cloths, strongly wrung out of warm water, and renewing them as they grow cool, besides being a speedier and more practicable method of imparting heat, has this great advantage, that it admits of the operation of inflating the lungs being carried on without interruption. Until a sufficient quantity of warm water can be got ready, other methods of restoring warmth may be employed; such as the application of dry warm blankets round the body and limbs; bags of warm grains or sand, bladders or bottles of hot water, or hot bricks, applied to the hands, feet, and under the arm-pits, the bottles and bricks being covered with flannel: or the body may be placed before the fire, or in the sun-shine if strong at the time, and be gently rubbed by the assistants with their warm hands, or with cloths heated at the fire or by a warming-pan. The restoration of heat should always be gradual, and the warmth applied ought never to be greater than can be comfortably borne by the assistants. If the weather happen to be cold, and especially if the body has been exposed to it for some time, heat should be applied in a very low degree at first: and if the weather be under the freezing point, and the body when stripped feel cold and nearly in the same condition with one that is frozen, it will be necessary at first to rub it well with snow, or wash it with cold water; the sudden application of heat in such cases, having been found very pernicious. In a short time, however, warmth must be effectually applied.

To assist in rousing the activity of the vital principle, it has been customary to apply various stimulating matters to different parts of the body. But as some of these applications are in themselves hurtful, and the others serviceable only according to the time and manner of their employment, it will be proper to consider them particularly.

Mr. Hunter observes, that when assistance is soon called in after immersion, blowing air into the lungs will in some cases effect a recovery; but when any considerable time has been lost, stimulant medicines, such as the vapour of volatile alkali, ought to be mixed with the air; which may easily be done, by holding spirits of hartshorn in a cup under the receiver of the bellows. And, as applications of this kind to the olfactory nerves tend greatly to rouse the living principle, and put the muscles of respiration into action, it may probably, therefore, be most proper to have air, impregnated in that manner, thrown in by the nose. To prevent the stomach and intestines from being too much distended by the air so injected, the larynx is required to be gently pressed against the œsophagus and spine.

The application of all such matters in cases of apparent death, is founded upon the supposition that the skin still retains sensibility enough to be affected by them. It is well known, however, that even during life, the skin loses sensibility in proportion as it is deprived of heat, and does not recover it again until the natural degree of warmth be restored. Previous to the restoration of heat, therefore, to a drowned body, all stimulating applications are useless, and, so far as they interfere with the other measures, are also prejudicial. The practice of rubbing the body with salt or spirits is now justly condemned. The salt quickly frets the skin, and has in some cases produced sores, which were very painful and difficult to heal after recovery. Spirits of all kinds evaporate fast, and thereby, instead of creating warmth, as they are expected to do, carry off a great deal of heat from the body. Spirit of hartshorn, or of sal volatile, are liable to the same objection as brandy or other distilled spirits, and are besides very distressing to the eyes of the assistants. When there is reason to think the skin has in any degree recovered its sensibility, let an assistant moisten his hand with spirit of hartshorn, or *eau de luce*, and hold it closely applied to one part: in this way evaporation is prevented, and the full stimulant effect of the application obtained. A liniment composed of equal parts of spirit of hartshorn and sallad oil, well shaken together, would appear to be sufficiently stimulating for the purpose, and as it evaporates very slowly, will admit of being rubbed on without producing cold. The places to which such remedies are usually applied, are, the wrists, ankles, temples, and the parts opposite the stomach and heart. The intestines, from their internal situation and peculiar constitution, retain their irritability longer than the other parts of the body, and, accordingly, various means have been proposed for increasing the action of their fibres, in order to restore the activity of the whole system. Tobacco-smoke, injected by way of clyster, is what has been generally employed with this view, and the *fumigator*, or instrument for administering it, made a part of the apparatus which has been distributed by the different societies established for the recovery of drowned persons. However, the use of tobacco-smoke was objected to by Mr. Hunter upon very strong grounds; for when we consider, that the same remedy is successfully employed with the very opposite intention, namely, that of lessening the power of contraction in the muscles, and occasioning the greatest relaxation consistent with life, it must be acknowledged to be a very doubtful, if not dangerous, remedy, where the powers of life are already nearly exhausted. Instead of tobacco-smoke, then, Dr. Curry recommends a clyster, consisting of a pint or more of water, moderately warmed, with the addition of one or two table-spoonfuls of spirit of hartshorn, a heaped tea-spoonful of strong mustard, or a table-spoonful of essence of peppermint: in defect of one or other of these, half a gill or more of rum, brandy, or gin, may be added, or the warm water given alone. This step, however, need not be taken, until artificial respiration has been begun; for it will answer but little purpose to stimulate the heart through the medium of the intestines, unless we, at the same time, supply the left cavity with blood fitted to act upon it; which we cannot do without first removing the collapsed state of the lungs, and promoting the passage of the blood through them by a regular inflation.

As the stomach is a highly sensible part, and intimately connected with the heart and brain, the introduction of some moderately warm stimulating liquor into it, seems well calculated to rouse the dormant powers of life. This is very conveniently done by means of a syringe and flexible tube. The quantity of fluid thrown in ought not to exceed half a pint, and may be either warm negus, or water with the addition of one or other of the stimulating matters recommended above, using, however, only half the quantities mentioned there. As soon as the pulse or beating of the heart can be felt, the inside of the nostrils may be occasionally touched with a feather dipped in spirit of hartshorn, or sharp mustard; it being found by experience, that any irritation given to the nose, has considerable influence in exciting the action of the muscles concerned in respiration. When the natural breathing commences, the flexible tube and canula should be withdrawn, and any further inflation necessary, performed by blowing into the nostril.

Letting blood has been very generally thought requisite in every case of suspended animation. The practice, however, does not appear to have been founded upon any rational principle at first; and it has been continued from the force of custom, rather than from any experience of its good effects. Mr. Hunter condemns the practice unequivocally. In the case of drowned persons there is not, as in those who suffer from hanging or apoplexy, any unusual fulness of the vessels of the brain; and the quantity of blood that can be drawn from the external veins, will not sensibly diminish the accumulation of it in those near the heart. Besides, blood-letting, which always tends to *lessen* the action of the heart and arteries in the living body, cannot be supposed to have a directly opposite effect in cases of apparent death; on the contrary, if employed here, it will hazard the entire destruction of those feeble powers which yet remain, and to increase and support which all our endeavours should be directed.

When the several measures recommended above, have been steadily pursued for an hour or more, without any appearance of returning life, electricity should be tried; experience having shewn it to be one of the most powerful stimuli yet known, and capable of exciting contraction in the heart and other muscles of the body, after every stimulus had ceased to produce the least effect. Moderate shocks are found to answer best, and these should, at intervals, be passed through the chest in different directions, in order, if possible, to rouse the heart to act. Shocks may likewise be sent through the limbs, and along the spine; but we are doubtful how far it is safe or useful to pass them through the brain, as some have recommended. The body may be conveniently insulated, by placing it on a door supported by a number of quart bottles, whose sides are previously wiped with a towel, to remove any moisture they may have contracted. By experiments made on different animals, it is found that the blood passes through the lungs most readily when they are fully distended with air; consequently, that if the lungs of a drowned person are inflated, and kept in the expanded state whilst the electric shock is passed through the chest, the blood accumulated in the *right* cavity of the heart and its vessels, will move forward without any resistance, should the heart be brought to contract upon it. As soon as the shock is given, let the lungs be emptied of the air they contain, and filled again with fresh air; than pass another shock, and repeat this until the heart is brought into action, or until it appear that all further attempts are useless. In order more certainly to pass the shock through the heart, place the knob of one discharging-rod above the collar-bone of the right side, and the knob of the other above the short ribs of the left: the position of the discharging-rods, however, may be changed occasionally, so as to vary the direction of the shock. Two thick brass wires, each about eighteen inches long, passed through the two glass tubes, or wooden cases well varnished, and having at one end a knob, and at the other a ring to fasten the brass chain to, form very convenient discharging rods; and by means of them, the shock may be administered without the risque of its being communicated to the assistants, or carried off by the moisture on the skin.

When the patient is so far recovered as to be able to swallow, he should be put into a warm bed, with his head and shoulders somewhat raised by means of pillows. Plenty of warm wine-whey, ale-posset, or other light and moderately nourishing drink, should now be given, and gentle sweating promoted, by wrapping the feet and legs in flannels well wrung out of hot water. If the stomach and bowels feel distended and uneasy, a clyster, consisting of a pint of warm water, with a table-spoonful of common salt, or an ounce or more of Glauber's or Epsom salt, dissolved in it, may be administered. The general practice, in this case, is to give an emetic; but considering that the powers of the machine are still very weak, the agitation of vomiting is certainly hazardous. The patient should on no account be left alone, until the senses are perfectly restored, and he be able to assist himself; several persons having relapsed and been lost, for want of proper attention to them, after the vital functions were, to all appearance, completely established. Either from the distension which the arteries of the lungs have suffered, or from the sudden change from great coldness to considerable warmth, it now and then happens, that the patient is attacked, soon after recovery, with inflammation of some of the parts within the chest. This occurrence is pointed out by pain in the breast or side, increased on inspiration, and accompanied with a frequent, and full or hard, pulse, and sometimes with cough. Here the taking away some blood from the arm, or the application of cupping-glasses, leeches, or a blister over the seat of the pain, will be very proper; but the necessity for these measures, as well as the time for putting them in practice, should be left to the judgment and discretion of a medical person. Dr. Curry has observed, that a dull pain in the head, lasting sometimes for two or three days, is by no means an unfrequent complaint in those who are recovered from this and from the other states of suspended animation; and here also a moderate bleeding from the neck, either with the lancet or with cupping-glasses, may prove serviceable.

In cases of apparent death from *hanging*, the external veins of the neck are compressed by the cord, and the return of the blood from the head thereby impeded, from the moment that suspension takes place; but as the heart continues to act for a few seconds after the trachea is closed, the blood which is sent to the head during this interval, is necessarily accumulated there. Hence it is, that in hanged persons, the face is greatly swoln, and of a dark red or purple colour; the eyes are commonly suffused with blood, enlarged, and prominent. On dissection, the blood-vessels of the brain are found considerably distended; but, in general, no further marks of disease appear within the skull. The lungs are found generally quite collapsed, and free from frothy matter. The heart and the large blood-vessels adjoining to it, exhibit the same appearances as in the bodies of drowned persons. From the great accumulation of blood in the vessels of the head, many have been of opinion, that hanging kills chiefly by inducing apoplexy; but an experiment made at Edinburgh by an eminent medical professor there, has clearly proved, that in hanging, as well as in drowning, the exclusion of air from the lungs is the immediate cause of death. A dog was suspended by the neck with a cord, an opening having been previously made in the wind-pipe, below the place where the cord was applied, so as to admit air into the lungs. In this state he was allowed to hang for three quarters of an hour, during which time the circulation and breathing went on. He was then cut down, without appearing to have suffered much from the experiment. The cord was now shifted below the opening into the wind-pipe, so as to prevent the ingress of air to the lungs; and the animal being again suspended, he was completely dead in a few minutes. Upon the whole, then, it appears, that the same measures recommended for drowned persons, are also necessary here; with this addition, that opening the jugular veins, or applying cupping-glasses to the neck, will tend considerably to facilitate the restoration of life, by lessening the quantity of blood contained in the vessels of the head, and thereby taking off the pressure from the brain. Except in persons who are very full of blood, the quantity taken away need seldom exceed an ordinary tea-cupful, which will in general be sufficient to unload the vessels of the head, without weakening the powers of life.

In *apoplectic* and *fainting fits*, and in those arising from any violent agitation of mind, and also when opium or spirituous liquors have been taken in too great a quantity, there is reason to believe that the appearance of death has been frequently mistaken for the reality. In these cases, the means recommended should be persevered in for several hours; and bleeding, which in similar circumstances has sometimes proved pernicious, should be used with great caution. In the two latter instances it will be highly expedient, with a view of counteracting the soporific effects of opium and spirits, to convey into the stomach, by a proper tube, a solution of tartar emetic, and by various other means to excite vomiting. See Apoplexia.

From the number of children carried off by *convulsions*, and the certainty arising from undoubted facts, that some who have, in appearance, died from that cause, have been recovered; there is the greatest reason for concluding, that many, in consequence of this disease, have been prematurely numbered among the dead; and that the fond parent, by neglecting the means of recalling life, has often been the guiltless executioner of her own offspring. To prevent the commission of such dreadful mistakes, no child, whose life has been apparently extinguished by convulsions, should be consigned to the grave till the means of recovery above recommended in apoplexies, &c. have been tried; and, if possible, under the direction of some skilful practitioner of medicine, who may vary them as circumstances shall require.

When *fevers* arise in weak habits, or when the cure of them has been principally attempted by means of depletion, the consequent debility is often very great, and the patient sometimes sinks into a state which bears so close an affinity to that of death, that there is reason to suspect it has too often deceived the by-standers, and induced them to send for the undertaker when they should have had recourse to the succours of medicine. In such cases, volatiles, hartshorn for example, should be applied to the nose, rubbed on the temples, and sprinkled freely about the bed; hot flannels, moistened with a strong solution of camphorated spirit, may likewise be applied over the breast, and renewed every quarter of an hour; and as soon as the patient is able to swallow, a tea-spoonful of some strong cordial should be given every five minutes.

The same methods may also be used with propriety in the *small-pox*, when the pustules sink, and death apparently ensues; and likewise in any other acute diseases, when the vital functions are suspended from a similar cause.

The cases of apparent death from cold and from the admission of noxious vapours into the lungs, with the means of resuscitation to be employed in each, have been noticed fully under the articles COLD and APOPLEXIA.

No surgeon should be unacquainted with the instruments and apparatus necessary for the processes of resuscitation. Indeed, he ought himself (more especially if the place of his residence be near a sea-port town, or a navigable river), to be provided, at least with such of them as may be proper for his own immediate use on the first moment of alarm. We have therefore given representations, of all that have been hitherto invented, in pl. XXXI.

Fig. 1. Is a pair of bellows with two separate bags, so contrived, that by opening them, when applied to the nostrils or mouth of a patient, one bag will be filled with common air, and the other with the mephitic air extracted from the lungs; and, by shutting them again, pure atmospheric air will be introduced into these organs, and that drawn out consequently discharged into the room. Thus the artificial breathing may be continued, while the other operations on the surface of the body are carried on; which could not be conveniently done, if the muzzle of a common pair of bellows were introduced into the nostril.

a Is an intermediate board, but which admits of no communication between the two bags. In the external board of each side, there is the usual hole, marked *b*, provided with a valve; and the cylindrical part through which the air is expelled in common bellows, is here soldered to a copper box, within which two other valves are applied to the tubes conducting the air. The cover, *d*, of this box, which may be unscrewed by means of an interposed leather ring, is almost of the shape of a funnel, to the neck of which is fastened a flexible tube, *e*, made of varnished silk stuff, and a spiral wire that forms the cavity. To the extremity of this tube is attached a small ivory pipe, *f*, the front of which may either be tubular and round, for introducing it into the nostril; or flat like the top-piece of a clarionet, if it be intended for the mouth. The valves (which cannot be represented in drawing) consist of stiffened taffety, and are so arranged, that the corresponding ones stand in an inverted order. If, therefore, both bags of the bellows be expanded, *two* of the valves open themselves towards the internal part of the machine: one of these is fixed to one of the side-boards, but the other is within the box, on the mouth of the conducting tube belonging to the opposite bag of the bellows. By this contrivance, the air enters both bags of the bellows at the same time, and is, on compression, again expelled by means of two other valves, which open from within toward the external parts. Both bags of the bellows terminate below the valve in one principal tube of communication; because, though the action of both bellows is *simultaneous*, the stream of air, conformably to the arrangement before pointed out, can only enter, and escape, *alternately*.

In using this machine, the small ivory pipe is either applied to one of the nostrils, or put into the mouth: in the former case, the other nostril and the mouth must be closed; in the latter, both nostrils. When the bellows are set in action, one of the bags receives a column of atmospheric air through its valve; while the other, by means of its flexible tube and its valve, extracts a portion of air from the lungs. But, if the bellows are again shut, one of the bags parts with the impure gas drawn out of the pulmonary vessels; and the second conveys pure atmospheric air to the organs of respiration. By properly repeating this alternate process, the patient may again be enabled to exercise the important function of breathing. As, however, a precipitate and irregular method of proceeding might be productive of injury, this delicate operation ought, as we have said, to be performed by persons who are acquainted with the mechanism of respiration.

In some cases, where the patient has, for a considerable time, lain under water, or was afterwards neglected for want of due assistance, it would be desirable to introduce into his lungs *oxygen gas*, instead of that of the common atmosphere; as the latter is generally more or less corrupted, on such occasions, by the breath of many persons in the same room. For this purpose, may be used a bladder, marked *g*, which is provided with a cock and pipe fitted or screwed to the board of the inspiring valve and bag of the bellows. If, therefore, after opening the cock, the machine is set in motion, it will extract the pure air contained in the bladder, and on the subsequent compression of the bellows, force it into the lungs of the patient.

Fig. 2. A machine for injecting the smoke of tobacco by way of clyster, in cases which may properly require the application of this remedy. It consists of a pair of bellows, to the muzzle of which is fitted a metal box, *a*, provided with a ring, in the middle of which it may be unscrewed, and again closed, after being filled with tobacco, and set on fire; the pipe *c* (which, by mistake, is represented with a sharp point in some drawings, but should be perfectly round and blunt at the top) of the flexible tube *b*, is introduced into the fundament; and thus, by means of the bellows *d*, the smoke is forced into the rectum.

Fig. 3. A bier of wicker-work, in the form of a slanting, oblong basket, for conveying the body of the drowned, in a posture somewhat raised. This simple contrivance has the advantage, that the water may easily run off, while the patient is carried: and, as many unfortunate persons are materially injured by rough treatment, before they arrive at a house of reception, so that their recovery is thus often frustrated, we recommend the universal adoption of this convenient and simple implement.

Fig. 4. A warming machine of block-tin, or other metal, originally invented by Mr. Harvey, of London, who suggested it to the Royal Humane Society; and it was subsequently improved by Mr. Braasch, of Hamburgh. Its object is to procure an uniform degree of warmth, throughout the apparatus, in the most expeditious manner, by filling the hollow or double bottom and sides of the whole implement with boiling water.—

a Is the body of the machine, seven feet long, and made of solid pieces of block-tin, to prevent the necessity of soldering them, and consequently the formation of iron-rust: it rests on two wooden legs, *f, f,* and may be easily carried by the handle *g g*. The water is poured in through both funnels *d, d,* in order to warm it more speedily; and each of these is provided with a stopper (as represented in the plate), suspended on a chain, with a view to prevent, if necessary, too sudden evaporation and cooling of the water. *h* Is the intermediate space between the two metallic plates, producing a vacuum of 2½ inches, in which the fluid is diffused over the whole machine. *b* Is a wooden desk to support the head of the patient, and to protect it from the immediate contact with the heated parts; but, on the opposite end of the machine, there is an enlarged intermediate space, *c*, for holding such a quantity of water and vapours as will procure an additional, or at least a more permanent, degree of heat towards the lower extremities, than to the trunk of the body. For discharging the water when it is not wanted, or changing it when too cold, there is a cock at *e*. The hollow sides of this machine are about twelve inches high; and in order to ensure an uniform warmth, the body apparently dead should be placed on a straw mattress, and tucked in with blankets. A pailful of water is required to fill the whole machine, but a smaller quantity would warm the sides only for a short time, by means of the vapour. This ingenious contrivance may also be used for a *warm-bath;* for which purpose, the inner space in which the body lies, should be supplied with water. The whole apparatus, in its present improved state, made of *copper*, costs, at Hamburgh, about 200 marks, or from 14 to 15*l.*

RETE MUCO'SUM (*rete*, Lat. a net), or *Corpus reticulare mucosum*, the *Mucus* of Malphigi; a mucous substance, deposited, in a reticulated form, between the epidermis and cutis. This net-work covers the sensible cutaneous papillæ, connects the epidermis with the cutis, and gives the colour to the body. In Europeans it is of a white colour, in Africans black. See Skin.

RETICULAR (*reticularis*, from *rete*, a net), interwoven like a net; a term sometimes used anatomically.

RETIFORM (*retiformis*, from *rete*, a net, and *forma*, resemblance), net-like; the same as Reticular.

RETINA (from *rete*, a net) the last coat proper to the eye, and of a very different texture from that of the other two coats. It is white, soft, and tender, and, in a manner, medullary, or like a kind of paste spread upon a fine reticular web. It lines the bottom of the eye, and is a continuation of the optic nerve. Some authors, as Zinn, affirm, that it terminates at the ciliary circle; others, as Dr. Haller, represent the whole or a part of it as extended to the lens, and even as giving a covering to that humour; but Dr. Monro observes, that it ends some way behind the ciliary circle. At the place which answers to the insertion of the optic nerve, we observe a small depression, in which lies a sort of medullary button, terminating in a point; and from this depression blood-vessels go out, which are ramified on all sides through the substance of the retina.

It is commonly said, that the retina is a production or expansion of the medullary substance of the optic nerve, the sclerotica of the dura mater, and the choroides of the pia mater, which accompany this nerve; but this opinion is not altogether agreeable to what we observe in examining the optic nerve, and its insertion in the globe of the eye. If we take a sharp instrument, and divide this nerve through its whole length, between where it enters the orbit and where it enters the globe, into two equal lateral parts, and then continue this section through the middle or centre of its insertion, the following phenomena will appear:

That the nerve contracts a little at its insertion into the globe; that its outer covering is a true continuation of the dura mater; that this vagina is very different from the sclerotica, both in thickness and texture, the sclerotica being thicker than the vagina, and of another structure; that the vagina from the pia mater forms, through the whole medullary substance of the nerve, several very fine cellular septa; and that, where it enters the globe of the eye, the pia mater does not directly answer to the choroides, and is divided into many small threads, which go through the bottom of the eye to form the retina.

The insertion of the optic nerve in the globe of the eye is not directly opposite to the pupil; so that the distance between these two parts is not the same when measured on all the parts of the globe. The greatest distance is on the side next the temples, and the smallest next the nose. Winslow observed an inequality of the same kind in the breadth of the uvea, which, in many subjects, is less near the nose than near the temples; so that the centre of the pupil is not the same with that of the great cicumference of the iris; and he has seen the same difference in the breadth of the corona ciliaris.

RETORT (from the Lat. *retorqueo*, to bend back again; probably so called because its neck was curved and bent back again), a chemical vessel employed for various distillations, and most frequently for those which require a degree of heat superior to that of boiling water. Retorts differ in their form and materials: when pierced with a little hole in their roof, they are called *tubulated* retorts. They are made of common glass, stone ware, and iron. See Chemical apparatus.

RETRA'CTOR A'NGULI O'RIS, a muscle which Albinus calls the buccinator. See Buccinator.

RETRAHE'NTES AU'RIS, the *posterior auris* of Winslow. These consist of two small bundles of muscular fibres which arise from the external and posterior part of the mastoid process of the temporal bone, immediately above the insertion of the sterno-cleido-mastoideus muscle. The retrahentes are inserted into that part of the back of the ear which is opposite to the septum that divides the concha and scapha. The use of them is to draw the ear backwards, and to stretch the concha.

RETROVERSION; an accident to which the *uterus* is liable during pregnancy. See Pregnancy.

REVERBERATORY FURNACE. See Furnace.

RHABA'RBARUM (from *Rha*, and *barbarus*, wild; so called because it was brought from the banks of the

Rha in Russia), or *Rhabarbarum tartaricum;* rhubarb. About the year 1732 naturalists became acquainted with a plant which seemed to afford the Rhabarbarum officinale. At that time some plants, received from Russia by Jussieu at Paris, and Raud at Chelsea, were said to supply this important drug, and as such were adopted by Linnæus, in his first edition of the Species Plantarum, under the name of *Rheum Rhabarbarum.* This, however, was not generally received as the genuine rhubarb plant; and with a view to ascertain this matter more completely, Kaun Boerhaave procured from a Tartarian rhubarb-merchant, the seeds of those plants whose roots he annually sold, and which were admitted at Petersburgh to be the true rhubarb. These seeds were soon propagated, and were discovered, by De Gorter, to produce two distinct species, viz. the *Rheum Rhabarbarum* of Linnæus, or, as it has since been called, the *Rheum undulatum*, and another species, a specimen of which was presented to Linnæus, who declared it to be a new one, and first mentioned it in the second edition of the Spec. Plantarum, in 1762, by the name of *Rheum Palmatum.* Of this species, which is the true officinal kind, the seeds were first introduced into Britain, from Russia, in 1762, by Dr. Hounsy; and since their prosperous cultivation by the late professor of botany at Edinburgh, the propagation of this plant has been gradually extended to most of our English gardens, and with a degree of success which promises in time to supersede the importation of the foreign root. Two sorts of rhubarb roots, however, are usually imported into this country for medical use, viz. the Chinese, and the Tartary rhubarb.

All the rhubarb of commerce is brought from the Chinese town Sini, or Selim, by the Bucharians. It grows on the neighbouring chain of lofty mountains which stretches to the lake Koko-Nor, between 35° and 40° north latitude. It is dug up by the poor peasants, cleaned from the earth, cut in pieces, strung with the bark on strings, and exposed to dry, under cover in the shade, for a whole year, before it is again cleaned and prepared for exportation.

The Russian and Chinese rhubarb differ in value, although they both come from the same country. The former is dearer, and always good, as very great attention is paid both in purchasing and transporting it, by order of the government. In Kiachta, on the Russian frontier, it is received from the Bucharians by a Russian apothecary, who examines it. The bad is immediately burnt, and the good is freed from its bark, woody parts, and every impurity, in the most careful manner. It is then sent to Moscow and to Petersburgh, where it is again examined. This kind is commonly in round pieces, of a reddish or whitish yellow colour, feels gritty between the teeth, and is often perforated with so large a hole, that many pieces have the appearance of a bark.

The Chinese, or East-Indian rhubarb, is brought by sea from Canton. It is heavier, harder, and more compact, than the other; seldom perforated with holes, and either in long pieces, or with two flat sides, as if they had been compressed. It is reckoned less aromatic, but stronger, than the Turkey.

Good rhubarb may be known by its having a whitish or clear yellow colour, being dry, solid, and compact; moderately heavy; brittle; when recently broken appearing marked with yellow or reddish veins, mixed with white; being easily pulverizable; forming a powder of a fine bright yellow, having the peculiar, nauseous, aromatic smell of rhubarb, and a sub-acrid, bitterish, somewhat astringent, taste, and when chewed feeling gritty under the teeth; speedily colouring the saliva, and not appearing very mucilaginous. The size and form of the pieces are of little consequence, except in so far as they may be decayed, or rotten, or worm-eaten within. In this respect care is the more necessary, as damaged pieces are frequently so artfully dressed up, and outwardly coloured with powdered rhubarb, as to impose on the buyer.

The principal constituent of rhubarb is extractive matter, which is soluble both in alcohol and in water. Dr. A. Duncan says, by gentle decoction, it loses above one-half its weight. Rhubarb also contains some volatile odorous matter, on which its peculiar nauseous smell, and its activity as a purge, depend; for when dissipated, either by age or any preparation to which the rhubarb has been subjected, the powers of the medicine are almost destroyed. It also contains some tannin, and about one-sixth of its weight of oxalate of lime. Neumann got from 480 grains, 180 of alcoholic, and afterwards 170 watery, extract; and inversely, 350 watery and only 5 of alcoholic extract.

This root is well known as a mild cathartic, which operates without violence or irritation, and may be given with safety even to pregnant women, and to children. In some cases, however, it has been found to occasion severe griping. Besides its purgative quality, it has an astringent property, by which it strengthens the tone of the stomach and intestines, and proves useful in diarrhœas and disorders proceeding from laxity.

Rhubarb, exhibited in the form of powder, operates more powerfully as a purgative than in any other. The dose for an adult is about a scruple or half a drachm. On account of its great bulk, it is sometimes unpleasant to take: thus its laxative effects are often increased by the addition of neutral salts, aloes, or other active purgatives. In very small doses it often proves an excellent stomachic. In infusion, rhubarb yields more of its purgative property to water than to alcohol. This is, however, considerably weaker than the powder, and requires double the dose to produce the same effect. It is well adapted for children, but must be always fresh prepared. Tincture of rhubarb, on account of the stimulating nature of the menstruum, cannot in all cases be exhibited in doses large enough to operate as a purgative. Its principal use therefore is as a tonic and stomachic. Perhaps the vinous tincture, lately expunged from the pharmacopœias, deserved rather to have been preserved on this account, and as being more proper for exhibition in affections of the bowels tending to the inflammatory state. The virtues of rhubarb are destroyed by roasting, boiling, and preparing in the form of an extract.

The officinal preparations are:—*Inf.* Edin. *Vin.*

Edin. Lond. *Tinct.* Edin. Lond. *Tinct. comp.* Lond. *Tinct. cum aloe*, Edin. *Tinct. cum gentian.* Edin. *Pil. comp.* Edin.

RHABA'RBARUM ALBUM. See Mechoacanna.

RHABA'RBARUM ANTIQUO'RUM. See Rhaponticum.

RHABA'RBARUM MONACHO'RUM, also named *Hippolapathum*, and *Patientia*; monk's-rhubarb, or garden-patience. The root of this plant, which is supposed to possess the virtues of rhubarb, but in an inferior degree, is obtained from the *Rumex patientia* of Linnæus; or, according to Professor Murray, from the *Rumex alpinus* of Linnæus. It is certainly more astringent than rhubarb, but falls very far short of the purgative virtue of the latter.

RHABA'RBARUM SIBI'RICUM. The plant employed for medicinal purposes under this name, is the *Rheum undulatum; foliis subvillosis undulatis petiolis æqualibus*, Linn. It possesses similar virtues to those of the palmate rhubarb, and is in common use in Russia.

RHABA'RBARUM TARTA'RICUM. See Rhabarbarum.

RHABA'RBARUM VERUM. See Rhabarbarum.

RHA'CHIS (of the Gr. *ραχις*, the spine of the back). See Spine.

RHACHI'TIS. See Rachitis.

RHAGA'DES (of the Gr. *ραγας*, from *ρεγνυμι*, to *break* or *bruise)*, malignant, dry, and deep cutaneous fissures, which take place in prurigo and other similar affections. See Prurigo.

RHA'MNUS (*ραμνος*, from *ραιω*, to *destroy*, because of its many thorns), buck-thorn.

RHA'MNUS CATHA'RTICUS; the systematic name of the buck-thorn. See Spina cervina.

RHA'MNUS FRA'NGULA; the systematic name of the black alder. See Frangula.

RHA'MNUS ZI'ZYPHUS; the systematic name of the tree which affords the jujubæ. See Jujubæ.

RHAPONTIC RHUBARB. See Rhaponticum.

RHAPO'NTICUM (the Rha of Pontus; i. e. the *Rha*, a river in Russia, on whose banks this plant grew), also named *Rhabarbarum Dioscoridis*, and *Rhabarbarum antiquorum*; *Rheum Rhaponticum* Linn. The true rhubarb of the ancients. By some writers this is confounded with the modern rhubarb, though very different from that root in appearance, as well as in quality. The Rhapontic sort is of a dusky colour on its surface, and a loose spongy texture; is more astringent than rhubarb, and less purgative. If given in this last intention, two or three drachms are required for a dose.

RHAPO'NTICUM VULGARE OFFICINARUM, or *Centaurium majus*, the greater centaury. *Centaurea centaureum* Linn. The root of this plant was formerly used as an aperient and corroborant in alvine fluxes. It is now totally discarded from the British materia medica.

RHE'UM (*ρεον*, from *Rha*, a river in Russia). See Rhabarbarum.

RHE'UM PALMA'TUM; the systematic name of the officinal rhubarb. See Rhabarbarum.

RHE'UM RHAPO'NTICUM; the systematic name of the Rhapontic rhubarb. See Rhaponticum.

RHE'UM UNDULA'TUM; the systematic name of the officinal Rhabarbarum Sibericum. See Rhabarbarum Sibericum.

RHEU'MA (*ρευμα*, from *ρεω*, to *flow)*, a watery discharge from the nostrils or lungs arising from catarrh.

RHEUMATI'SMUS (*ρευματισμος*; from *ρευματιζω*, to be afflicted with defluxious), the rheumatism; so called from the term being formerly used in the same sense as *rheuma*. It is a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ*, of Cullen; characterised by pyrexiæ, pains in the joints, which are increased by the action of the muscles belonging to the joint, and heat on the part. The blood, after venæsection, exhibits an inflammatory crust. It terminates in arthrodynia, lumbago, and ischias. Rheumatism is distinguished into *acute* and *chronic*. The acute is preceded by a shivering, heat, thirst, and frequent pulse; after which the pain commences, and soon fixes on the joints. The chronic rheumatism is distinguished by pain in the joints, without pyrexia, and is divided into three species; *lumbago*, affecting the loins; and *ischias*, or *sciatica*, affecting the hip, and *arthrodynia*, or pains in the joints. The acute species mostly terminates in one or other of these.

1. The *acute rheumatism* is particularly distinguished by pains affecting the joints, and for the most part the joints alone; but sometimes also the muscular parts. Very often they shoot along the course of the muscles from one joint to another, and are always much increased by the action of the muscles belonging to the joint or joints affected. The larger joints are those most frequently affected, such as the hip-joint and knees of the lower extremities, and the shoulders and elbows of the upper ones. The ankles and wrists are also frequently affected; but the smaller joints, such as those of the toes or fingers, seldom suffer. Sometimes the disease is confined to one part of the body, yet very frequently it affects many parts of it; and then it begins with a cold stage, which is immediately succeeded by the other symptoms of pyrexia, and particularly by a frequent, full, and hard pulse. Sometimes the pyrexia is formed before any pains are perceived; but more commonly pains are felt in particular parts before any symptoms of pyrexia occur. When no pyrexia is present, the pain may be confined to one joint only; but when any considerable pyrexia takes place, though the pain may chiefly be felt in one joint, yet it seldom happens that the pains do not affect several joints, often at the very same time, but for the most part shifting their place, and having abated in one joint they become more violent in another. They do not commonly remain long in the same joint, but frequently shift from one to another, and sometimes return to joints formerly affected; and in this manner the disease often continues for a long time. The fever attending these pains has an exacerbation every evening, and is most considerable during the night, when the pains also become more violent; and it is at the same time that the pains shift their place from one joint to another. These seem to be also increased, during the night, by the body being covered more closely, and kept warmer.

A joint, after having been for some time affected with pain, commonly becomes also affected with some swelling and redness, which is painful to the touch. It seldom happens that a swelling coming on does not take off the pain entirely, or secure the joint against a return of it. This disease is commonly attended with more or less sweating, which occurs early, but is seldom free or copious, and seldom either relieves from the pains or proves critical. The urine is high coloured, and in the beginning without sediment. This, however, does not prove entirely critical, for the disease often continues long after such a sediment has appeared in the urine. The blood is always sizy. The acute rheumatism differs from all other inflammatory diseases, in not being liable to terminate in suppuration: this almost never happens; but the disease sometimes produces effusions of a transparent gelatinous fluid into the sheaths of the tendons: but if these effusions be frequent, it is certain that the liquor must very frequently be absorbed; for it very seldom happens, that considerable or permanent tumors have been produced, or such as required to be opened and to have the contained fluid evacuated. Such tumors, however, have sometimes occurred, and the opening made in them has produced ulcers very difficult to heal.

Sometimes the rheumatism will continue for several weeks; but it seldom proves fatal, and it is rare that the pyrexia continues to be considerable for more than two or three weeks. While the pyrexia abates in its violence, if the pains of the joints continue, they are less violent; more limited in their place, being confined commonly to one or a few joints only; and are less ready to change their place.

It is often a very difficult matter to distinguish rheumatism from gout: but in rheumatism there in general occurs much less affection of the stomach; it affects chiefly the larger joints, and several of these are often affected with severe pain at the same time; it occurs at an earlier period of life than gout; it is not observed to be hereditary; and it can in general be traced to some obvious exciting cause, particularly to the action of cold.

This disease is frequent in cold, and more uncommon in warm, climates. It appears most frequently in autumn and spring; less frequently in winter, while the frost is constant; and very seldom during the heat of summer. It may, however, occur at any season, if vicissitudes of heat and cold be for the time frequent. For the most part, the acute rheumatism arises from the application of cold to the body when unusually warm; or when the cold is applied to one part of the body while the other parts are kept warm; or lastly, when the application of the cold is long continued, as when moist or wet clothes are applied to any part of the body.—These causes may affect persons of all ages; but the rheumatism seldom appears either in very young or in elderly persons, and most commonly occurs from the age of puberty to that of thirty-five. These causes may also affect persons of any constitution, but they most commonly affect those of a sanguine temperament.

With respect to the proximate cause of rheumatism, there have been various opinions. It has been imputed to a peculiar acrimony; of which, however, there is no evidence; and the consideration of the remote causes, the symptoms, and cure, render it very improbable. A disease of a rheumatic nature, however, may be occasioned by an acrid matter applied to the nerves, as is evident from the tooth-ach, a rheumatic affection generally arising from a carious tooth. Pains arising from deep-seated suppurations may also resemble the rheumatism; and many cases have occurred in which such suppurations occasioned pains resembling the lumbago and ischias.

In rheumatism, the most common cause is, cold applied. This produces a constriction of the extreme vessels, and at the same time an increase of tone, or phlogistic diathesis, in the course of them, from which arises an increased impetus of the blood, and at the same time a resistance to the free passage of it, and consequently inflammation and pain. It is also supposed, that the resistance formed excites the *vis medicatrix* to a further increase of the impetus of the blood; and to support this, a cold stage arises, a spasm is formed, and a pyrexia and phlogistic diathesis are produced in the whole system.

Hence the cause of rheumatism appears to be exactly analogous to that of inflammations depending on an increased afflux of blood to a part while it is exposed to the action of cold. But there seems to be further in this disease some peculiar affection of the muscular fibres. These seem to be under some degree of rigidity; and therefore less easily admit of motion, and are pained upon the exertions of it. This also seems to be the affection which gives opportunity to the propagation of pains from one joint to another, and which are most severely felt in the extremities terminating in the joints, because beyond these the oscillations are not propagated. This affection of the muscular fibres explains the manner in which strains and spasms produce rheumatic affections; and, on the whole, shews, that with an inflammatory affection of the sanguiferous system, there is also in rheumatism a peculiar affection of the muscular fibres, which has a considerable share in producing the phenomena of the disease. And it would even appear, that in what has commonly been called *acute rheumatism*, in contradistinction to the chronic, of which we are next to treat, there exists not only a state of active inflammation in the affected parts, but also of peculiar irritability; and that this often remains after the inflammation is very much diminished, or has even entirely ceased. Hence a renewal of the inflammation and recurrence of the pain take place from very slight causes; and in the treatment of the disease both the state of inflammation and irritability must be had in view.

For counteracting the state of active inflammation, the chief aim of the practitioner must be to diminish the general impetus of the circulation, and the impetus at the part particularly affected. For counteracting the state of irritability, he must endeavour to remove the disposition to increased action in the vessels; to prevent the action of causes exciting painful sensations; and to obviate their influence on the part. The cure therefore requires, in the first place, an antiphlogistic regimen, and particularly a total abstinence from animal food, and from all fermented or spirituous liquors; substituting a mild vegetable or milk diet, and the plentiful use of soft diluting liquors. On this principle also, blood-letting is the chief remedy for acute rheumatism. The blood is to be drawn in large quantity; and the bleeding is to be repeated in proportion to the frequency, fulness, and hardness of the pulse, and the violence of the pain. For the most part, large and repeated bleedings during the first days of the disease seem to be necessary, and accordingly have been very much employed: but to this some bounds are to be set; for very profuse bleedings occasion a slow recovery, and if not absolutely effectual, are apt to produce chronic rheumatism.

To avoid that debility of the system which general bleedings are apt to occasion, the urgent symptom of pain may be often relieved by topical bleedings; and when any swelling or redness have come upon a joint, the pain may very certainly be relieved by topical bleedings: but as the pain and continuance of the disease seem to depend more upon the phlogistic diathesis of the whole system than upon the affection of particular parts, so topical bleedings will not supply the place of the general bleedings proposed above.

To take off the phlogistic diathesis prevailing in this disease, purging may be useful, if procured by medicines which do not stimulate the whole system, as calomel, neutral salts, and other medicines which have a refrigerant power. Purging, however, is not so useful as bleeding in removing the phlogistic diathesis; and when the disease has become general and violent, frequent stools are inconvenient, and even hurtful, by the motion and pain which they occasion. Dr. Saunders says, that, next to blood-letting, nothing is of so much service, both in alleviating the pains in this disease and in removing the phlogistic diathesis, as the use of sudorifics; and of all the medicines belonging to this class, the *pulv. ipecac. comp.* which has commonly been known by the name of Dover's powder, is the most convenient and effectual. Copious sweating, excited by this medicine, and supported for ten or twelve hours by tepid diluents, such as decoction of the woods, or the like, will in most instances produce a complete remission of the pain: and indeed, by this practice, combined with blood-letting and proper regimen, the disease may often be entirely removed.

This disease frequently, after some days, puts on the appearance of an intermittent. The bark under these circumstances becomes a sovereign remedy; and, indeed, whether this should be the case or not, when plentiful sweats break out, and the urine deposits a copious sediment, the bark will by all means be advisable, and greatly cut short the disease. Even by the early use of this remedy, *where a complete intermission from pain is obtained*, the necessity of repeated blood-letting and sweating is often superseded; but where a complete remission cannot be obtained, it has been suspected by some to be hurtful: and in these cases, when blood-letting and sudorifics have been pushed as far as may be thought prudent without being productive of the desired effect, very great benefit is often obtained from the use of calomel combined with opium, as recommended in the Edinburgh Medical Commentaries, by Dr. Hamilton of Lynn-Regis.

In the acute rheumatism, external applications are of little service, though very commonly resorted to. Fomentations in the beginning of the disease rather aggravate than relieve the pains. The rubefacients, with camphor, &c. are somewhat more effectual; but they commonly only shift the pains from one part to another, and do not prove any cure of the general affection. Blistering may also be very effectual in removing the pain from a particular part; but will be of little use, except where the pains are much confined to one place.

2. When the pyrexia attending the acute rheumatism has ceased; when the swelling and redness of the joints are entirely gone, but pains still continue to affect certain joints, which remain stiff, feel uneasy upon motion, changes of weather, or in the night-time only; the disease is then called the *chronic rheumatism*, as it often continues for a very long time.

The limits between the acute and chronic rheumatisms are not always exactly marked. When the pains are still ready to shift their place; when they are especially severe in the night-time; when, at the same time, they are attended with some degree of pyrexia, and with some swelling, and especially some redness, of the joints; the disease is to be considered as partaking of the nature of the acute rheumatism. But when there is no longer any degree of pyrexia remaining; when the pained joints are without redness; when they are cold and stiff; when they cannot easily be made to sweat; or when, while a free and warm sweat is brought on the rest of the body, it is only clammy and cold on the pained joints; and when, further, the pains of these are increased by cold, and relieved by heat applied to them; the case is to be considered as that of a purely chronic rheumatism; or perhaps more properly the first of the conditions now described may be termed the state of irritability, and the second the state of atony.

The chronic rheumatism, or rather the atonic, may affect different joints; but is especially apt to affect those which are surrounded with many muscles, and those of which the muscles are employed in the most constant and vigorous exertions. Such is the case of the vertebræ of the loins, the affection of which is named *lumbago;* or of the hip-joint, when the disease is named *ischias* or *sciatica.*

Violent strains and spasms occurring on sudden and somewhat violent exertions, bring on rheumatic affections, which at first partake of the acute, but very soon change into the nature of the chronic rheumatism. Such are frequently the lumbago, and other affections, which seem to be more seated in the muscles than in the joints. The distinction of the rheumatic pains from those resembling them which occur in the syphilis and scurvy, must be obvious, either from the seat of the pains, or from the concomitant symptoms peculiar to those diseases. The distinction of the rheumatism from the gout will be more fully understood from what is laid down under the article ARTHRITIS.

The phenomena of the purely chronic rheumatism lead us to conclude, that its proximate cause is an atony both of the blood-vessels and of the muscular fibres of the part affected, together with such a degree of rigidity and contraction in the latter as frequently attend them in a state of atony: and indeed this atony, carried to a certain extent, gives rise to a state of paralysis, with an almost total loss of motion in the affected limbs. The paralytic state of rheumatism, therefore, may be pointed out as a fourth condition of the disease, often claiming the attention of the practitioner.

From the view just now given of the proximate cause of chronic rheumatism, the chief indication of cure must be, to restore the activity and vigour of the part, which is principally to be done by increasing the tone of the moving fibres, but which may sometimes also be aided by giving condensation to the simple solid. When, however, the disease has degenerated into the state of paralysis, the objects to be aimed at are, the restoration of a due condition to the nervous energy in the part affected; the obtaining a free circulation of blood through the vessels of the part; and the removal of rigidity in membranes and ligaments.

For answering these purposes, a great variety of remedies, both external and internal, are had recourse to. The chief of the external are, the supporting the heat of the part, by keeping it constantly covered with flannel; the increasing of the heat of the part by external heat, applied either in a dry or humid form; the diligent use of the flesh-brush, or other means of friction; the application of electricity in sparks or shocks; the application of cold water by affusion or immersion; the application of essential oils of the most warm and penetrating kind.

The late Dr. Hugh Smith employed the following plaster:

℞. Emplast. litharg. cum gum. ℥j.
——— cantharid. ʒjß.
Gum. euphorbii pulv. ʒj.
M. ft. emplast. super alutam extendend. et loco dolenti applicand.

The application of salt brine has proved useful; so has the employment of the Bath waters or of the vapour baths, either to the body in general or to particular parts; and lastly, the employment of exercise, either of the part itself as far as it can easily bear, or by riding or other modes of gestation.

The internal remedies are, large doses of essential oils drawn from resinous substances, such as turpentine; substances containing such oils, as guaiacum; also volatile alkaline salts. Dr. Saunders recommends the following formulæ:

℞. Guaiaci gummi-resin. in pulv. trit.
Mithridat. utriusq. gran. xv.
Terantur simul, et syrupo aliquo, fiat bolus omni nocte capiendus.

℞. Tincturæ guaiac. ammoniat. ʒj. ad ℥ss.
Decocti hordei ℥iv. Misce.
Fiat Haustus bis die sumendus.

These or such-like medicines are directed to procure sweat; and calomel, or some other preparation of mercury, in small doses, may be continued for some time.

Dr. Dawson recommended a draught composed to half an ounce of the volatile tincture of guaiacum incorporated with the mucilage of gum-arabic, and some simple water. The repetition of this draught at bedtime, notwithstanding the increased exacerbations of the disease at first, has proved successful in numerous instances.

By some physicians, narcotic medicines are recommended. The cicuta, aconitum, and hyosciamus, have in particular been highly extolled; and an infusion of the *rhododendron chrysanthemum* is said to be employed by the Siberians with very great success. An account of the Siberian mode of practice is given by Dr. Matthew Guthrie of Petersburgh, in the fifth volume of the Edinburgh Medical Commentaries, and has been followed with success at other places.

According to the accounts given by Drs. Cheyne and Home, a mixture consisting of two drachms of spirit of turpentine and one ounce of honey, two teaspoonsful of which were taken every morning and evening, had an uncommon effect in promoting the discharge of urine, and relieving, in a few days, a patient who had been afflicted for near a twelvemonth, with that species of rheumatism termed *ischias*. But Dr. Vogel, of Rostock, an eminent writer and practitioner, observes, that turpentine will relieve only that particular kind of pain, and be of no avail in any other species of rheumatic affection. Nor does it always operate as a diuretic, and yet may afford relief: sometimes, however, it is attended with no beneficial effects.

RHIBE'SIA (from *ribes*, a currant). See RIBES NIGRUM, RIBES RUBRUM, and FRUCTUS.

RHINÆ'US (from ριν, the *nose)*, a muscle of the nose. See COMPRESSOR NARIS.

RHO'DIA (ροδια; from ροδον, a *rose;* so called because its root smells like the damask-rose). The radix rhodiæ of some pharmacopœias, is the produce of the *Rhodiola rosea* of Linnæus, called rose-wort. When dry, it has a very fragrant smell, resembling that of the damask-rose. In this odorous matter the medical virtue of the root resides. Applied externally, it is said to allay violent pains of the head, but it is probably inferior to many more simple stimulants.

RHO'DIUM LIGNUM (ροδιον; from ροδον, a *rose)*, a wood which smells like roses. See LIGNUM RHODIUM.

RHODIOLA ROSEA; the systematic name of the rose-wort. See RHODIA.

RHODODE'NDRON (ροδοδενδρον; from ροδον, a *rose*, and δενδρον, a *tree;* so called because its flowers resemble the rose), the oleander, or rose-bay; *Rhododendron chrysanthemum* Linn. *Rhododendron foliis oblongis impunctis supra scabris venosissimis, corolla rotata irregulari, gemma florifera ferrugineo-tomentosa.* Suppl. Plant. Class, *Decandria.* Order, *Monogynia.* This plant was first recommended by Koelpin, not only in rheumatism and gout, but even in venereal cases; and it is now very frequently employed in chronic rheumatism. The proportion given by Koelpin was, *from two* *drachms of the leaves and tops of the plant to half an ounce, to ten ounces of water; the dose two ounces*, to be repeated after a few hours, and continued as required. Dr. Home observes, in his Clinical Experiments, &c. that it is astringent, and powerfully sedative; he directs it in infusion, from half a drachm to three drachms for a dose. Dr. Koelpin remarks with respect to the infusion of this vegetable, that when taken internally it produces a feverish heat, a kind of intoxication, and sometimes a stupor and loss of the senses; at the same time the patient feels a singular pricking sensation in his limbs, or other parts of his body; the intoxication soon goes off, leaving behind it neither head-ach nor nausea. During the heat produced by this remedy, the patient complains of intense thirst; and if cold water is drunk in this state there ensues a violent but salutary vomiting, especially in complaints of the bowels. Besides the vomiting and purging, this medicine produces a sweat on the parts affected with the rheumatism or gout. Large doses produce a stupor and anxiety. In some instances the pains grow worse on the first use of the infusion; but this increase of disease is soon followed by a remarkable degree of relief; instead of quickening the pulse, it renders it weaker and slower. In the instances of venereal rheumatism, its effects are very considerable. Many who drank this infusion complained of a heat and constriction in the fauces: a proof that the plant possesses a little acrimony: but this effect speedily passes off. In robust habits, it operates quickly, and with a degree of violence; in the infirm and feeble, it is very slow in its effects: hence in such instances the patient should not be uneasy to increase the dose.

RODODE'NDRON CHRYSA'NTHEMUM; the systematic name of the oleander, or rose-bay. See Rhododendron.

RHOE'AS (of the Gr. ϱοιας; from ρεω, *to flow)*. So the wild poppy is sometimes called. See Papaver erraticum.

RHOMBOIDE'US (from ϱομϐος, a geometrical figure whose sides are equal, but not right-angled, and ειδος, *resemblance)*, a muscle, so named from its shape, situated immediately under the trapezius. It is usually, though not always, divided into two portions, which Albinus describes as two distinct muscles, *Rhomboideus major* and *minor*. The uppermost, or *rhomboideus minor*, arises tendinous from the spinous process of the three inferior vertebræ of the neck, and from the ligamentum colli. The lowermost, or *rhomboideus major*, arises tendinous from the spinous processes of the back. The former is inserted into the basis of the scapula, opposite to its spine; the latter into all the basis of the scapula, below its spine. Its use is to draw the scapula obliquely upwards, and directly backwards.

RHUBARB. See Rhabarbarum.

RHUBARB, MONK'S. See Rhabarbarum monachorum.

RHUBARB, RHAPONTIC. See Rhaponticum.

RHU'S (of the Gr. ρȣς; from ϱεω, to *flow;* so called because it stops fluxes); the sumach-tree.

RHU'S BE'LGICA; a name sometimes given to the Dutch myrtle. See Myrtus Brabantica.

RHU'S CORIA'RIA. See Sumach.

RHU'S RA'DICANS, the *Rhus vernix* of Linnæus, a poisonous plant, the efficacy of which Dr. Fresnoi has lately exhibited in paralytic diseases, and also in herpetic affections. He made the experiment first upon himself, by taking an infusion of one of the three folioli, of which each leaf of this plant consists; and as this dose produced no sensible effect, he increased the number to twelve; by which his urine and perspiration were increased in quantity, and he had some pains in the abdomen. He relates seven cases, in which he thinks there is no doubt of the efficacy of this remedy, in herpetic affections. He likewise relates five cases of paralysis, which he insists were cured by the use of this plant. The leaves of it are to be cut when in the greatest vigour, namely, about the month of June. Those who cut it wear leathern gloves, on account of its poisonous qualities. Four pounds of the leaves distilled with thirty-two pounds of water, gave it a slight odour, although the plant has none. Its taste is pungent, and inflames the mouth. The decoction which remains in the still is brown, and is generally covered with a light brown pellicle. When strained and evaporated, it gives a shining black extract. The leaves inflame and swell the hands and arms of those who take them out of the still, and bring on an itching, which remains for several days. Forty-two pounds of the leaves afford twenty ounces of extract, of a proper consistence for pills. Dr. Fresnoi says, the success of this in tussis convulsiva exceeded his hopes; forty-two children having been cured of this disorder in Valenciennes during autumn of the year 1786. Four grains of extract were dissolved in four ounces of syrup, of which one table-spoonful was given to the child every third hour.

RHU'S TIPHINUM; the systematic name of the Virginian sumach. The seeds are said to be useful in stopping hæmorrhages.

RHU'S VERNIX; the systematic name of a species of sumach, which exudes a poisonous resin. See Rhus radicans.

RHY'AS (ῥοιας or ῥυας, a disease of the eye); a decrease or defect of the lachrymal caruncle. The proximate cause is a native defect; or it may originate from excision, erosion, or acrimony. Being commonly incurable, it induces an *epiphora*, or continual weeping of the eye.

RHYTI'DOSIS. See Rutidosis.

RI'BES NIGRUM, the black currant, an indigenous plant; the *Ribes nigrum* Linn. *Ribes inerme, racemis pilosis, floribus oblongis.* Class, *Pentandria.* Order, *Monogynia.* This tree affords larger berries than those of the red. They are peculiarly useful as a domestic remedy in sore throats, and also possess a diuretic power in a very considerable degree. The leaves of the black currant are extremely fragrant, and have been likewise recommended for their medicinal virtue. The officinal preparations of the berries in the London pharmacopœias are, the *Syrupus ribis nigri* and the *Succus ribis nigri inspissatus.*

RI'BES RUBRUM, the red currant; *Ribes rubrum* Linn. *Ribes inerme, racemis glabris pendulis, floribus planiusculis.* Class, *Pentandria.* Order, *Monogynia.*

We have also the white currant tree, which is merely a variety of the red. The fruit of both is perfectly alike in its properties. The red currant is abundantly cultivated in gardens, and from its grateful acidity is universally employed, as an article of food, either as nature presents it, or else variously prepared by art with the addition of sugar. Medicinally, it is esteemed moderately refrigerant, antiseptic, attenuant, and aperient. It is used, with considerable advantage, to allay thirst in most febrile complaints, to lessen an increased secretion of bile, and to correct a putrid and scorbutic state of the fluids, especially in sanguine temperaments; but, in constitutions of a contrary kind, it is apt to occasion flatulence and indigestion, especially if eaten without any culinary preparation.

RIBS (*costæ, à custodiendo*, because they guard the vital parts); long curved bones which are placed on each side of the chest, in an oblique direction downward, in respect of the back bone. There are generally twelve on each side; though frequently eleven or thirteen have been found. Sometimes the ribs are found preternaturally conjoined, or else subdivided. The ribs are concave internally; where they are also made smooth by the action of the contained parts, which, on this account, are in no danger of being hurt by them; and they are convex externally, that they might resist the pressure of the atmosphere during *inspiration*. The ends of the ribs next the vertebræ are rounder than when advanced more forward, for then they become flatter and broader, and have an upper and lower edge; each of which is made rough by the action of the intercostal muscles inserted into them. The upper edge of the ribs is more obtuse and rounder than the lower, which is depressed on its internal side by a long fossa, for lodging the intercostal vessels and nerves; on each side of which there is a ridge, to which the intercostal muscles are fixed. The fossa is not observable, however, at either end of the ribs; for, at the posterior or root, the vessels have not yet reached the ribs; and at the fore-end they are ramified along the parts between the ribs.

At its posterior end each rib has a little head. This is divided by a middle ridge into two plain or hollow surfaces; the lowest of which is the broadest and deepest in most of them. The two plains are joined to the bodies of two different vertebræ, and the ridge forces itself into the intervening cartilage. A little way from this head, we find on the external surface, a small cavity, where mucilaginous glands are lodged; and round the head, the bone appears spongy, where the capsular ligament of the articulation is fixed. Immediately beyond this a flatted tubercle rises, with a small cavity at and roughness about its root, for the articulation of the rib with the transverse process of the lowest of the two vertebræ, with the bodies of which the head of the rib is joined. Farther on this external surface, in most of the ribs, there is a smaller tubercle, into which ligaments that connect the ribs to each other, and to the transverse processes of the vertebræ and portions of the longissimus dorsi, are inserted. Beyond this the ribs are made flat by the sacro-lumbalis muscle, which is inserted into the part of this flat surface farthest from the spine, where each rib makes a considerable curve, called its *angle*. The new rib becomes broad, and continues so to its anterior end, which is hollow and spongy, for the reception of, and firm coalition with, the cartilage that runs thence to be inserted into the sternum, or to be joined with some other cartilage. In adults, the cavity at this end of the ribs is smooth and polished on its surface; by which the articulation of the cartilage with it has the fallacious appearance of being designed for motion.

In their substance the ribs are spongy, cellular, and only covered with a very thin lamellated surface, which increases in thickness and strength as it approaches the vertebræ. The fore end of each rib has a long broad and strong cartilage affixed, which reaches to the sternum, or is joined to the cartilage of the next rib. This course, however, is not in a straight line with the rib; for generally the cartilages make a considerable curve, the concave part of which is upward; therefore, at their insertion into the sternum, they make an obtuse angle above, and an acute one below. These cartilages are of such a length as never to allow the ribs to come to a right angle with the spine. They are also firmer and harder internally than they are on their external surface; and sometimes, in old subjects, all their middle substance becomes ossified. Sometimes, however, the ossification begins externally.

Being articulated at each end, the posterior extremity of each rib is doubly joined to the vertebræ; for the head is received into the cavities of two bodies of the vertebræ, and the larger tubercle is received into the depression in the transverse process of the lower vertebra. This double articulation allows of no other motion than upward and downward; since the transverse process hinders the rib from being thrust back, the resistance on the other side of the sternum prevents the ribs coming forward, and each of the two joints, with the other parts attached, oppose its turning round. But then the motion, even upward and downward, can be but small in any one rib at the articulation itself. Yet as the ribs advance, the distance from their centre of motion increasing, the motion must be larger; and it would be very conspicuous at their anterior ends, were not they resisted there by the cartilages, which yield so little, that the principal motion is performed by the middle part of the ribs, which turns outward and upward, and occasions the contortion seen in the long ribs at the part where they are most resisted.

The ribs increase in length from the first and uppermost, as far down as the seventh; and from that to the twelfth, there is a gradual diminution. The superior of the two plain, or rather hollow, surfaces, by which the ribs are articulated to the bodies of the vertebræ, gradually increases from the first to the fourth rib, and is diminished after that in each lower rib. The distance of their angles from the heads always increases as they descend to the ninth, because of the greater breadth of the musculus sacro-lumbalis.

The ribs are commonly divided into *true* and *false*. The *true* are the seven upper ones of each side, whose cartilages are all gradually longer as the ribs descend, and are joined to the breast-bone; so that, being pressed constantly between two bones, they are flatted at both ends; and are thicker, harder, and more liable to ossify, than the other cartilages that are not subject to so much pressure. Within these, the heart and lungs are included.

The *false* ribs are the five inferior *costæ* on each side, whose cartilages do not reach to the sternum. Wanting the resistance at their forepart, they are there pointed; and being less exposed to pressure, their substance is softer. The cartilages of these ribs shorten as the ribs descend. To these ribs the circular edge of the diaphragm is connected; and its fibres, instead of being stretched immediately transversely, and so running perpendicular to the ribs, are pressed so as to be often, especially in exspiration, parallel to the plane in which the ribs lie.

The situation of the first rib on each side is such, that the flat sides are above and below, while one edge is placed inward and the other outward, or nearly so: therefore sufficient space is left above it for the subclavian vessels and muscle; and the broad concave surface is opposed to the lungs. In consequence of this, the channel for the intercostal vessels is not seen; and the edges are differently formed from all the other, except the second; the lower one being rounded, and the other sharp. The head of this rib is not divided into two plain surfaces by a middle ridge, because it is only articulated with the first vertebra of the thorax. Its cartilage is ossified in adults, and is united to the sternum at right angles. Frequently this first rib has a ridge near the middle of its posterior edge, where one of the heads of the scalenus muscle rises. It is flatted, or sometimes depressed by the clavicle, as it advances farther forward.

Some of the middle ribs have their cartilages at least contiguous; and frequently they are joined to each other by cross cartilages: and most commonly the cartilages of the eighth, ninth, and tenth, are connected to the former and to each other by ligaments.

The shortest and straightest of the ribs, is the twelfth. Its head is only articulated with the last vertebra of the thorax; therefore it is not divided into two surfaces. This rib is not joined to the transverse process of the vertebra; and therefore has no tubercle, being often pulled necessarily inward by the diaphragm, which an articulation with the transverse process would not have allowed. The fossa is not found at its under edge, because the vessels run below it. The forepart of this rib is smaller than its middle, and has only a very small pointed cartilage fixed to it. The diaphragm is connected to this through its whole internal extent.

The heads and tubercles of the ribs of a new-born child have cartilages on them; part of which become afterward thin epiphyses. The bodies of the ribs encroach gradually, after birth, upon the cartilages; so that the latter are proportionably shorter, when compared to the ribs, in adults, than in children.

The accident to which the ribs are most particularly exposed is fracture. See FRACTURE.

RIB-WORT, a popular name for the *Plantago lanceolata* Linn. or narrow-leaved plantain.

RICE. See ORYZA.

RI'CINUS (*quasi ριν κυνος*, a dog's nose, because they stick to the noses of dogs), the *Cataputia major*, *Ricinus vulgaris*, or *Palma christi*; Mexico seed. It is the produce of the *Ricinus communis*; *foliis peltatis, subpalmatis serratis* Linn. Class, *Monœcia*. Order, *Monadelphia*. This plant appears to be the Κικι or Κροτων of Dioscorides, who observes, that the seeds are powerfully cathartic. It is also mentioned in the writings of Ætius, Paulus Ægineta, and Pliny. The ricinus was first cultivated in England, in the time of Turner, and is now annually reared in many gardens in the neighbourhood of London. An oil extracted from the seeds, and known by the name of oleum ricini, palma christi, or castor oil, is the drug to which the pharmacopœias refer, and which is now come into frequent use, as a gentle though efficacious purgative.

Dr. Cullen says, the seed which affords this oil may be made into an emulsion, in which form it may be more agreeable to some persons than the oil; but the dose is not easily determined, the state of the seeds, as imported from the West Indies, not being uniformly the same. The oil, therefore, as obtained by expression or boiling, when the stomach can be reconciled to it, is one of the most agreeable purgatives we can employ. It has this particular advantage, that it operates sooner after its exhibition than any other purgative; commonly in two or three hours. It seldom gripes, and its operation is generally moderate; extending to one, two, or three stools only. It is particularly suited to cases of costiveness, and even to those of spasmodic colic. In the West Indies it is found to be one of the most certain remedies in the dry belly-ach or colica pictonum. Having never observed that it heated or irritated the rectum, Dr. Cullen found it sufficiently well suited to hæmorrhoidal persons.

The common dose of the oil is about half an ounce; but many persons require double that quantity, and indeed there is seldom any harm arises from an increase of the common dose. "It is particularly to be observed of this medicine," says Dr. Cullen, "that if it be frequently repeated, the dose may be gradually more and more diminished; and I know instances of persons who, formerly of a costive habit, at first required half an ounce or more for a dose, but after being frequently repeated, they now find two drachms enough, at least to keep the belly regular. The only inconvenience attending the use of it is, that as an oil it is nauseous to some persons; and that, when the dose is large, it occasions nausea for some time after it is taken. To obviate these inconveniences, several means have been tried; but the most effectual is the addition of a little ardent spirit." For this, in the West Indies, they employ rum; but Dr. Cullen chose rather to employ the *tinctura sennæ composita*, of the Edinburgh Dispensatory. This, added in the proportion of one to three parts of the oil, and very intimately mixed by their being shaken together in a phial, both renders the oil less nauseous to the taste, and makes it sit more easy on the stomach.

Castor oil, as it is imported from the West Indies, and especially when procured there by boiling, very readily acquires some degree of rancidity; nevertheless, if the patient's taste and stomach can, by the means above mentioned, be reconciled to it, this rancidity does not seem to diminish the purgative quality.

The London College directs this oil to be expressed from the seeds in the same way as that of the oil of almonds, and without the assistance of heat, by which the oil would seem to be obtained in the purest state. In the West Indies, it is commonly prepared in the following manner: "The seeds being freed from the husks or pods, which are gathered upon their turning brown, and when beginning to burst open, are first bruised in a mortar, afterwards tied up in a linen bag, and then thrown into a large pot, with a sufficient quantity of water (about eight gallons to one gallon of the seeds), and boiled till the oil is risen to the surface, when it is carefully skimmed off, strained, and kept for use. Thus prepared, the oil is entirely free from acrimony, and will stay upon the stomach when it rejects all other medicines." Mr. Long remarks, that the oil intended for medicinal use is more frequently cold-drawn, or extracted from the bruised seeds by means of a hand-press. But this is thought more acrimonious than that prepared by coction. Dr. Browne is also of this opinion, and prefers the oil procured by coction to that by expression: he attributes its greater mildness to the action of the fire, observing, that the expressed oil, as well as the mixed juices of the seeds, are far more active and violent in their operation.

RI'CINUS COMMUNIS; the systematic name of the plant which affords the castor-oil. See Ricinus.

RI'CINUS MAJOR, called by the various names of *Ricinoides*, *Pineus purgans*, *Pinhones Indici*, *Faba cathartica*, *Nux cathartica Americana*, and *Nux Barbadensis*, an oblong black seed, obtained from the *Jatropha curcas; foliis cordatis angulatis* Linn. This affords a quantity of oil, which is given in many places as we give the castor-oil, to which it is very nearly allied. The seeds of the *Jatropha multifida* are of an oval and triangular shape, and of a pale brown colour. These also are called purging nuts, and give out a similar oil to that of the Jatropha curcas.

RI'CINUS VULGA'RIS. See Ricinus.

RICKETS. See Rachitis.

RIGIDITY, a term applied to the solids of the body, when, being stiff or unpliable, they cannot readily perform their respective offices. This is to be remedied by fomentations, bathing, &c. but a fibre is then said to be rigid, when its parts are so strongly coherent together, as not to yield to that action of the fluids which ought to overcome their resistance, in order to the preservation of health.

RI'GOR, a coldness, attended with a shivering, more or less perfect.

RI'MA, a fissure, chink, or opening; as the *rima laryngis*, *rima vulvæ*, &c.

RI'MA GLO'TTIDIS; the opening of the glottis, through which the air passes in and out of the lungs.

RI'MULA (dim. of *rima*, a fissure); a small fissure.

RINÆ'US. See Compressor naris.

RING-WORM; a species of herpes. See Herpes.

RI'SAGON. See Cassumuniar.

RI'SUS SARDO'NICUS. See Sardonic laugh.

ROASTING, a very common mode of treating animal food. See Cookery. As in this culinary process, care is taken to apply the heat equally, Dr. Cullen says, its effect in rendering the meat more tender is certainly obtained; and though a considerable exhalation is made, this is almost only of a watery humidity. This, however, would take place to a very great degree, and render the meat again more insoluble, were it not that large masses only are subjected to this operation, and that thereby the outer surface is first condensed, and prevents the exhalation from the interior parts. At the same time, an oily matter is commonly and repeatedly applied by basting the outer surface, which prevents both much exhalation and any great hardening of the surface, till the heat has penetrated the whole, and rendered it sufficiently tender. From this the effects of roasting, and the proper conduct of it, as it concerns the preservation of health, may be understood; but in this the reader may be further instructed by perusing the truly philosophical dissertations on this subject by Count Rumford.

ROASTING, a chemical process, generally performed in crucibles, by which mineral substances are divided, some of their principles being volatilised and others changed, so as to prepare them for other operations.

ROB, an old term for an inspissated pulp of any fruit, as the rob of Elder, Juniper, &c. Dr. Cullen says, the mode of preserving by evaporation, or the making fruits into a rob, has been very commonly employed, and much commended; but in many trials which he made, he could not exhale it to such a consistence as would preserve it alone, without the acid being a good deal changed. It acquires an acerbity and stypticity that does not allow it to be readily diffused in water; and the doctor suspects it is not so readily miscible with the animal fluid as in its entire state. From Forster's observations in his Voyage round the World, the robs of the acid fruits were not found useful either in preventing or curing the scurvy; which Dr. Cullen supposes to be accounted for, partly by the concentration bringing it nearer to the state of the fossil acids, or possibly by the dissipation of some volatile parts, perhaps a portion of the carbonic acid, both of which circumstances may render it less fit for the purpose: indeed this mode of preparation is not now sanctioned by the Colleges.

ROBORA'NTIA, strengtheners; a class of medicines supposed to strengthen the body, and therefore to restore the strength when it has been lost. As a general term, Dr. Cullen thinks, though it may be improper, yet as it is commonly applied to medicines which increase the tone of the moving fibres, it may be allowed.

ROCCE'LLA, the *Lichen roccella* Linn. This plant is chiefly used as a blue dye; but it has been also employed medicinally, and with success, in allaying the cough attendant on phthisis, and also in hysterical coughs.

ROCHELLE SALT. See Tartris sodæ.

ROCKAMBOLE; the *Allium scorodophrasum* Linn. The root of this is used for pickles and high-seasoned dishes.

ROCK-OIL. See Petroleum.

ROCK SAMPHIRE. See Samphire.

ROCKET, GARDEN. See Eruca.

ROCKET, ROMAN. See Eruca.

ROCKET, WILD. See Eruca sylvestris.

ROOT. See Radix.

RORE'LLA. See Ros solis.

RORISMARI'NUS. See Rosmarinus.

RO'S CALABRI'NUS, a name by which the officinal manna has been sometimes called.

ROS SOLIS, or *Rorella*, sun-dew; an elegant little plant, the *Drosera rotundifolia scapis radicatis; foliis orbiculatis* of Linnæus. It is said, nevertheless, to be so acrid as to ulcerate the skin. This plant removes warts and corns if applied to them. It is seldom taken internally in this country but by the lower orders, who reckon a decoction of it serviceable in asthmas and coughs.

ROS SOLIS, sun-dew; a spirituous liquor, composed of burnt-brandy, sugar, cinnamon, and milk-water; and sometimes perfumed with a little musk. It has its name from having originally been prepared wholly of the juice of the plant ros solis. See Ros solis.

RO'SA ALBA; the white-rose. The flowers of this species possess similar virtues to those of the damask-rose, but in a less degree. They are directed in some officinal preparations in the foreign pharmacopœias.

RO'SA CANI'NA; the systematic name of the dog-rose. See Cynosbatus.

RO'SA CENTIFO'LIA; the systematic name of the damask-rose. See Rosa damascena.

RO'SA DAMASCE'NA, or *Rosa pallida*, the damask-rose; *Rosa centifolia* Linn. *Rosa germinibus ovatis pedunculisque hispidis, caule hispido aculeato, petiolis inermibus.* Class, *Icosandria.* Order, *Polygynia.* The pharmacopœias direct a syrup to be prepared from the petals of this rose. This is found to be a pleasant and useful laxative for children, or to obviate costiveness in adults. Most of the roses, though much cultivated in our gardens, are far from being justly characterised. The London College, following Gerard and Parkinson, has still retained the name rosa damascena; but the damask-rose is another species, widely different from the centifolia, as appears from the description given of it by Du Roi and Miller.

The petals of this rose are directed for medicinal use. They are of a pale red colour, and of a very fragrant odour, which they impart to watery liquors, both by infusion and distillation. Six pounds of fresh roses will impregnate, by distillation, about a gallon of water, strongly, with their fine flavour. On distilling large quantities, there separates from the watery fluid a small portion of a fragrant butyraceous oil, which liquifies by heat, and appears yellow, but concretes in the cold into a white mass. An hundred pounds of the flowers, according to the experiments of Tachenius and Hoffman, afforded scarcely half an ounce of oil. The smell of the oil exactly resembles that of the rose, and is therefore used as a perfume. Though possessing very little pungency, it has been highly extolled for its cordial and analeptic qualities. These flowers also contain a bitterish substance, which is extracted by water along with the odorous principle, and remains entire in the decoction after the latter has been separated by distillation or evaporation. The fixed sapid matter of the petals manifests a purgative quality; and it is on this account that the flowers have been received in the Materia Medica. The three British Colleges direct the distilled water, and those of London and Edinburgh a syrup, prepared from the petals of this rose.

RO'SA GA'LLICA; the systematic name of the red officinal rose. See Rosa rubra.

RO'SA PA'LLIDA. See Rosa damascena.

RO'SA RUBRA; the red officinal rose. *Rosa Gallica* of Linnæus. *Rosa germinibus ovatis pedunculisque hispidis, caule petiolisque hispido aculeatis.* Class, *Icosandria.* Order, *Polygynia.* The flowers of this species are valued for their astringent qualities, which are most considerable before the petals expand; and therefore in this state they are chosen for medicinal use, and ordered by the pharmacopœias in different preparations, as those of a conserve, a honey, an infusion, and a syrup. The infusion of roses is a grateful cooling sub-astringent, and useful in hæmoptysis, and other hæmorrhagic complaints; its efficacy, however, depends chiefly on the acid.

RO'SA SYLVE'STRIS; the dog-rose; *Rosa canina* Linn. See Cynosbatus.

ROSA'CEA GUTTA. This term is applied to little rosy-coloured eruptions upon the face and nose.

ROSE, the vulgar name for an erysipelas. See Erysipelas.

ROSE, DAMASK. See Rosa damascena.

ROSE, DOG. See Cynosbatus.

ROSE, RED. See Rosa rubra.

ROSE ROOT. See Rhodia.

ROSE, WHITE. See Rosa alba.

ROSE'A RADIX. See Rhodia.

ROSEBAY WILLOW-HERB; the *Epilobium angustifolium* Linn. It is common in our woods in moist situations. The young shoots are eaten, and said to be little inferior to asparagus when boiled.

ROSEMARY. See Rosmarinus.

ROSEWOOD. See Lignum rhodium.

ROSEWORT. See Rhodia.

ROSIN; the same as resin. See Resina.

ROSMARI'NUS (*quasi rosa σμυρνα*, because it smells like myrrh), the *Rosmarinus hortensis*, or common rosemary; *Rosmarinus officinalis* Linn. Class, *Diandria.* Order, *Monogynia.* There are two species, the *angustifolia* and *latifolia*, or narrow and broad leaved rosemary; of which the second has larger flowers and a stronger scent than the other. There are two varieties; one of the first sort with striped leaves, called the *silver rosemary;* and the other with yellow, whence it is called the *gold-striped rosemary.* These plants grow naturally in the southern parts of France, Spain, and Italy; where upon dry rocky soils near the sea they thrive prodigiously, and perfume the air in such a manner as to be smelt at a great distance from the land. However, they are hardy enough to bear the cold of our ordinary winters, provided they be planted upon a poor, dry, gravelly soil, on which they will endure the cold much better than in a richer ground, where, growing more vigorously in summer, they are more apt to be injured by frost in winter; nor will they have such a strong aromatic scent as those on a dry and barren soil. They are to be propagated either by slips or cuttings.

Rosemary has a fragrant smell, and a warm pungent bitterish taste, approaching to those of lavender: the leaves and tender tops are strongest; next to those, the cup of the flower; the flowers themselves are considerably the weakest, but most pleasant. Aqueous liquors extract great part of the virtues of rosemary leaves by infusion, and elevate them in distillation: along with the water arises a considerable quantity of essential oil, of an agreeable strong penetrating smell. Pure spirit extracts in great perfection the whole aromatic flavour of the rosemary, and elevates very little of it in distillation; hence the resinous mass, left upon extracting the spirit, proves an elegant aromatic, very rich in the peculiar qualities of the plant. The flowers of rosemary give over great part of their flavour in distillation with pure spirit; by watery liquors, their fragrance is much injured; by heating, destroyed.

Rosemary is reckoned one of the most powerful of those plants which stimulate and corroborate the nervous system; it has therefore been recommended in various affections supposed to proceed from debility or defective excitement of the brain and nerves, as in certain head-achs, deafness, giddiness, and in some hysterical and dyspeptic symptoms.

ROSMARI'NUS HORTENSIS. See Rosmarinus.

ROSMARI'NUS OFFICINA'LIS; the systematic name of the common rosemary. See Rosmarinus.

ROSMARI'NUS SYLVE'STRIS; the *Ledum palustre* Linn. The plant which bears this name in the pharmacopœias has a bitter subastringent taste, and was formerly used in Switzerland, in the place of hops in brewing beer. Its medicinal use on the Continent, is occasionally in the cure of hooping-cough, sore-throat, dysentery, and exanthematous diseases; but it has little efficacy in such cases.

ROTA'CEÆ (from *rota*, a wheel), the name of the 20th order in Linnæus's Fragments of a Natural Method; consisting of plants with one flat, wheel-shaped petal, without a tube. See Botany.

RO'TANG CANE. See Sanguis draconis.

ROTROU'S SOLVENT, an empirical remedy once in great esteem. Crude antimony mixed with three parts of nitre, and exposed to the fire in a crucible, loses all its sulphur by the action of the nitre. The mixture enters into a paste-like fusion; it is then poured on a marble, pulverised, and kept in a bottle. This is the account of it given by Beaumé.

ROTTEN-STONE, a mineral found in Derbyshire, and used by mechanics for all sorts of finer grinding and polishing, and sometimes for cutting of stones. According to Ferber, it is a tripoli mixed with calcareous earth.

RO'TULA (dim. of *rota*, a wheel; so called from its shape), the patella, or knee-pan. See Patella.

ROTU'NDUS, a term in anatomy, given to several muscles otherwise called *teres*.

ROUND-LEAVED SORREL. See Rumex scutatus.

ROUND LIGAMENTS, *Ligamenta rotunda;* a kind of connecting band, formed of vessels and fibres, contained in a duplicature of the peritonæum in women. These proceed from the sides of the uterus, through the abdominal ring, and disappear in the pudenda.

RUBE'DO, a diffused, but not spotted, redness in any part of the skin. That which arises from blushing is an example.

RUBEFACIE'NTIA (from *rubefacio*, to make red), rubefacients; a class of substances which, when applied a certain time to the skin, induce a redness without blistering.

RUBE'OLA (from *rubio*, to become red), also named *Morbilli;* the measles. This is a genus of disease in the class *pyrexiæ*, and order *exanthemata*, of Cullen; known by synocha, hoarseness, dry cough, sneezing, drowsiness; about the fourth day, eruption of small red points, discernible by the touch, which after three days end in mealy desquamation.

This disease begins with a cold stage, which is soon followed by a hot, with the ordinary symptoms of thirst, anorexia, anxiety, sickness, and vomiting; and these are more or less considerable in different cases. Sometimes from the beginning the fever is sharp and violent: often, for the first two days, it is obscure and inconsiderable; but always becomes violent before the eruption, which commonly happens on the fourth day. This eruptive fever, from the beginning of it, is always attended with hoarseness, a frequent hoarse dry cough, and often with some difficulty of breathing. At the same time the eye-lids are somewhat swelled; the eyes are a little inflamed, and pour out tears; and with this there is a coryza, and frequent sneezing. For the most part a constant drowsiness attends the beginning of this disease. The eruption, as we have said, commonly appears upon the fourth day; first on the face, and successively on the lower parts of the body. It appears first in small red points; but soon after a number of these appear in clusters, which do not arise in visible pimples, but by the touch are found to be a little prominent. This is the case on the face; but, in other parts of the body, the prominency or roughness is hardly to be perceived. On the face the eruption retains its redness, or has it increased, for two days; but on the third the vivid redness is changed to a brownish red; and in a day or two more the eruption entirely disappears, while a mealy desquamation takes place. During the whole time of the eruption the face is rather turgid, but seldom considerably swelled. Sometimes, after the eruption has appeared, the fever ceases entirely: but this is seldom the case; and more commonly the fever continues or is increased after the eruption, and does not cease till after the desquamation. Even then the fever does not always cease, but continues with various duration and effect. Though the fever happen to cease upon the eruption's taking place, it is common for the cough to continue till after the desquamation, and sometimes much longer. In all cases, while the fever continues, the cough also continues, generally with an increase of the difficulty of breathing; and both of these symptoms sometimes arise to a degree which denotes a pneumonic affection. This may happen at any period of the disease; but very often it does not come on till after the desquamation of the eruption. After the same period, also, a diarrhœa frequently comes on, and continues for some time.

It is common for measles, even when they have not been of a violent kind, to be followed by inflammatory affections, particularly ophthalmia and phthisis. If blood be drawn from a vein in the measles, with circumstances necessary to favour the separation of the gluten, this always appears separated, and lying on the surface of the crassamentum, as in an inflammatory disease. For the most part, the measles, even when violent, are without any putrid tendency; but in some cases, such a tendency appears, both in the course of the disease, and especially after the ordinary course of it is finished.

The measles are occasioned by a peculiar kind of contagion, the nature of which is not understood; and which, like that of the small-pox, affects a person only once in his life. From the description of this distemper already given, it appears that the measles are attended with a catarrhal affection, and with an inflammatory diathesis to a considerable degree; and therefore the danger of them is to be apprehended chiefly from the coming on of a pneumonic inflammation. When this disease is attended with putrid symptoms, the event is, of course, the most to be apprehended.

In the measles, as well as in small-pox, the disease from its nature must necessarily run a determined course; and therefore the sole aim of a practitioner is to conduct this course in the easiest manner, by preventing and obviating urgent symptoms.

From the considerations mentioned above, it will be obvious, that the remedies especially necessary, are those which may obviate and diminish the inflammatory diathesis; and therefore, in a particular manner, blood-letting. This remedy may be employed at any time in the course of the disease, or after the ordinary course of it is finished. It is to be employed more or less, according to the urgency of the symptoms of fever, cough, and dyspnœa; and generally may be employed very freely. But as the symptoms of pneumonic inflammation seldom come on during the eruptive fever, and as this is sometimes violent immediately before the eruption, though a sufficiently mild disease be to follow; bleeding is seldom very necessary during the eruptive fever, and may often be reserved for the times of greater danger which are perhaps to succeed.

In all cases of measles, where there are no marks of putrescency, and where there is no reason, from the known nature of the epidemic, to apprehend putrescency, bleeding is the remedy most to be depended upon: but assistance may also be drawn from cooling purgatives, such as neutral salts, &c. proportioned to the age and strength of the patient; and particularly from blistering on the sides or between the shoulders. The dry cough may be alleviated by the large use of demulcent pectorals, mucilaginous, oily, or sweet, such as are well known to practitioners.

It may, however, be observed, with respect to these demulcents, that their chief operation is by besmearing the fauces, and defending them from the irritation of acrid discharges, either arising from the lungs or distilling from the head. For moderating and quieting the cough in this disease, opiates certainly prove the most effectual means, whenever they can be safely employed. In the measles, in which an inflammatory state prevails in a considerable degree, opiates have indeed by some been supposed to be inadmissible: but experience abundantly demonstrates, that the objection made to their use is merely hypothetical; and even in cases where, from a high degree of pyrexia and of dyspnœa, there is reason to fear the presence, or at least the danger, of pneumonic inflammation, opiates are highly useful; after bleeding, to obviate or abate the inflammatory state, has been duly employed. In such cases, while the cough and watchfulness are the urgent symptoms, opiates may be safely exhibited, and with great advantage, not only in moderate doses at bedtime, but also by substituting *syr. papav. alb.* for the other syrups directed in the linctuses used by the patient, and sometimes even adding to their sedative tendency, by the addition of a suitable quantity of tincture of opium. In all the exanthemata, there is an acrimony diffused over the system, which gives a considerable irritation; and, for obviating the effects of this, opiates are useful, and always proper, when no particular contra-indication prevails.

When the desquamation of the measles is finished, though then there should be no disorder remaining, physicians have thought it necessary to purge the patient several times, with a view to draw off what have been called the *dregs of this disease*; that is, a portion of the morbific matter which is supposed to remain long in the body. Dr. Cullen does not reject this supposition; but at the same time cannot believe that the remains of the morbific matter, diffused over the whole mass of blood, can be wholly drawn off by purging; and therefore thinks, that to avoid the consequence of the measles, it is not the drawing off the morbific matter which we need to study, so much as to obviate and remove the inflammatory state of the system which had been induced by the disease. With this last view indeed, purging may still be a proper remedy; but bleeding, in proportion to the symptoms of inflammatory disposition, is still more so.

From our late experience of the use of cold air in the eruptive fever of the small-pox, some physicians have been of opinion that the practice may be transferred to the measles; but this point has not yet been determined by sufficiently extensive experience. We are certain, that external heat may be very hurtful in the measles, as in most other inflammatory diseases; and therefore, that the body ought to be kept in a moderate temperature during the whole course of the disease; but how far, at any period of the disease, *cold air* may be applied with safety, is still uncertain. Analogy, though so often the resource of physicians, is frequently fallacious; and further, though the analogy with the small-pox might lead to the application of cold air during the eruptive fever of the measles, the analogy with catarrh seems to be against the practice.

When the eruption is upon the skin, there are many instances of cold air making it disappear, and thereby producing much disorder in the system; and there are also frequent instances of this disorder being removed by restoring the heat of the body, and thereby again bringing out the eruption.

The *putrid measles* appeared in London in the years 1672, 1763, and 1768, and at Plymouth in 1745. According to the account given by Sir William Watson in the London Medical Observations, vol. IV. it is of the utmost consequence in practice to distinguish this from the inflammatory measles. He says, watery inflamed eyes, a cough, and universal debility, were the first indications of a person's being attacked with this species of the disease. To these generally succeeded a restless night. On the next day the fever usually rose to a considerable height, attended with pain and heaviness in the head, at which time the eruptions appeared; so that most frequently, on the second or third day, the measles were visible on most parts of the body. The cough, and inflamed eyes, grew worse. The patient now complained of great heat, oppression, and restlessness. The breathing was generally difficult, and there was no expectoration. The skin was usually dry; the fauces were of a deep red colour, and the tongue mostly foul; the thirst was great; the pulse very quick, and seldom full, and they complained of great weakness. The eruption, heat, and inflammatory symptoms, continued in the manner just now mentioned, more or less, according to the severity of the disease, four or five days, and then went off. In some instances they continued a few days longer; but in the greater number the eruptions were gone at the end of the fourth day. This is considered as the first stage of the disease.

The second or last stage of the malignant measles began after the febrile heat was over, and the eruptions had disappeared. The watery eyes in many were now turned into an excessive soreness, which lasted, in some, for a considerable time. The cough, oppression, and difficulty of breathing, continued equally severe, and sometimes more so than during the eruption, attended with great restlessness and anxiety, and with scarcely any expectoration; the thirst was abated; the pulse was quick, but low, and frequently irregular, and the debility in many was extreme, especially if at this period the patient was teazed with purging stools. By this time he was greatly reduced, and if, in this state, a delirium came on, it indicated a fatal event.

If in the second stage of the disease the dryness of the skin went off, and gentle perspiration came on; if the restlessness and anxiety were abated; if the cough and difficulty of breathing became less severe, and if the patient recovered a little strength; these were favourable appearances. The reverse of this indicated mischief.

Of those who died, but few were lost in the first stage of the disease; several on the first two or three days of the second, more between the second and third week. Some, indeed, died more than a month after they were first attacked. Of those who died, some sunk under laborious respiration, more from a dysenteric purging, the disease having attacked the bowels; and of these, one died of a mortification of the rectum. Besides this, six others died sphacelated in one or more parts of the body. The girls who died, most usually became mortified about the pudenda. Two had ulcers in the mouth and cheek, which last was so corroded by them, that the cheek, from the ulcers within, sphacelated externally before death. Of these, one had the gums and jaw-bone corroded to so great a degree, that most of the teeth on one side came out before she died. The lips and mouths of many who recovered were ulcerated, and continued so for a long time. Besides these, after the cough, difficulty of breathing, and other seemingly threatening symptoms, were gone off, several were so debilitated, that they refused to take almost any nourishment, and sunk quite emaciated; one so late as six weeks after the attack.

Several were opened who died under different circumstances attending this disease. Of some, who died of laborious respiration, after the feverish heat and eruptions were passed, the bronchial system was found very little loaded with mucus; but the substance of the lungs was tender, and their blood-vessels were very much distended and obstructed.

In the putrid measles, bleeding, which was practised in the first and second stage, gave no relief to the pneumonic symptoms or fever. The relief of this truly putrid disease was therefore attempted by cleansing the stomach and bowels with small doses of antimon. tartarisat. which was of signal service, as it generally mitigated the symptoms: and afterwards cooling antiseptics were directed. The chambers of the sick were kept cool. If they had no purging, their common drink was pectoral decoction, with a due mixture of simple oxymel, and of this they were ordered to drink plentifully: if this was disliked, barley-water, with vinegar, or balm-tea, was substituted. Where the symptoms ran high, with great restlessness, and dryness of the skin, tepid bathing of the whole body, as long as the patient could conveniently bear it, was of great service.

This practice was confined to the inflammatory state; but afterwards it was not thought advisable, on account of the great debility. The use of blisters was not found to be so extensive in the first as in the second stage. In the latter, blisters relieved many; wine was given in whey, or in common drink. In case of griping, colliquative stools, which often came on, an infusion of the rad. serpentar. Virginian. with conf. aromatic. was given, to which a few drops of tinct. opii were added occasionally, which was also given in mutton broth as a clyster. The patient's nourishment was rice gruel. If the cough and dyspnœa were moderate, the decoct. cort. cinchon. was of great service; when they were violent, they were generally increased by it; and under these circumstances, the rad. serp. Virg. was substituted, but with less beneficial effects. Late in the disease, when the stomach was so enfeebled that the patients could take no nourishment of a more solid kind, milk, alone, or mixed with water, was most grateful, alleviated their complaints, and recruited their strength.

Several years ago, *inoculation for the measles* was proposed, and practised in several instances with success, by Dr. Home of Edinburgh. His method of communicating the infection was, by applying to an incision in each arm, cotton moistened with the blood of the patient labouring under the measles; but with others who have made similar trials, the attempt has not yet succeeded. Attempts too have been made to inoculate this disease by means of the fluid discharged under the form of tears, the squamæ falling from the surface, and the like; but there is reason to believe, that where it was imagined the infection had thus been communicated, the contagion was only carried about the person inoculating, and communicated in the ordinary way.

From inoculation of the measles, it is imagined that several advantages may be obtained; and among others, it is thought the soreness of the eyes may be mitigated, the cough abated, and the fever rendered less severe: but the practice was never much in fashion, and now is deservedly laid aside.

RU'BIA (from *ruber*, red; so called from its red roots), otherwise named *Erythrodanum*, and *Radix rubra*, Madder; the *Rubia tinctorum; foliis annuis, caule aculeato*, Linn. Class, *Tetrandria.* Order, *Monogynia.* The roots of this plant have a bitterish, somewhat austere taste, and a slight smell, not of the agreeable kind. Madder-root is used in medicine. The virtues attributed to it are those of a detergent and aperient; whence it has been usually ranked among the opening roots, and recommended in obstructions of the viscera, particularly of the kidneys, in coagulations of the blood from falls or bruises, in the jaundice, and beginning dropsies. It is an ingredient in the icteric decoction of the late Edinburgh Pharmacopœia.

It is observable, that this root, taken internally, tinges the urine of a deep red colour; and in the Philosophical Transactions we have an account of its producing a like effect upon the bones of animals who had it mixed with their food. All the bones, particularly the more solid ones, were said to be changed, both externally and internally, to a deep red; but neither the fleshy nor cartilaginous parts suffered any alteration. Some of these bones, macerated in water for many weeks together, and afterwards steeped and boiled in spirit of wine, lost none of their colour, nor communicated any tinge to the liquors. This root, therefore, was concluded to be possessed of great subtilty of parts, and its medical virtues hence to deserve enquiry. The same trials, however, made by others, have not been found to produce the same effects as those above mentioned. Of late the root has come into great reputation as an emmenagogue.

RU'BIA TINCTORUM; the systematic name of the madder plant. See Rubia.

RUBI'GO FERRI, or *Chalybis rubigo præparata*, the rust of iron; a yellow oxid of iron, which is therefore termed *oxydum ferri luteum* in the new chemical nomenclature. It possesses corroborant and stimulating properties, and is accordingly exhibited with advantage in leucorrhœa, ataxia, chlorosis, pyrosis, dyspepsia, rachitis, &c.

RU'BUS ARCTICUS; the systematic name of the shrubby strawberry. See Baccæ Norlandicæ.

RU'BUS CÆSIUS; the systematic name of the dewberry plant, whose fruit resembles the blackberry both in its appearance and medicinal qualities.

RU'BUS CHAMÆMO'RUS; the systematic name of the cloudberry tree. See Chamæmorus.

RU'BUS FRUCTICO'SUS; the systematic name of the bramble, which affords the common blackberries. See Blackberry.

RU'BUS IDÆUS (*rubus*, from *ruber;* so named from its red fruit), the raspberry; *Rubus idæus* Linn. *Rubus foliis quinato-pinnatis ternatisque, caule aculeato, petiolis canaliculatis.* Class, *Icosandria.* Order, *Polygynia.* This elegant fruit has a pleasant sweet taste, accompanied with a peculiar grateful flavour, on account of which it is chiefly valued. Its virtues consist in allaying heat and thirst, and promoting the alvine excretions. A delicate syrup, prepared from the juice, is directed for officinal use in some pharmacopœias.

RUBY, a genus of precious stones of various colours. According to the experiments of Bergman and Achard, the texture of the ruby is foliated like that of diamonds: it is fusible with borax in a strong and long-continued heat, running into a transparent glass of a pale green colour: the same effect is produced by microcosmic salt; but with sedative salt, or mineral or vegetable alkali, the glass is opaque and differently coloured. From the experiments of M. d'Arcet, it appears that the ruby does not lose its colour in the strongest fire; but Henckel says, that, by means of a burning-glass, he softened it in such a manner as to receive the impression of a seal of jasper. It becomes electric by being rubbed. Its specific gravity, according to Bergman, is from 3,180 to 4,240: but Brisson tells us that it is 4,283. The specific gravity of the spinell is 3,760, of the Brasilian ruby 3,531. Rubies are met with in the Capelan mountains of Pegu in the East Indies; and at Caos, Ava, Bisnagar, Calicut, Cananor, Ceilan, and Brasil.

RU'CTUS, eructation; or the discharge of flatus from the stomach.

RUDBECK (Olaus), a learned Swedish physician, born of an ancient and noble family in 1630. He became professor of medicine at Upsal, where he acquired great applause by his extensive knowledge; and died in 1702. His principal works are, 1. *Exercitatio anatomica, exhibens ductus novos hepaticos aquosos, & vasa glandularum serosa*, in 4to. He there asserts his claim to the discovery of the lymphatic vessels, against the pretensions of Thomas Bartholin. 2. *Athlantica, sive Manheim, vera Japheti posterorum sedes ac patria*, 4 vols. folio, a work full of strange paradoxes, but supported with profound learning. He there endeavours to prove, that Sweden was the country whence all the ancient Pagan divinities and our first parents were derived; and that the Germans, English, French, Danes, Greeks, and Romans, with all other nations, originally came from thence.

RUE. See Ruta.

RUE, GOATS. See Galiga.

RUM, a vinous spirit, distilled from the sugar-cane. This differs from simple sugar-spirit, in that it contains more of the natural flavour or essential oil of the sugar-cane; a great deal of raw juice and parts of the cane itself being often fermented in the liquor or solution of which the rum is prepared. The unctuous or oily flavour of rum is falsely supposed to proceed from a quantity of fat used in boiling the sugar; this last giving nothing to the flavour of the rum, which is really that of the sugar-cane alone. In its effects on the human body, rum differs little, if at all, from those of any other spirit.

New rum, however, is charged with many noxious qualities in the counties where it is produced; but it may be fairly questioned, whether the quantity drank, rather than the quality of the spirit itself, be not the circumstance most liable to objection.

RU'MEX ACETO'SA, the systematic name of the common sorrel. See ACETOSA.

RU'MEX ACU'TUS; the systematic name of the sharp-pointed wild-dock. See OXYLAPATHUM.

RU'MEX ALPI'NUS; the systematic name of the plant which affords the monks-rhubarb. See RHABARBARUM MONACHORUM.

RU'MEX AQUA'TICUS; the water-dock. See HYDROLAPATHUM.

RU'MEX CRISPUS; the systematic name of the crisp-leaved dock. See OXYLAPATHUM.

RU'MEX HYDROLA'PATHUM; the systematic name of the water-dock. See HYDROLAPATHUM.

RU'MEX PATIE'NTIA; the systematic name of the garden patience. See RHABARBARUM MONACHORUM.

RU'MEX SANGUI'NEUS; the systematic name of the bloody-dock. The root has an austere and astringent taste, and is sometimes taken by the vulgar for the cure of the dysentery.

RU'MEX SCUTA'TUS; the systematic name of the French sorrel. This plant is sometimes called *acetosa rotundifolia*. Its virtues are similar to those of common sorrel. See ACETOSA.

RUNNET. See RENNET.

RUPTURE. See HERNIA.

RU'SCUS (*à russo colore;* from the carnation colour of its berries), *Μυρςινη αγρια*, also named *Dios;* butcher's-broom, or knee-holly. *Ruscus aculeatus; foliis supra floriferis nudis*, Linn. Class, *Diœcia.* Order, *Syngenesia.* It is a small evergreen shrub, growing in our woods and thickets. The root is somewhat thick, knotty, and furnished with long fibres, externally brown, internally white, and of a bitterish taste. This has been recommended as an aperient and diuretic in dropsies, urinary obstructions, and nephritic cases, but is seldom used in the present practice.

RU'SCUS ACULEA'TUS; the systematic name of butcher's-broom. See RUSCUS.

RU'SCUS HYPOGLO'SSUS; the systematic name of the uvularia. See UVULARIA.

RUSH-NUT; a name given to the root of the *Cyperus esculentus* of Linnæus. The plant is a native of Italy, where the roots are collected and eaten, being more delicate and pleasantly tasted than our chesnuts.

RUSH, SWEET. See JUNCUS ODORATUS.

RUSSIA ASHES, the name, in commerce, by which they distinguish the impure potash, as it is imported from *Russia.*

RU'SMA; an ingredient in a composition to take off hair. When it is mixed up into a thin paste with an equal quantity of quick lime, and a sufficient proportion of water, and rubbed over any hairy part, it will, in the space of a minute or two, appear to loosen the hair by the roots, so that it may be gently stroked off with the hand; but the fact is, that the hair is *dissolved* by the causticity of the lime only. This method of taking off hair is said to be much practised among the Turks, the Italians, and the French. The *Rusma Tartarorum* is understood to be a preparation of honey, boiled to a high consistence, and applied in the manner of a plaster; but the genuine *Rusma* is a species of earth found in Turkey, and otherwise called by the name of *Susma.* Mention is made of it in the Philosophical Transactions.

RU'TA (of the Gr. *ϱυτη*; from *ρυω*, to *preserve*, because it preserves health), common rue; the *Ruta graveolens* of Linnæus. *Ruta foliis decompositis, floribus lateralibus quadrifidis.* Class, *Decandria.* Order, *Monogynia.* This plant has a strong and grateful smell, and a bitter, hot, penetrating taste; the leaves are so acrid, that by much handling they have been known to irritate and inflame the skin; and the plant, in its natural or uncultivated state, is said to possess these sensible qualities still more powerfully. The imaginary quality of the rue, as resisting and expelling contagion, is now laid aside. It is doubtless a powerful stimulant, and is considered, like other medicines of the fetid kind, as possessing attenuating, deobstruent, and antispasmodic powers. In the London Pharmacopœia it is directed in the form of an extract; and it is also an ingredient in the *pulvis è myrrha comp.* Former writers on the materia medica entertained a very high opinion of the virtues of this plant. Boerhaave is full of its praises; particularly of the essential oil, and the distilled water cohobated, or re-distilled, several times from fresh parcels of the herb. After extravagantly commending other waters prepared in this manner, he adds, with regard to that of rue, that the greatest commendations he can bestow upon it fall short of its merit: " What medicine (says he) can be more efficacious for promoting sweat and perspiration, for the cure of the hysteric passion and of epilepsies?" Whatever effects rue may have in the last case, it undoubtedly has its use in the others: the cohobated water, however, is not the most efficacious preparation of it. An extract made by rectified spirit contains in a small compass the whole virtues of the rue; this menstruum taking up, by infusion, all the pungency and flavour of the plant, and elevating nothing in distillation. With water, its peculiar flavour and warmth arise; the bitterness, and a considerable share of the pungency, remaining behind.

RU'TA BA'GA, or Swedish turnep; a coarse kind of esculent beet, the root of which grows to an enormous size when assiduously cultivated. A few years ago this vegetable was loudly extolled, as an article fit for food in this country, by some who pretended to the title of philosophers, and who with great industry transmitted the seeds to various parts of the kingdom. The fact nevertheless is, that this wonderful root had long been known to botanists and agriculturists, and all the new experiments, in its cultivation and application as an article of human sustenance, have failed entirely.

RU'TA GRAVE'OLENS; the systematic name of the common rue. See Ruta.

RU'TA MURA'RIA; the *Asplenium ruta muraria* of Linnæus. This plant has a place in some pharmacopœias. It is supposed to possess specific virtues in the cure of ulcers of the lungs, and is exhibited in the form of decoction with that intention.

RUTIDO'SIS, the corrugation and subsiding of the cornea of the eye, from the dissipation of the aqueous humour. The species are, 1. *Rutidosis*, from a wound or puncture penetrating the cornea, by which the humour is evacuated. 2. *Rutidosis*, from a fistulous opening in the cornea. 3. *Rutidosis*, from a deficiency of the aqueous humour, which happens from old age. 4. The *rutidosis* of dead persons, when the aqueous humour exhales through the cornea, and there is no fresh secretion; the cornea becoming obscure and collapsed. This last is a most unequivocal sign of death.

RUYSCH (Frederic), one of the most eminent anatomists of which Holland can boast, was born at the Hague in 1638. After making great progress at home, he repaired to Leyden, and there prosecuted the study of anatomy and botany. He studied next at Franeker, where he obtained the degree of doctor of physic. He then returned to the Hague; and marrying in 1661, dedicated his whole time to the study of his profession. In 1665 he published a treatise entitled *Dilucidatio valvularum de variis lymphaticis et lacteis;* which raised his reputation so high, that he was chosen professor of anatomy at Amsterdam. This honour he accepted, with the more pleasure, because his situation at Amsterdam would give him easy access to every requisite help for cultivating anatomy and natural history. After he settled in Amsterdam, he was perpetually engaged in dissecting and in examining with the most inquisitive eye the various parts of the human body. He improved the science of anatomy by new discoveries; in particular, he found out a way to preserve dead bodies many years from putrefaction. His anatomical collection was curious and valuable. He had a series of fœtuses of all sizes, from the length of the little finger to that of a new-born infant. He had also bodies of full-grown persons of all ages, and a vast number of animals almost of every species on the globe, besides a great many other natural curiosities. Peter the Great of Russia, in his tour through Holland in the year 1698, visited Ruysch, and was so charmed with his conversation, that he passed whole days with him; and when the hour of departure came, he left him with regret. He set so high a value on Ruysch's cabinet of curiosities, that when he returned to Holland in 1717, he purchased it for 30,000 florins, and sent it to Petersburgh.

In 1685 he was made professor of medicine, an office which he discharged with great ability. In 1728 he got his thigh-bone broken by a fall in his chamber. The year before this misfortune happened he had been deprived of his son Henry, a youth of talents, and well skilled in anatomy and botany. He had been created a doctor of physic, and is supposed to have assisted his father in his discoveries and publications. Ruysch's family now consisted only of his youngest daughter. This lady had been early inspired with a passion for anatomy, the favourite science of her father and brother, and had studied it with success. She was therefore well qualified to assist her father in forming a second collection of curiosities in natural history and anatomy, which he began to make after the emperor of Russia had purchased the first. Ruysch is said to have been of so healthy a constitution, that though he lived to the age of ninety-three, yet during that long period he did not labour under the symptoms of disease above a month. From the time he broke his thigh he was indeed disabled from walking without a support; yet he retained his vigour both of mind and body without any sensible alteration, till, in 1731, his strength at once deserted him. He died on the 22d of February the same year. His anatomical works are printed in four vols. 4to.

The style of his writings is simple and concise, but sometimes inaccurate. Instruction, and not ostentation, seems to be his only aim. In anatomy he undoubtedly made many discoveries; but from not being sufficiently conversant in the writings of other anatomists, he published as discoveries what had been known before. The Academy of Sciences at Paris in 1727 elected him a member in place of Sir Isaac Newton, who was lately deceased. He was also a member of the Royal Society of London.

RUYSCHIA'NA TUNICA, a name given to the internal surface of the choroid of the human eye, which this celebrated anatomist imagined to be a distinct lamina from the external surface.

RYE, COMMON. See Segale.

S.

S. A. in prescription, the contraction of *secundum artem.*

S. or *ss.* immediately following any quantity, imports *semis* half. Thus ℥*ss.* ʒ*ss.* in a prescription, denote half an ounce, half a drachm, &c.

SABADI'LLA. See CAVADILLA.

SABI'NA (so named from the Sabines, whose priests used it in their religious ceremonies), savin; the *Juniperus sabina* Linn. *Juniperus foliis oppositis erectis decurrentibus, oppositionibus pyxidatis.* Class, *Diœcia.* Order, *Monadelphia.* The leaves and tops of this plant, when rubbed between the fingers, have a strong smell of the disagreeable kind, and are hot, bitterish, and acrid to the taste. It is a powerful and active medicine, and has been long reputed an efficacious article in the materia medica, for producing a determination to the uterus, and thereby proving emmenagogue. It heats and stimulates the whole system very considerably, and is said to promote the fluid secretions. Externally, savin was employed by Mr. Hunter as an escharotic, to remove syphilitic warts, &c. A strong decoction of the plant in lard, forms a useful ointment to keep up a constant discharge from blisters, &c. which it does without any risk of strangury, so frequently produced by cantharides when used for this purpose. The only officinal preparation of savin is the *Ol. volat. sabin.* Edin. Dubl.

SABULOUS, gritty, or sandy; a term often applied to the calcareous matter found in the urine of nephritic patients.

SA'CCHARI A'CIDUM, the acid of sugar, called *oxalic* acid If one part of sugar be distilled with three parts of nitric acid, till nitrous gas ceases to be developed, and then re-distilled with three parts of the same acid, a white crystallised salt is found in the liquid residue, which is the acid of sugar.

SA'CCHARUM (σακχαρον, from *sacchar*, Arab.); sugar. The vegetable from which this is obtained in the West and East Indies, is the *Arundo saccharifera* of Linnæus. Class, *Triandria.* Order, *Digynia.* It is prepared from the expressed juice of the cane; boiled with the addition of quick lime or vegetable alkali. It may be extracted however from a number of other plants, as the maple, birch, corn, beet-root, parsneps, and dried grapes, &c. by digestion in alcohol. The alcohol dissolves the sugar, and leaves the extractive matter, which falls to the bottom.

Sugar may be taken into the stomach in very large quantities, without producing any bad consequences. When treating of aliments in general, Dr. Cullen sufficiently proves that it enters largely into the composition of the proper animal fluid, and makes a part of the nourishment of the body (see ALIMENTS); and from the facts he has adduced, it is highly probable, that sugar may be taken in with perfect safety in very large quantity. What limits indeed may be set to this, is very uncertain; but Dr. Cullen allows that there may be limits in this respect, and that whenever it happens that more sugar is taken in than can enter into the composition of the animal fluid, it must remain in its separate state, and may then be considered as a medicine that may have particular effects on the whole of the fluids.

The supposed effects of sugar as an attenuant, are noticed under the article ATTENUANTIA; it remains therefore only to say, what are the medicinal qualities of sugar, when present in any unusual quantitity in the mass of blood. These appear to be no other than that of a mild saline substance, that will readily pass off by the excretions, and probably expede and promote them; and this, in fact, is the only medicinal virtue Dr. Cullen ascribes to it.

It is necessary to observe, however, that, in weak stomachs, it may be disposed to an acescent fermentation; and when, from the state and circumstances of the digestive organs, this happens to predominate, sugar may have all the effects of other acescents. When sugar is carried unchanged into the intestinal canal, it then seems to stimulate, and prove laxative; which is shewn by the use of it in clysters: but when taken in by the mouth, its laxative effects hardly appear, except when it is taken in large quantity; and then indeed the laxative quality of sugar is sometimes considerable. Dr. Cullen attributes these effects most commonly to the circumstance of its being brought from the stomach into the intestines in an acid state, when, like other acids, being mixed with the bile, it may induce a diarrhœa. Occasional proofs indeed are not wanting, of its mischievous effects, by relaxing the stomach, and thus inducing disease.

Sugar is much used in pharmacy, as it forms the basis of all syrups, assists in the composition of lozenges, and many other preparations. It is very useful too as a medicine to favour the solution or suspension of resins, oils, &c. Sugar is universally the basis of that which we call sweetness. Its presence is necessary to the taking place of vinous fermentation. Its extraction from plants which afford it in the greatest abundance, and its refinement for common use, in a pure and separate state, are among the most important of the chemical manufactures. The sugar-cane, however, yields sugar in a proportion so much larger than that in which the same matter is to be obtained from any other, that only this cane has been as yet cultivated expressly for the purpose of affording sugar for extraction by the manufacturer.

The raw sugars are still contaminated and debased by a mixture of acid, carbonaceous matter, oil, and colouring resin. To free them from these, the sugar-bakers have recourse to a new solution; clarification with alkaline substances fitted to attract away the oil, acid, and other contaminating matters; slow evaporation; and a final cooling in suitable moulds; which last produces loaves of white sugar fit for medical purposes.

The melasses are nothing else but a very impure refuse of the sugar from which they drip. Being employed in a new ebullition, a second quantity of sugar is obtained from them, and the remainder is employed to yield spirit by distillation. See Spirit, ardent. The dripping carries away a mixture of water, oil, and mucilage, from the crystallised sugar: for, in all our crystallisations we can never perform the process in the great way with such nicety as to preserve it free from an equality of proportions, that must necessarily occasion a residue. Repeated solution, clarification, evaporation, are requisite to produce pure white sugar from the brown and raw sugars; because the complete purification of this matter from acid and colouring matter, is an operation of great difficulty, and not to be finally completed without processes which are longer than can be conveniently performed, at the first, upon the sugar plantation.

From vegetables of European growth, sugar is not to be easily obtained, unless the process of germination be first produced in them; or unless they have been penetrated by intense frost. Germination, or thorough freezing, developes sugar in all vegetables in which its principles of hydrogen and carbon, with a small proportion of oxygen, exist in any considerable degree. It is not improbable, but that if penetration by a freezing cold could be commanded at pleasure, with sufficient cheapness, it would enable us to obtain saccharine matter in a large proportion, from a variety of substances, from which even germination does not yield a sufficient quantity. In the sugar-beet, and some other European vegetables, sugar is naturally formed by the functions of vegetation to perfect combination. From these the sugar is obtained by rasping down the vegetable, extracting by water its saccharine juice, evaporating the water charged with the juice to the consistency of syrup, clarifying, purifying, and crystallising it, just in the same manner as sugar from the cane.

SA'CCHARUM CANADE'NSE; the sugar obtained in Canada from a species of maple-tree, the *Acer pseudo-platanus* Linn. This is imported into some parts of Europe, and supposed to be favourable to the cases of those who labour under disorders of the breast. Every part of the plant contains a sweet saccharine juice. The trunk, root, or branches, if wounded early in the spring, yield a large quantity of clear liquor, which, in its dilute state, tastes somewhat sweetish, and which, inspissated, affords concrete sugar, with a syrupy matter resembling melasses. The unboiled juice has been drank by some as an antiscorbutic.

SA'CCHARUM NON PURIFICATUM, moist or brown sugar. This is often exhibited as a laxative in clysters, and given internally in children's food.

SA'CCHARUM OFFICINARUM; the systematic name of the sugar-cane. See Saccharum.

SA'CCHARUM PURIFICATUM; refined or loaf-sugar. See Saccharum.

SA'CCHARUM SATURNI, the old name for cerussa acetata, called in the new chemical nomenclature, acetite of lead. See Cerussa acetata.

SACCHO-LACTIC ACID; the sugar of milk in combination with oxygen. This acid was discovered by Scheele, who obtained it by treating sugar of milk with nitric acid. Hence he called it saccho-lactic acid, but it has also the name of *mucous acid.* It exists in the form of a white gritty powder. It is sparingly soluble in water, but more soluble in alcohol. Its taste is slightly acid, but it sensibly reddens tincture of cabbage. It scarcely acts upon any of the metals. It forms soluble salts with potash, soda, or ammonia; but insoluble compounds with most of the rest of the alkalis and earths. Mr. Accum describes the following as the best method of obtaining this acid. Take one part of gum-arabic reduced to powder, put it into a retort, and pour over it two parts of nitric acid; heat the mixture gradually, keep it boiling for about a quarter of an hour, and then suffer it to cool: a white powder will separate, which, after being washed, is the acid in question.

The saccho-lactic or mucous acid may also be obtained, by treating sugar of milk with nitric acid, in a similar manner. The compounds formed of this acid, which are called saccholats, have been but little investigated.

SACCHOLATS, or Saccholates; salts formed by the combination of the saccho-lactic acid with different bases. Such are the saccholats of iron, of ammonia, &c. &c.

SA'CCUS LACHRYMA'LIS, the lachrymal sac. This is situated in the internal canthus of the eye, behind the lachrymal caruncle, in a cavity formed by the os unguis. It receives the tears from the puncta lachrymalia, and conveys them to the nose through the ductus lachrymalis. See Lachrymalis.

SACK, a wine used by our ancestors, which some have taken to be Rhenish and others Canary wine. Venner, in his "*Via Recta ad Vitam Longam,*" printed in 1628, says that sack is "completely not in the third degree, and that some affect to drink sack with sugar and some without; and upon no other ground, as I think, but as it is best pleasing to their palate." He goes on to say, "that sack, taken by itself, is very hot and very penetrative; being taken with sugar, the heat is both somewhat allayed, and the penetrative quality thereof also retarded." He adds further, that Rhenish, &c. decline after a twelvemonth, but sack, and the other stronger wines, are best when they are two or three years old. It appears to be highly probable that sack was not a sweet wine, from its being taken with sugar, and that it did not receive its name from having a saccharine flavour, but from its being originally stored in sacks or borachios. It does not appear to have been a French wine, but a strong wine the production of a hot climate. Probably it was what is called dry mountain, or some Spanish wine of that kind. This conjecture is the more plausible, as Howell, in his French and English Dictionary, printed in the year 1650, translates sack by the words *vin d'Espagne, vin sec.*

SACRO-LUMBA'LIS; the name of a long muscle, which is thicker and broader below than above, and extends from the os sacrum to the lower part of the neck, under the serrati postici, rhomboideus, trapezius, and latissimus dorsi muscles. It arises in common with the longissimus dorsi, tendinous without, and fleshy within, from the posterior part of the os sacrum; from the posterior edge of the spine of the ilium; from all the spinous processes, and from near the roots of the transverse processes of the lumbar vertebræ. At the bottom of the back this muscle parts from the longissimus dorsi, with which it had before formed, as it were, only one muscle, and ascending obliquely outwards, gradually grows thinner, and at length terminates above in a narrow point. From the place where it quits the longissimus dorsi, to that of its termination, it is fleshy at its posterior, and tendinous at its anterior edge. The latter sends off as many long and thin tendons as there are ribs. The lowermost of these tendons are broader, thicker, and shorter than those above; they are inserted into the inferior edge of each rib, where it begins to be curved forwards towards the sternum, excepting only the uppermost and last tendon, which ends in the posterior and inferior part of the transverse process of the last vertebra of the neck. From the upper part of the five, six, seven, eight, nine, ten, or eleven lower ribs (most commonly seven or eight, but varying in different subjects), arise as many thin bundles of fleshy fibres, which after a very short progress, terminate in the inner side of this muscle, and have been named by Steno, *musculi ad sacro-lumbalem accessorii.* Besides these, a fleshy slip rises from its upper part, and is inserted into the posterior and inferior portion of the transverse processes of the five inferior vertebræ of the neck, by as many distinct tendons. This is described, by most anatomists, as a distinct muscle. Douglas and Albinus call it *cervicalis descendens;* and Winslow *transversalis collateralis colli.* Morgagni reckons it an appendage to the sacro-lumbalis. The uses of this muscle are, to assist in erecting the trunk of the body, in turning it upon its axis or to one side, and in drawing the ribs downwards. Its upper slip serves to turn the neck obliquely backwards, or to one side.

SA'CRUM (so called from *sacer*, sacred), *os sacrum*, or *os basilare*, a bone which derives its name from its having been offered in sacrifice by the ancients, or rather, Dr. Monro thinks, because of its largeness in respect of the other vertebræ. This bone is of an irregular triangular shape, broad above, narrow below, convex behind, for the advantageous origin of the muscles that move the spine and thigh backwards; and concave before, for enlarging the cavity of the pelvis. Four transverse lines, of a colour different from the rest of the bone, which are seen on its fore-part, are the marks of division of the five different bones of which it consists in young persons.

The fore-part of the os sacrum, analogous to the bodies of the true vertebræ, is smooth and flat, to allow a larger space for the contained bowels, without any danger of hurting them: or this flat figure may be owing to the equal pressure of these bowels, particularly of the last gut. The back part of it is almost straight, without so large a cavity as the vertebræ have; because the spinal marrow, now separated into the cauda equina, is small. The bridges between the bodies and processes of this bone are much thicker, and in proportion shorter, than in the former class of bones. The strength of these cross-bridges is very remarkable in the three upper bones, and is well proportioned to the incumbent weight of the trunk of the body, which these bridges sustain in a transverse, consequently an unfavourable, situation, when the body is erect.

There are only two oblique processes of the os sacrum; one standing out on each side from the upper part of the first bone. Their plain erect surfaces face backwards, and are articulated with the inferior oblique processes of the last vertebra of the loins, to which each of these processes is connected by a strong ligament, which rises from a scabrous cavity round their roots, where mucilaginous glands are also lodged. Instead of the other oblique processes of this bone, four rough tubercles are to be seen on each side of its surface behind, from which the musculus sacer has its origin.

The transverse processes here are all grown together into one large strong oblong process on each side; which, so far as it answers to the first three bones, is very thick, and divided into two irregular cavities by a long perpendicular ridge. The foremost of the two cavities has commonly a thin cartilaginous skin covering it in the recent subject, and is adapted to the unequal protuberance of the os ilium; and a strong ligament connects the circumference of these surfaces of the two bones. The cavity behind is divided by a transverse ridge into two, where strong ligamentous strings that go from this bone to the os ilium, with a cellular substance containing mucus, are lodged.

The transverse processes of the last two bones of the os sacrum are much smaller than the former. At their back part, near their edge, a knob and oblong flat surface give rise to two strong ligaments which are extended to the os ischium; and are therefore called *sacro-sciatic.*

The spinal processes of the three uppermost bones of the os sacrum appear short, sharp, and almost erect, while the two lower ones are open behind; and sometimes a little knob is to be seen on the fourth, though generally it is bifurcated, without the two legs meeting into a spine; in which condition also the first is often to be seen; and sometimes none of them meet, but leave a sinus, or rather fossa, instead of a canal. The musculus latissimus and longissimus dorsi, sacro-lumbalis and glutæus maximus, have part of their origins from these spinal processes.

The canal between the bodies and processes of this bone, for the cauda equina, is triangular; and becomes smaller as it descends, as the cauda also does. Below the third bone, this passage is no more a complete bony canal, but is open behind; and is only there defended by a strong ligamentous membrane stretched over it, which, with the muscles that cover it, and are very prominent on each side, is a sufficient defence for the bundle of nerves within.

At the root of each oblique process of this bone, the notch is conspicuous; by which, and such another in the last vertebra of the loins, a passage is left for the twenty-fourth spinal nerve; and in viewing the os sacrum, either before or behind, four large holes appear in each side, in much the same height as where the marks of the union of its several bones remain. Some of the largest nerves of the body pass through the anterior holes; and superficial grooves, running outwards from them in different directions, shew the course of these nerves. From the intervals of these grooves, the pyriformis muscle chiefly rises. The holes in the back part of the bone are covered by membranes which allow small nerves to pass through them. The two uppermost of these holes, especially on the fore side, are the largest; and as the bone descends, the holes are smaller. Sometimes a notch is only formed at the lower part in each side of this bone; and in other subjects there is a hole, common to it and the os coccygis, through which the twenty-ninth pair of spinal nerves passes; and frequently a bony bridge is formed on the back part of each side by a process sent up from the back part of the os coccygis, and joined to the little knobs which the last bone of the os sacrum has instead of a spinal process. Under this bridge or jugum, the twenty-ninth pair of spinal nerves runs in its course to the common holes just now described.

The upper part of the body of the first bone resembles the vertebræ of the loins; but the small fifth bone is oblong transversely, and hollow in the middle of its lower surface.

The substance of the os sacrum is very spongy, without any considerable solid external plates, and is lighter, proportionally to its bulk, than any other bone in the body. It is secured from injuries by the thick muscles that cover it behind, and by the strong ligamentous membranes that closely adhere to it.

This bone is *articulated* above to the last vertebra of the loins, in the manner that the lumbar vertebræ are joined; and therefore the same motions may be performed here. The articulation of the lower part of the os sacrum to the os coccygis, seems well enough adapted for allowing considerable motion to this last bone, were it not much confined by ligaments. Laterally, the os sacrum is joined to the ossa ilium by an immoveable synchondrosis, or what almost deserves the name of a suture: for the cartilaginous crust on the surface of the bones is very thin; and both their surfaces are so scabrous and unequal, as to be indented into each other; which makes such a strong connection, that great force is required to separate them, after all the muscles and ligaments are cut. Frequently the two bones grow together in old subjects.

The *uses* of the os sacrum are, to serve as the common base and support of the trunk of the body, to guard the nerves proceeding from the end of the spinal marrow, to defend the back part of the pelvis, and to afford sufficient origin to the muscles which move the trunk and thigh.

The bones that compose the os sacrum of infants, have their bodies separated from each other by a thick cartilage; and, in the same manner as the true vertebræ, each of them consists of a body and two lateral plates, connected together by cartilages; the ends of the plates seldom being contiguous behind.

The share which belongs to the sacrum, in the impediments to female parturition, in cases of distorted pelvis, is noticed under the article Pelvis.

SAFFLOWER. See Carthamus.

SAFFRON. See Crocus.

SAFFRON, BASTARD; an occasional name for the safflower. See Carthamus.

SAFFRON, MEADOW. See Colchicum.

SAGAPE'NUM (σαγαπήνον; a name derived from some eastern dialect); also called *Serapinum.* Materia medica writers have conjectured that this concrete gummi-resinous juice is the production of an oriental umbelliferous plant. Sagapenum is brought from Persia and Alexandria in large masses, externally yellowish, internally paler, and of a horny clearness. Its taste is hot and biting, its smell of the alliaceous and fetid kind, and its virtues are similar to those which have been ascribed to asafœtida, but weaker, and consequently it is less powerful in its effects. Neumann got from 480 grains, 306 alcoholic, and 108 watery, extract; and inversely, 170 watery, and 241 alcoholic, extract. The alcohol distilled from it was sensibly impregnated with its flavour, and along with the water a considerable portion of volatile oil arose. This gum-resin is found to be infusible. The only officinal preparation of galbanum is the *pil. galban. comp.* Lond.

SAGE. See Salvia.

SAGE OF BETHLEHEM. See Pulmonaria.

SAGE OF JERUSALEM. See Pulmonaria maculata.

SAGE OF VIRTUE. See Salvia hortensis minor.

SAGITTA'LIS SUTU'RA (*sagittalis,* from *saggitta,* an arrow), the sagittal suture, or that which unites the two parietal bones. See Cranium. It has been named *sagittal,* from its lying between the coronal and lambdoidal sutures, as an arrow lies across betwixt the string and the bow.

SAGITTA'RIA, a genus of plants, in Linnæus's botany, of which he enumerates five species.

SAGITTA'RIA SAGITTIFO'LIA; the systematic name of the common plant arrow-head, whose roots are esculent but not very nutritious.

SAGITTA'TUM, in botany, arrow-shaped; a term applied to the leaf of a plant.

SA'GO, called also *Sagus,* and *Sagu,* a nutritious substance brought from the East Indies, of considerable use in diet. It is produced from a species of palm-tree, the *cycas circinalis* of Linnæus, which grows spontaneously in the East Indies, without any culture. The progress of its vegetation in the early stages is very slow. At first it is a mere shrub, thick set with thorns, which makes it difficult to come near it; but as soon as its stem is once formed, it rises in a short time to the height of 30 feet, is about six feet in circumference, and imperceptibly loses its thorns. Its ligneous bark is about an inch in thickness, and covers a multitude of long fibres; which being interwoven one with another, envelope a mass of a gummy kind of meal. As soon as this tree is ripe, a whitish dust, which transpires through the pores of the leaves, and adheres to their extremities, proclaims its maturity. The Malays then cut them down near the root, divide them into several sections, which they split into quarters; they then scoop out the mass of mealy substance, which is enveloped by and adheres to the fibres; they dilute it in pure water, and then pass it through a straining bag of fine cloth, in order to separate it from the fibres. When this paste has lost part of its moisture by evaporation, the Malays throw it into a kind of earthen vessels, of different shapes, where they allow it to dry and harden. We receive it generally in a granular form, with some of the parts irregularly agglutinated to each other. This is wholesome nourishing food, and preserves for many years. The Indians eat it diluted with water, and sometimes baked or boiled. Through a principle of humanity, they reserve the finest part of this meal for the aged and infirm. By dissolution in water, a jelly is commonly made of it, which is white, of a delicious flavour, and highly nutritious.

SA'GU. See Sago.

SAINT ANTHONY'S FIRE. See Erysipelas.

SAINT IGNATIUS'S BEAN. See Faba Indica.

SAINT JAMES' WORT. The common rag-wort is sometimes so called. See Jacobæa.

SAINT JOHN'S WORT. See Hypericum.

SAINT VITUS'S DANCE. See Chorea sancti viti.

SAL ACETOCE'LLÆ, salt of wood-sorrel. This is usually vended for salt of lemons. It is an acidulated oxylat of potash; called, in the new chemical nomenclature, *oxylus potassæ acidulus.*

SAL AMMONIAC, the old name for a saline concrete formed by the combination of the muriatic acid with ammonia. This salt is found in places adjacent to volcanoes. It appears in the form of an efflorescence, or groups of needles, separate or compacted together, generally of a yellow or red colour, and mixed with arsenic and orpiment; but no use is made of that which is procured in this way. The sal ammoniac employed in the arts is prepared by a chemical process which has been described under the article Ammonia muriata.

SAL AMMONI'ACUM ACETO'SUM, a name for the spirit of Mindererus, now called *aqua ammoniæ acetatæ.* See the article Ammonia acetata.

SAL AMMONI'ACUM VEGETA'BILE; the liquid acetite of ammonia. See Ammonia acetata.

SAL AMMONI'ACUS FIXUS. The muriate of lime was formerly so termed. See Lime and Murias calcis.

SAL COMMU'NIS, i. e. muriate of soda. See Murias sodæ.

SAL CULINA'RIS, common or culinary salt. See Murias sodæ.

SAL DIURE'TICUS. See Kali acetatum.

SAL DIGESTI'VUS SYLVII; a natural salt formed of muriatic acid and potash. See Murias potassæ.

SAL FO'NTIUM. See Murias sodæ.

SAL FO'SSILIS. See Murias sodæ.

SAL GE'MMÆ. See Murias sodæ.

SAL MARI'NUS. See Murias sodæ.

SAL MARTIS. See Ferrum vitriolatum.

SAL MICROCO'SMICUS; a name for the compound saline matter which is obtained by inspissating human urine.

SAL POLYCHRE'STUS. See Kali vitriolatum.

SAL POLYCHRE'STUS GLASE'RI; a combination of sulphuric acid with potash. See Kali vitriolatum.

SAL POLYCHRE'STUS SEIGNE'TTI. See Tartris sodæ and Seignet salt.

SAL SEDATI'VUS. See Boracic acid.

SAL SEDATI'VUS HOMBE'RGII. See Boracic acid.

SAL SEDLICE'NSIS; the same as Epsom salt. See Magnesia vitriolata.

SAL SEIDCHULZE'NSIS; a sulphate of magnesia. See Magnesia vitriolata.

SAL SEIGNE'TTI. See Tartris sodæ and Seignette's salt.

SAL SU'CCINI; the succinic acid. See Succinic acid.

SAL THERMA'RUM CAROLINA'RUM; a salt formed by uniting sulphuric acid with magnesia. See Magnesia vitriolata.

SA'LEP, the dried root of a species of orchis. See Orchis. Several methods of preparing salep have been proposed and practised. Geoffroy has described a very judicious process for this purpose in the *Histoire de l'Academie Royale des Sciences*, 1740; and Retmus, in the Swedish Transactions 1764, has improved Geoffroy's method. But Mr. Moult of Rochdale afterwards suggested a new manner of curing the orchis root; by which salep is prepared in this country at least equal, if not superior, to any brought from the Levant. The fresh root is to be washed in water; and the fine brown skin which covers it is to be separated by means of a small brush, or by dipping the root in hot water, and rubbing it with a coarse linen cloth. When a sufficient number of roots have been thus cleaned, they are to be spread on a tin plate, and placed in an oven heated to the usual degree, where they are to remain six or ten minutes, in which time they will have lost their milky whiteness, and acquired a transparency like horn, without any diminution of bulk. Being arrived at this state, they are to be removed, in order to dry and harden in the air, which will require several days to effect; or by using a very gentle heat, they may be finished in a few hours.

Salep thus prepared, may be afforded, in those parts of England where labour bears a high value, at about eight-pence or ten-pence per pound: and it might be sold still cheaper, if the orchis were to be cured without separating from it the brown skin which covers it; a troublesome part of the process, and which does not contribute to render the root either more palatable or salutary. Whereas the foreign salep is now sold at five or six shillings per pound.

Salep is said to contain the greatest quantity of vegetable nourishment in the smallest bulk. Hence a very judicious writer, to prevent the dreadful calamity of famine at sea, has wisely proposed, that the powder of it should constitute part of the provisions of every ship's company. This powder, and portable soup, dissolved in boiling water, form a rich thick jelly, capable of supporting life for a considerable length of time. An ounce of each of these articles, with two quarts of boiling water, will be sufficient subsistence for a man a day; and, as being a mixture of animal and vegetable food, must prove more nourishing than double the quantity of rice-cake, made by boiling rice in water; which last, however, sailors are often obliged solely to subsist upon for several months; especially in voyages to Guinea, when the bread and flour are exhausted, and the beef and pork, having been salted in hot countries, are become unfit for use.

" But as a wholesome nourishment," says Dr. Percival, " rice is much inferior to salep. I digested several alimentary mixtures prepared of mutton and water, beat up with bread, sea-biscuit, salep, rice-flower, sago powder, potatoe, old cheese, &c. in heat equal to that of the human body. In 48 hours they had all acquired a vinous smell, and were in brisk fermentation, except the mixture with rice, which did not emit many air-bubbles, and was but little changed. The third day several of the mixtures were sweet, and continued to ferment; others had lost their intestine motion, and were sour; but the one which contained the rice was become putrid. From this experiment it appears, that rice as an aliment is slow of fermentation, and a very weak corrector of putrefaction. It is therefore an improper diet for hospital-patients, but more particularly for sailors in long voyages; because it is incapable of preventing, and will not contribute much to check the progress of that fatal disease, the sea scurvy. Under certain circumstances, rice seems disposed of itself, without mixture, to become putrid; for by long keeping it sometimes acquires an offensive fetor. Nor can it be considered as a very nutritive kind of food, on account of its difficult solubility in the stomach. Experience confirms the truth of this conclusion; for it is observed by the planters in the West Indies, that the negroes grow thin, and are less able to work, whilst they subsist upon rice.

" Salep has the singular property of concealing the taste of salt water; a circumstance of the highest importance at sea, when there is a scarcity of fresh water. I dissolved a drachm and a half of common salt in a pint of the mucilage of salep, so liquid as to be potable, and the same quantity in a pint of spring water. The salep was by no means disagreeable to the taste, but the water was rendered extremely unpalatable. This experiment suggested to me the trial of the orchis root as a corrector of acidity, a property which would render it a very useful diet for children. But the solution of it, when mixed with vinegar, seemed only to dilute like an equal proportion of water, and not to cover its sharpness. Salep, however, appears by my experiments to retard the acetous fermentation of milk; and consequently would be a good lithing for milk-pottage, especially in large towns, where the cattle being fed upon sour draff must yield acescent milk.

" Salep in a certain proportion, which I have not yet been able to ascertain, would be a very useful and profitable addition to bread. I directed one ounce of the powder to be dissolved in a quart of water, and the mucilage to be mixed with a sufficient quantity of flour, salt, and yeast. The flour amounted to two pounds, the yeast to two ounces, and the salt to 80 grains. The loaf when baked was remarkably well fermented, and weighed three pounds two ounces. Another loaf, made with the same quantity of flour, &c. weighed two pounds and twelve ounces; from which it appears that the salep, though used in so small a proportion, increased the gravity of the loaf six ounces, by absorbing and retaining more water than the flour alone was capable of. Half a pound of flour and an ounce of salep were mixed together, and the water added according to the usual method of preparing bread. The loaf when baked weighed thirteen ounces and a half; and would probably have been heavier if the salep had been previously dissolved in about a pint of water. But it should be remarked, that the quantity of flour used in this trial was not sufficient to conceal the peculiar taste of the salep.

" The restorative, mucilaginous, and demulcent qualities of the orchis root render it of considerable use in various diseases. In the sea-scurvy it powerfully obtunds the acrimony of the fluids, and at the same time is easily assimilated into a mild and nutritious chyle. In diarrhœas and the dysentery it is highly serviceable, by sheathing the internal coat of the intestines, by abating irritation, and gently correcting putrefaction. In the symptomatic fever, which arises from the absorption of pus from ulcers in the lungs, from wounds, or from amputation, salep used plentifully is an admirable demulcent, and well adapted to resist the dissolution of the crasis of the blood, which is so evident in these cases. And by the same mucilaginous quality, it is equally efficacious in the strangury and dysury; especially in the latter, when arising from a venereal cause, because the discharge of urine is then attended with the most exquisite pain, from the ulceration about the neck of the bladder and through the course of the urethra. I have found it also an useful aliment for patients who labour under the stone or gravel."

The ancient chemists appear to have entertained a very high opinion of the orchis root, as we see in the *Secreta Secretorum* of Raymund Lully, a work dated 1565.

SALICO'RNIA EUROPÆ'A; the systematic name of the jointed glass-wort, which is gathered by the country people on the sea-coast and sold for samphire. Indeed it forms a very good pickle with vinegar, and is little inferior to samphire.

SALIU'NCA. See NARDUS CELTICA.

SALI'VA (so called, *à salino sapore*, from its salt taste, or from *σιαλος, spittle)*, the fluid which is secreted by the salivary glands into the cavity of the mouth. During the trituration of the food, there is continually poured into it, from numerous sources, a large quantity of a watery, clear, evaporable, insipid, or at least but very slightly saline, liquor, containing but little earth. A large quantity of this *saliva* is separated by numberless small glands of the lips and cheeks; and the juice poured out from the exhaling vessels of the tongue, mouth, and cheeks, is of the like kind, or rather more watery.

The saliva is a watery liquor, containing a moderate quantity of salt, partly lixivial, and partly culinary; with some oil and earth, dissipable by fire, with scarcely any taste, unless what is given to it by disease or the effects of famine. The quantity produced is very considerable, as twelve ounces have been known to flow out from wounds in those parts in the space of an hour. It is for the most part swallowed, and indeed it cannot be thrown away without hurting the digestion.

By the motion of the jaw in mastication, the salival glands are compressed, so as thus to discharge their juices in great plenty. When the mouth is opened, the maxillary gland, being pressed by the digastric and mylo-hyoidæus, throws forth abundance of saliva; the masseter, when swelled, presses the parotid gland, as does also the cutaneous muscle of the neck which lies over it: and it is this muscular pressure that excites and augments the secretion.

The saliva in the cavity of the mouth has mixed with it, 1. The *mucus of the mouth,* which exhales from the labial and genal glands. 2. A *roscid vapour,* from the whole surface of the cavity of the mouth. The saliva is continually swallowed with, or without masticated food, and some is also spit out. It has no *colour* nor *smell;* it is *tasteless,* although it contains a little salt, to which the nerves of the tongue are accustomed. Its *specific gravity* is somewhat greater than water. Its *consistence* is rather plastic and spumous, from the entangled atmospheric air. The *quantity* of twelve pounds is supposed to be secreted in twelve hours. During mastication and speaking, the secretion is augmented, from the mechanical pressure of the muscles upon the salivary glands. Those who are hungry secrete a great quantity, from the sight of agreeable food. It is imperfectly dissolved by water; somewhat coagulated by alkohol of wine; and is congealed with more difficulty than water. It is inspissated by a small dose, and dissolved in a large dose, of mineral acids. It is also soluble in aërated alkali. Caustic alkali and quick lime extract volatile alkali from saliva. It corrodes copper and iron, and precipitates silver and lead in the form of corneous luna. It assists the spirituous fermentation of farinaceous substances: hence barbarous nations prepare an inebriating drink from the chewed roots of the *Jatropha Mamhot* and *Piper Methisticum.* It possesses an antiseptic virtue, according to the experiments of the celebrated Pringle. It easily becomes putrid in warm air, and gives off volatile alkali.

With regard to its *constituent principles,* saliva appears to consist of water, albumen, ammoniacal salt, and animal earth. Of water there is $\frac{4}{5}$ given out by distillation. The albumen is detected by pure spirit of wine. The ammoniacal salt is demonstrated by triturating quick lime with saliva; and the animal earth from salival calculus, and the products of fire.

The use of the saliva is, 1. To augment the taste of the food, by the evolution of sapid matter. 2. During mastication, it mixes with, dissolves, and resolves the aliment into its principles; and changes it into a pultaceous mass, fit to be digested: here commences *chymification.* 3. It obviates thirst, by moistening the cavity of the mouth and fauces from time to time.

SALIVAL DUCTS; the excretory ducts of the salival glands. See SALIVAL GLANDS. Anatomists have called the parotid gland the *Stenonian* duct; those of the submaxillary glands, the *Warthonian* ducts; and those of the sublingual, the *Reverian* duct.

SALIVAL GLANDS; those whose office it is to secrete the saliva. See SALIVA. Anatomists, in speaking of these glands, commonly reckon three pairs, two *parotides,* two *maxillares,* and two *sublinguales.* These are indeed the largest, and they furnish the greatest quantities of saliva; but there are a great number of other lesser glands of the same kind, which may be reckoned assistants or substitutes to the former. All these may be termed *salival glands,* and they may be enumerated in the following manner: *Glandulæ parotides, maxillares, sublinguales, molares, buccales, labiales, linguales,* the *amygdalæ, glandulæ palatinæ, glandulæ uvulares, glandulæ arytenoidææ,* and *glandula thyroidæa.*

The *parotides* are two large, whitish glands, irregularly oblong and protuberant. Their situation is described under the article PAROTID GLAND.

The *maxillary glands* are smaller and rounder than the parotides; and are situated each on the inside of the angle of the lower jaw, near the musculus pterygoidæus inferior. From the inside, or that which is turned to the musculus hyo-glossus, each of them sends out a duct in the same manner as the parotides; but it is smaller and longer, and goes by the name of *ductus salivalis Whartoni,* or *ductus inferior.* This duct advances on the side of the musculus genio-glossus, along the inner part and superior edge of the glandula sublingualis, to the frænum of the tongue, where it terminates by a small orifice in form of a papilla.

The *glandulæ sublinguales* are likewise two in number, of the same kind with the former, only smaller, something oblong, and flatted like a blanched almond. They are situated under the anterior portion of the tongue, one on each side, near the lower jaw, on the lateral portions of the musculi mylo-hyoidæi which sustain them. The two extremities of each gland are turned backward and forward, and the edges obliquely inward and outward.

They are covered on the upperside by a very thin membrane, which is a continuation of the membrane that covers the under side of the tongue. They send out laterally several small short ducts, which open near the gums, by the same number of orifices, all ranked in the same line, at a small distance from the frænum, and a little more backward. In many animals we find particular ducts belonging to these glands, like those of the glandulæ maxillares, but they are not to be found so distinctly in men. The musculi genioglossi lie between the two sublingual glands, and also between the two maxillary ducts. The arteries and veins of these, and of the former glands, belong to the lingual vessels, and the nerves are from the lingual branch of the fifth pair.

The *molares* are two glands nearly of the same kind with the former, each of them being situated between the masseter and buccinator; and in some subjects they may easily be mistaken for two small lumps of fat. They send out small ducts which perforate the buccinator, and open into the cavity of the mouth, almost overagainst the last dentes molares; and from thence Heister, who first described them, called them *glandulæ molares*.

All the inside of the cheeks, near the mouth, is full of small glandulous bodies, called *glandulæ buccales*, which open by small holes or orifices through the inner membrane of the mouth. The membrane which covers the inside of the lips, a continuation of that on the cheeks, is likewise perforated by a great number of small holes, which answer to the same number of small glands, called *labiales*. The other glands destined for the secretion of the saliva are either described with the parts to which they belong, or require no mention.

SALIVA'RIS HERBA; pellitory of Spain. See the article Pyrethrum.

SALIVATION, or Ptyalism, an inordinate secretion of saliva. It may be produced by any thing which stimulates the salivary glands, as we see in the employment of the class of remedies called masticatories, but the most frequent cause is mercury, which acts specifically on these parts.

When mercury falls upon the mouth, it does not affect all parts of it equally; but sometimes attacks the gums, at other times the cheeks. These last will become thickened, and ulcerated, and yet the gums shall not be in the least affected, as appears by the patient being capable of biting any thing hard. Commonly, however, when mercury falls upon the mouth, and neighbouring parts, it not only increases the discharge of those parts, but it brings on great tumefaction, which, Mr. Hunter says, is not of the true inflammatory kind, where coagulable lymph is thrown out, but rather resembles erisypelatous tumefaction. The tongue, cheeks, and gums, swell, and the teeth become loose; all which is in proportion to the quantity of mercury given, and susceptibility of the parts for such irritation. It produces great weakness in the parts, in which ulceration easily takes place, especially if they are in the least irritated, which is often done by the teeth, and even mortification sometimes ensues. The saliva in such cases is generally ropy, that principally from the glands affected; and the breath acquires a particular smell which is most offensive.

As mercury generally produces this as well as other evacuations, it was formerly imagined, that it was by this means it effected a cure of the venereal disease. Experience, however, has taught us, that in curing the venereal disease by this medicine, evacuations of any kind by it are not at all necessary; and this might have been supposed, as similar evacuations produced by other medicines are of no service, therefore it was reasonable to imagine that these evacuations when produced by mercury, were also of no service; except we could suppose that the evacuation produced by the mercury was not the same with that produced by other medicines, but that it was a specific evacuation; that is to say, a discharge carrying off the venereal poison by its union with the mercury; and therefore the faster the mercury went off, the sooner would the poison be carried out of the constitution. But this is not found to be the case in practice; on the contrary, evacuations produced by the medicine retard the cure, especially if the secretory organs are too susceptible of this stimulus; for then the quantity which is necessary, or sufficient for the cure of the disease cannot be taken in, the effects of the medicine upon particular parts being greater than the patient can bear; and the quantity of mercury to be thrown into the constitution must be limited, and regulated according to the quantity of evacuation, and not according to the extent of the disease. On the other hand, if it is given with care, so as to avoid violent evacuation, a quantity may be thrown in, sufficient for the cure of the disease.

Certain evacuations may be supposed to be a mark of the constitutional effects of mercury, but Mr. Hunter says, they are not to be entirely depended upon, the secretions being only a proof of the susceptibility of some parts to such a stimulus; however, it is probable that in general they are a good gage of its constitutional effects. Some have gone so far as to suppose, that quantity of mercury alone, without any sensible effects, is sufficient for the cure of the disease; and this is in some degree the case, but not completely so, for we have no good proof of its affecting the constitution, but by its producing an increase of some of the secretions.

In cases where mercury attacks the salivary glands, it often increases that secretion so much, as to oblige practitioners to administer medicines with a view to remove this new complaint. This susceptibility of the glands of the mouth, and the mouth in general, to be easily put into action by mercury, has been generally supposed to arise from a scorbutic constitution, to which most complaints of the mouth are attributed. Mr. Hunter was of opinion, that scrofulous people, and those of a lax and delicate habit, are more subject to have it fall on the mouth than those of a contrary temperament.

In cases of violent salivation, purges are given upon a supposition that mercury may be carried off by the evacuation which they produce; and it is common to repeat them according to the violence of the action on the salivary glands, and the strength of the patient. But Mr. Hunter can hardly say, that he ever saw the effects of mercury upon the mouth, lessened by purging, "whether it arose spontaneously, was produced by purging medicines, or even when arising from the mercury itself." The internal use of sulphur has also been supposed efficacious for the removal of this effect of mercury. Whether the idea arose from practice or from reasoning, Mr. Hunter thinks is immaterial; but he allows that good effects have been produced by it in some cases; and if we can suppose purging to be of any service, perhaps purging with sulphur would answer best, as it would thus exert its effects in two different ways. "Sulphur," says Mr. Hunter, "certainly enters the circulation as sulphur, because our sweat and urine smell of it; if it does not combine with the mercury and destroy its properties as mercury, it is possible, agreeably to the opinion of those who first thought of giving it with this intention, that it may so combine as to form Æthiops mineral, or something similar, for we know that the Æthiops mineral, however formed, does not in general salivate. It is possible too, that sulphur may act as a contrary stimulus to mercury, by counteracting the effects of it in the constitution. Sulphur has even been supposed to hinder the mercury from entering the circulation. Upon the whole, as these preparations of sulphur and mercury are still supposed to have good effects, and as I think I have seen good effects in other cases, we must either allow that they enter the circulation, or that their whole effects are on the stomach and intestines, with which the rest of the body sympathises. The good effects from sulphur, in lessening or altering the immediate effects of mercury, can only take place when that medicine is really in the constitution; therefore a distinction is to be made between such as arise immediately from mercury, and one continued from habit after the mercury has been evacuated from the constitution, a case that sometimes happens"

In order to prevent a salivation coming on during the use of mercury, when the patient feels his gums begin to swell, his breath to smell disagreeably, his throat painful on the inside, or when he is obliged to spit oftener than usual, the use of mercury must be immediately left off till all the symptoms abate in a great degree, though they may not wholly disappear, and then he may again apply to it. In bad weather, the patient should keep himself within doors, in a moderately warm room, covering his body with a dress of fine flannel fitted close. In fine weather he may go abroad; and, should he be of a weakly habit, the bark may be administered. Costiveness should be particularly avoided, by using such gentle means as act at the same time upon the urinary passages, such as neutral salts, whey, &c. Should inflammatory symptoms occur, bleeding will be necessary, and drinking freely of diluting mucilaginous liquids: but, on the other hand, should there be much debility attendant, a generous nutritious diet, wine, and bark with chalybeates, will be most proper, and a country residence, carefully avoiding all exposure to cold.

Salivation, though often symptomatic, is but rarely a primary disease. Dr. Cullen is of opinion, that when the latter happens to be the case, it arises from laxity; and then is to be cured by astringents and tonics. In the Medical Transactions, we have a singular account, by Sir George Baker, of a salivation brought on by a foreign substance (wool, in the meatus auditorius) irritating one of the parotid glands. In vol. I. of Medical Communications, we have an account of ptyalism being occasioned by a diminished secretion of urine.

SA'LIX (from *sala*, Heb.), or *Salix alba*, the *Salix fragilis* Linn. the crack-willow. *Salix foliis serratis glabris ovato-lanceolatis, petiolis dentato glandulosis.* Class, *Diœcia.* Order, *Diandria.* The bark of the branches of this tree manifests a considerable degree of bitterness to the taste, and is very astringent. Dr. Cullen says it is as valuable a medicine, and as promising a substitute for the bark, as any he knows to have been offered to the public. The trials he has made have been with the *salix pentandria*, the bark taken from its branches the third of an inch diameter, and of four or five years' growth. Nevertheless, he adds, Bergius declares, in intermittent fevers, he has always failed with this bark.

SA'LIX ALBA. See Salix.

SA'LIX CA'PREA; the systematic name of a species of willow, the bark of whose branches possesses the same properties with that of the salix fragilis. See Salix.

SA'LIX FRA'GILIS; the systematic name of the common crack-willow. See Salix.

SA'LIX PENTA'NDRIA, a species of willow, the bark of the branches of which possesses the same virtues as that of the salix fragilis. See Salix.

SA'LIX VITULI'NA. The bark of the branches of this species of willow may be substituted for the fragilis, having nearly the same properties. See Salix.

SALLAD, in general, signifies a dish of raw or fresh esculent herbs, which are usually seasoned with salt, vinegar, oil, and mustard: to these condiments are sometimes added, hard-boiled eggs, sugar, pepper, and other spices. The vegetables constituting the principal part of British sallads, are lettuces, endive, cresses, celery, radishes, &c. respecting the culture and properties of which, the reader will find an account in various horticultural works. To these may be added, purslane, corn-sallad, chervil, spinach, and other plants, which are known under the name of *small herbs*, and should always be cut, while in the *seed-leaf*. Dr. Willich says, "sallads are very wholesome, and contribute to purify the blood, as well as promote digestion, provided they be eaten *without oil:* hence they are, or ought to be, prepared for the table, to accompany all kinds of roasted meat. If they happen to be frozen, or frost-bitten, during severe winters, they should be immersed in spring water for two or three hours, previously to being used; by which expedient their fresh taste and colour will be completely recovered." Sallads, however, are found to disagree where the digestive functions are weakly performed; producing indigestion, flatulency, and other inconveniencies.

SALPI'NGO-PHARYNGEUS; a muscle, composed of a few fibres of the palato-pharyngeus, which it assists in dilating the mouth of the Eustachian tube.

SALPI'NGO-STAPHILINUS. See Levator palati.

SALPI'NGO-STAPHILINUS INTERNUS. See Levator palati.

SALSAFY, a name given to the root of the purple goat's-beard. See Tragopogon pratense.

SALSO'LA KALI, the snail-seeded glass-wort or saltwort. This is the systematic name of the plant which affords the mineral alkali. See the articles SODA and BARILLA.

SALSO'LA SATI'VA; the systematic name of a plant, which affords the mineral alkali. See SODA and BARILLA.

SALSO'LA SODA; the systematic name of a plant which affords mineral alkali. See BARILLA, and SODA.

SALT, CATHARTIC. See MAGNESIA VITRIOLATA and NATRON VITRIOLATUM.

SALT, COMMON. See MURIAS SODÆ.

SALT, EPSOM. See MAGNESIA VITRIOLATA.

SALT-PETRE. See NITRAS POTASSÆ IMPURUS and NITRE.

SALT, ROCHELLE. See TARTRIS SODÆ.

SALT, SEA. See MURIAS SODÆ.

SALTS, or SALINE SUBSTANCES, one of the great divisions of natural bodies, but which has never yet been accurately defined. The characteristic marks of salt have usually been reckoned, its power of affecting the organs of taste, and being soluble in water. But this will not distinguish salt from quick-lime, which also affects the sense of taste, and dissolves in water; yet quick-lime has been universally reckoned an earth, and not a salt. The only distinguishing property of salts, therefore, is their crystallisation in water: however, this does not belong to all salts; for the nitrous and marine acids, though allowed on all hands to be salts, are yet incapable of crystallisation, at least by any method hitherto known. Several of the imperfect neutral salts also, such as combinations of the nitrous, muriatic, and vegetable acids with some kinds of earths, crystallise with very great difficulty. However, by the addition of spirit of wine, or some other substances which absorb part of the water, keeping the liquor in a warm place, &c. all of them may be reduced to crystals of one kind or other. Salt, therefore, may be defined a substance affecting the organs of taste, soluble in water, and capable of crystallisation, either by itself or in conjunction with some other body; and, universally, every salt capable of being reduced into a solid form, is also capable of crystallisation *per se*. Thus the class of saline bodies will be sufficiently distinguished from all others: for quick-lime, though soluble in water, cannot be crystallised without addition either of carbonic or some other acid; yet it is most commonly found in a solid state. The precious stones, basaltes, &c. though supposed to be formed by crystallisation, are nevertheless distinguished from salts by their insipidity, and insolubility in water.

But acids and alkalis, and combinations of both, when in a concrete form, are salts, and of the purest sort. Hence we conclude, that the bodies to which the name of *salts* more properly belongs, are the concretions of those substances; which are accordingly called *acid salts*, *alkaline salts*, and *neutral salts*. These last are combinations of acid and alkaline salts, in such proportion as to render the compounds neither sour nor akaline to the taste. This proportionate combination is called *saturation*: thus the common kitchen salt is a neutral salt, composed of marine acid and mineral alkali, combined together to the point of saturation. The appellation of *neutral salts* is also extended to denote all those combinations of acids, and any other substance with which they can unite, so as to lose, wholly or in great measure, their acid properties.

But although this general definition of salts is commonly received, yet there are many writers, especially mineralogists, who confine the denomination of *salts* in the manner we first mentioned, viz. to those substances only, which, besides the general properties of salts, have the power of crystallising, that is, of arranging their particles so as to form regularly shaped bodies, called *crystals*, when the water superfluous to their concrete existence has been evaporated. See CRYSTALLISATION.

The ancient chemists asserted that salt was one of the component principles of metals, and indeed of every thing else; a doctrine which was attempted to be revived by the late Dr. Price, of Guildford, who thought it probable that the basis of all imperfect metals is saline, because Mr. Scheele had then extracted a pure acid from arsenic, which, by the addition of a proper quantity of phlogiston, becomes a semimetal. But here the argument will hold only with regard to the semimetals, all of which are volatile in the fire, and therefore may possibly have a volatile basis, such as all acids are in some degree: but some of the imperfect metals, as tin and copper, may be reduced to oxids equally refractory with quick-lime itself; and even zinc, though volatile in close vessels, is yet capable of being reduced to an exceedingly refractory oxid called *flowers of zinc*; and it is to be observed, that the regulus of arsenic, even in its most perfect metalline form, cannot be calcined like other metals. The common opinion, that metals have an earthy rather than a saline basis, seems to be well founded.

The origin of salts is very much, or rather totally unknown. Some eminent chemists, particularly Stahl, have supposed that the number of substances truly and essentially saline is very small; nay, that there is but one saline principle in nature. This principle they suppose to be the vitriolic acid, as being the most simple and indestructable of them all. Stahl delivers his opinion on this subject in the following words: That he considers "vitriolic acid as the only substance essentially saline; as the only saline principle which, by uniting more or less intimately with other substances that are not saline, is capable of forming an innumerable multitude of other saline matters, which nature and art shew us; and, secondly, that this saline principle is a secondary principle, composed only by the intimate union of two primary principles, water and earth." Macquer adopts, and endeavours to support this theory, by many arguments, which, however, are little calculated to convince the modern chemist. He asserts, that the limit between saline matters and such as are not saline, is unknown. All such substances, however, as possess several of the four following properties are considered as saline: 1. A strong tendency to combination, or a very strong affinity of composition; 2. A greater or lesser degree of sapidity; 3. A greater or lesser degree of solubility in water; 4. Perfect incombustibility. Before each of these properties is examined singly, it must be observed, that the saline quality of any given body is greater, the more of these properties it possesses, and the greater their intensity. It must not, however, be concluded, that substances are not of a saline nature because these properties are scarcely evident in them; as it may often happen, that two species, which possess them in a very small degree, exhibit them still less when they come to be united; and there are likewise instances of the contrary effect taking place. But in these cases, a more varied application of the chemical analysis, or synthesis, may serve to exhibit the saline properties more evidently.

1. *Concerning the tendency to combination, as a character of saline substances.* The greater number of salts have a tendency to combine with many different substances. It is among the salts that the most active bodies, with respect to combination, are found. For this reason the chemists have at all times made great use of them, and have dignified certain salts with the names of solvents and menstrua. This tendency to combination differs greatly in the several species of salts. Some possess it in so intense a degree, that they corrode, dissolve, or destroy, every thing they touch, and that even the vitrifiable and quartzose stones cannot withstand their action. Such are several of the pure salts called acids and alkalis. Others, though they do not so strongly tend to combination, nevertheless unite with great readiness to several substances. And, lastly, there are salts which do not possess this property in any sensible degree, as is often observable in compound salts, whose principles have a strong affinity with each other, and are mutually saturated. It is not to be wondered that salts are seldom found in nature in a state of purity, when we attend to the effects of this property, of combining with various substances.

2. *Of taste, as a character of saline substances.* Sapidity has hitherto been considered as being so far peculiar to saline substances, that many philosophers have concluded these bodies to possess it exclusively, and that they are the principle of sapidity in all other bodies. Though this opinion is not yet clearly proved, because there are many bodies not at all saline, as, for example, the metals, which have a very sensible taste. But though instances may be urged of certain saline matters which have scarcely any taste, yet it cannot be denied, that the most eminently sapid bodies belong to this class: for which reason we have assumed this property as one of the leading characters of salts. The *sapidity* of saline matters varies, like their other properties, in the different species. In order to determine its origin, and more especially the cause of the differences of its energy, it will be necessary to shew in what it consists. By sapidity is commonly understood an impression made on the organs of taste, by which we determine the good or bad qualities of any substance with regard to salubrity; it is therefore a peculiar action of the sapid body on the nerves of the tongue and palate of animals. But it may be asked, whether this property of bodies enables them to act sensibly on the nerves of the tongue; and whether it may not be equally exerted on all those parts of an animal which contain nerves? They who are acquainted with the animal economy cannot deny, that the action which excites the sensation of taste must produce its effects on any nerves, wheresoever situated; and that it must be proportioned to the sensibility of the subject, and the organs to which it is applied.

In this way of considering sapidity, we are naturally led to conclude, 1st, That its impression will be scarcely sensible on such parts of bodies as contain few nerves, or whose nerves do not possess a considerable degree of sensibility on account of their being covered, as on the skin, where they are defended by the reticular membrane and epidermis. It follows, therefore, that the taste of any salt must be very strong and active before it can act sensibly upon the skin. 2d, That the impression will be made with much more efficacy on those organs whose nerves are large, numerous, and of a form proper to admit an extended contact, or more violent agitation, and whose epidermis is very thin, so as to leave the nerves on such surfaces almost uncovered. The tongue, palate, and the whole internal surface of the mouth, are capable of perceiving the taste of a great number of bodies, which make no impression on the less sensible organs of the skin. 3d, That bodies which have no taste and no action when applied to the skin, may nevertheless produce a considerable effect on parts more delicately organised, or whose nerves possess a greater degree of sensibility, as is the case with the stomach and intestines. These considerations being admitted, we may distinguish three classes of tastes, and of sapid bodies, to which all saline matters may be referred. The first class comprehends salts of the strongest taste, capable of acting on the skin. The impression of this taste is so strong as to cause very acute pain; and if its action be continued for a certain time, the organisation of the skin is entirely destroyed. This taste is causticity; and the salts which possess it are called caustic. The second class comprehends those whose sapidity is of a mean degree of intensity, and is not to be perceived but by the organs of taste. These are commonly distinguished by different names; as, bitter, astringent, acid, acrid, urinous, &c. In the third class are arranged saline substances whose taste is sensible only in the stomach and intestines. These are not numerous. It is of importance to make some observations on the relations of these several classes of tastes. And, first, it must be observed, that there are many degrees in each of these classes, by which bodies differ from each other in intensity of taste.

Thus, among caustic salts, some act much more strongly than others; the former immediately destroying the organisation of bodies, while the latter require a more considerable space of time to produce the same effect. This observation applies likewise to the bitter, astringent, and urinous salts, as well as to those which have no sensible action but on the nerves of the stomach. In the second place, in considering the diversities of the tastes, we are naturally led to the conclusion, that the several tastes are degrees of the same property, from the most caustic salt, to that whose action is too feeble to be perceived, but on the highly sensible organs of the stomach; and this reflection seems to shew, that all tastes owe their origin to one and the same cause.

To determine *the cause of sapidity*, it will be proper to consider its strongest degree, that we may better distinguish the phenomena, and deduce its mode of action. The enquiry, therefore, relates to the cause of causticity; a property which has always been a subject of conjecture among chemists. Lemery, observing that very hot bodies are excessively caustic, and likewise that such salts as possess this property have been subjected to a strong degree of heat in their preparation, attributed the property of causticity to the particles of fire, which he supposed to be deposited among the particles of bodies. Mr. Baumé espoused this opinion. Meyer, an apothecary of Osnaburgh, after making a series of enquiries into the nature of caustic salts, constructed an ingenious system, or hypothesis, to which many chemists have been much attached, though at present it is held in no esteem.

This writer attributed causticity to a principle which he considered as a compound of fire and a peculiar acid; this he denominated *causticum*, or *acidum pingue*, after the ancient chemists. He pursued this principle through its transitions and combinations, as Stahl had done before with his phlogiston; but his system was defective in the same manner as that of Stahl, as he did not succeed better in proving the existence of his causticum, than Stahl did that of his phlogiston. Dr. Black, whose researches were directed to the same subjects as those of Meyer, gave the finishing stroke to his doctrine, by clearly shewing, that the causticity of lime and alkalis, far from being owing to the addition of any principle, *acidum pingue*, as Meyer thought, arises, on the contrary, from the subtraction of an elastic fluid. Macquer is, beyond controversy, the chemist whose enquiries into the cause of causticity have been attended with the greatest success. In his Chemical Dictionary, after observing that caustic bodies corrode and destroy our organs, by combining with their constituent principles, he remarks, that, in proportion as the combination proceeds, the caustic body by degrees loses its force; and that it ceases to be such, as soon as it has dissolved as much of the animal matter as it is capable of uniting with. Thus it is, that the pure fixed alkali, or *kali purum*, corrodes the skin on which it is applied, and, after a certain time, becomes saturated, and ceases to act. This salt really acts by a chemical force, since it produces its effects on the insensible skin of dead bodies, as has been proved by accurate experiments; and, in general, on all animal substances, which it dissolves. Causticity, therefore, depends on the tendency to combination; and the effect of this force on our organs, is merely the result of a combination of the caustic matter with the matter of which the organs are formed, in the same manner as caustic bodies lose their efficacy, when combined with any other substance with which they have a tendency to unite; and, in a word, causticity is always in proportion to the tendency to combination. Hence it is, that the most tasteless salt owes its want of causticity to its being already saturated with some other substance; and its taste will be rendered stronger, in proportion to the more or less complete separation of that substance. All the phenomena of saline bodies are in proof of this assertion.

3. *Of solubility as a character of saline bodies.* Solubility in water has been assumed by all chemists as one of the leading properties of salts. Yet this property, like that of taste, or the tendency to combination, is subject to great varieties. In some salts it is so powerful, that they cannot be deprived of the least portion of water they contain, but by elaborate processes long continued. Others have only a mean degree of solubility, which may be ascertained with considerable accuracy, as is the case with the neutral salts. And lastly, there are certain saline matters which are so little soluble, that they even seem in this respect to belong to the class of earths, and have in fact been considered as such by naturalists. The limits between those two classes of mineral bodies are very difficult to be determined, and chemists are not agreed on this head. Mr. Kirwan, in his Mineralogy, appears to have adopted the opinion of Bergman, who thinks that all substances which require more than one thousand parts of water for their solution ought to be ranked among earths; and that all which are more soluble ought to be esteemed as salts. If this proportion should be received among chemists, as it deserves to be, we shall avoid the diversity of opinions and of language which has hitherto prevailed, to the discouragement and hinderance of such as enter into the study of chemistry. There is the same correspondence between the taste and solubility of salts, as there is between this last property and the tendency to combination; for the solubility in water is an immediate consequence of that tendency to combination, and must therefore follow the same laws. It is found that the more taste and activity any salt possesses, the more soluble it is in water; and this general fact depends on their respective nature and properties.

4. *Of incombustibility as a character of saline bodies.* It is more difficult to acquire a clear idea of this property of saline bodies, than the others we have been speaking of. They have not yet been considered by any chemist in this point of view, and many writers have asserted that some salts, and among them nitre, are truly combustible. To shew the fallacy of this opinion, and to prove that all mineral salts are perfectly incombustible, would require a very intimate knowledge of the properties of these substances. The valuable experiments of M. Lavoisier shew, that several combustible bodies form, by their combustion, acids of a particular nature, according to the substance burned.

Combustion is nothing more than a combination of the base of vital air, or oxygen, with combustible bodies. All bodies which have been completely burned, that is to say, which have combined with oxygen in a sufficient quantity to be saturated, enter into the class of incombustible bodies; or, which is the same thing, their tendency to combine with oxygen being satisfied, they are no longer capable of uniting with or absorbing more. These principles being once proved, if, on the one part, it be found that many salts are the residues of various combustible matters which have been burned; and if on the other part, an entire class of these salts be found to contain oxygen, and to exhibit the characters of substances which have passed through the process of combustion; it will be easily conceived that they cannot continue to be combustible. These assertions are founded on a great number of facts; they prove that salts are compounded substances, most of them being formed by the union of certain combustible bodies with oxygen; and it will be understood with equal facility, that this character of incombustibility may be considered as the most certain and invariable property of saline matters. The proof of these important assertions will appear complete with regard to the class of acid salts, in the details which will constitute the particular history of those substances. There exists, nevertheless, a class of salts which appear evidently to be compounded, and do not contain oxygen. Such are the alkalis in general: but they are either composed of matters which are themselves incombustible; or if they contain any combustible substance, as is seen in ammonia or volatile alkali, it is united to a substance evidently incombustible, which absolutely prevents this property from being sensible in the other substance.

5. *Concerning the nature and composition of saline substances in general.* Stahl, who paid great attention to the nature of saline bodies, was of opinion, that they are formed of water and earth. He collected every fact which was known in his time, and applied them to the illustration of his sublime theory. But that period of improvement has been succeeded by another, in which, by the multiplicity of experiments, and the magnitude of the discoveries concerning the influence of air in chemical phenomena, the theory of salts as invented by Stahl, and explained with great perspicuity by Macquer, is no longer found adequate to the explanation of the nature and compositions of those bodies. We are no longer contented with those distant analogies, by which the most discordant facts are united, and which serve only to deceive by their illusive light. It is better to acknowledge our ignorance, than to advance extravagant theories, that must sooner or later be refuted by experiment.

Though the chemical nature of salts is not yet perfectly understood, and the general facts will not permit us to assert, that one single principle is the cause and origin of all saline bodies, as many eminent philosophers have thought; yet it must be admitted, that we are better acquainted with their composition than formerly. It is known that they, for the most part, contain a very great quantity of oxygen; and that this fluid is fixed, in combination with combustible matter, of a different nature in the different kinds of salts. There are sufficient proofs that many acids are thus composed; and it may be strongly presumed by analogy, that most of this class of salts are compounded in the same manner. Water, without being one of the immediate principles of salts, is often united, and adheres to them by a very strong attraction. As to the matter of fire, considered as phlogiston, which very great chemists have admitted in salts, there is too much uncertainty at present respecting the nature and even the existence of this matter, to justify the adoption of any decided opinion. It is not the same with caloric, which appears to form one of the principles of salts, or rather, to exist in a greater quantity in some than in others: such is the general cause of the fluidity, fusibility, and volatility, of a great number of saline matters.

The presence of earth in most salts is not shewn by any direct experiment; it is only known, that all native salts are mixed with a greater or less quantity of various earthy substances. But these do not belong to them; they do not, properly speaking, enter into their composition, but are, as it were, accessaries. We do not, therefore, at present, know any other principles of saline substances, except several combustible matters, oxygen, some incombustible substances, and caloric. It is known, that most acids are the residue of burned bodies, and that they can contain different proportions of combustible matter and oxygen, so that they exist in very different states, according to the quantity of these constituent matters. Every thing more which has been said, in treatises of chemistry, upon the composition of salts in general, amounts to nothing more than hypotheses, more or less ingenious, but, at the same time, more or less remote from truth.

We now propose to offer the following remarks concerning the *distribution, or methodical division, of Mineral Salts.*—Those salts which belong to the mineral kingdom are very numerous, many of them are the products of nature, and are formed by the action of fire, water, and air, and by the destruction of organised bodies; the greater number, however, are formed by art, or, at least, have not yet been found among natural products. The methodical treatment of these substances requires that they should be divided into orders, genera, and species. The first order contains such saline substances as serve to compose the second order, and are therefore called primitive. The second order contains secondary, compound, or neutral salts, which are formed by the mutual combination of the simple salts, and are consequently much less simple than them. Each of these orders is divided into several genera, and these again are subdivided into species.

ORDER I.

SIMPLE OR PRIMITIVE SALTS.

Under this order are comprehended those salts which were formerly thought to be simple or primitive, and which are occasionally called simple salts. The accurate experiments of the moderns have proved, that these are for the most part compounded; but the term is retained with greater propriety when it is observed, that these salts compose, when united, the salts which are termed secondary. These salts are never met with perfectly pure in nature, but require artificial processes to render them so. This order is divided into three genera, comprehending saline terrestrial substances, alkalis, and acids.

GENUS 1. *Saline terrestrial Substances.*

The three substances which compose this genus have hitherto been considered as earths whose characters manifestly resemble those of salts. This genus contains three species; 1. Barytes. 2. Magnesia. 3. Quick-lime.

GENUS 2. *Alkaline Salts.*

These possess a urinous, burning, and caustic taste; turn the syrup of violets to a green, have a strong affinity for acids, dissolve animal substances, unite readily with water, combine with oils and fat, and render them miscible with water, dissolve sulphur, and are crystallisable. The species of this genus are, 1. Potash. 2. Soda. 3. Ammonia.

GENUS 3. *Acids.*

These are distinguished by their sour taste when diluted with water; they redden blue vegetable colours. Many exist in an aërial form; they unite with great rapidity to alkalis; their action on inflammable substances is much stronger than that of the last-mentioned salts, and most commonly reduces them to the state of bodies which have been burnt. The following species enter this genus:

Mineral Acids.

1. Carbonic.
2. Muriatic.
3. Fluoric.
4. Nitric.
5. Sulphuric.
6. Boracic.
7. Molybdic.
8. Tungstenic.
9. Arsenic.
10. Succinic.

Vegetable Acids.

11. Acetic.
12. Citric.
13. Gallic.
14. Malic.
15. Benzoic.
16. Tartareous.
17. Oxalic.

Acids formed by the action of Fire.

18. Pyro-tartarous.
19. Pyro-mucous.
20. Pyro-ligneous.

Acids formed by the Nitric Acid.

21. Camphoric.
22. Suberic.
23. Ciceric.

Animal Acids.

24. Phosphoric.
25. Lithic.
26. Formic.
27. Bombic.
28. Zoönic.

ORDER II.

SECONDARY OR NEUTRAL SALTS.

Under the name of secondary salts are comprehended such matters as are composed of two primitive saline substances combined together. These salts are called neutral, because they do not possess the characters of primitive salts; that is to say, they are neither acid nor alkaline. There are, however, many salts, such as borax, chalk, and alkalis, when united with the carbonic acid, which exhibit some of the properties of primitive salts, though in a less eminent degree. These secondary salts have not so strong a taste as most of the primitive, their tendency to combination, and their solubility, being less considerable; but the criterion which distinguishes them more especially from the former is, that they cannot, like the primitive salts, communicate the saline properties to other bodies; their crystalline form is likewise a character much attended to by naturalists, and sometimes indicates their nature, though it may be productive of error when too much depended on.

The term *base*, is commonly applied to the more fixed matter which enters into the composition of neutral salts. As this base, which is sometimes volatile, communicates several general characters, sufficiently uniform in the several combinations it makes with acids, the name of the base is assumed to distinguish the genera of secondary salts. These salts are therefore divided into as many genera as there are saline or alkaline bases capable of being united with acids.

1. The first genus comprehends such as are formed by the union of fixed alkalis with acids. These are called perfect neutral salts, because the union of their component parts is very intimate.

2. The second genus includes such as are formed by the combination of the volatile alkali or ammonia with acids. They are distinguished by the name of ammoniacal salts from that which has been given to their base by later chemists. They may likewise be called imperfect salts, because they are much more easily decomposed than salts of the first genus.

3. The third genus embraces those which have lime for their basis. These are in general less perfect than those of the second genus, though lime has a stronger affinity to acids than ammonia. These salts are denominated neutral calcareous salts.

4. Magnesia, combined with various acids, constitutes the fourth genus. They are more decomposable than those of the last-mentioned genus, because lime and alkalis have a stronger affinity with acids than magnesia. They are distinguished by the name of magnesian neutral salts.

5. The fifth genus comprehends such as have pure argillaceous earth or alumine for their base. As alum is the principal of these combinations, the generic name of aluminous salts is given to them. Alkalis, lime, and magnesia, in most instances, decompose salts with an aluminous base.

6. The sixth genus comprehends neutral salts with a base of barytes or ponderous earth. These salts, as well as the two preceding genera, are but little known.

It may easily be imagined, that these bases, combined with the acids, must afford a great number of neutral salts; and that this number would be still more considerable, were we to admit, as peculiar salts, the union of the same substances with the acids.

In the subsequent arrangement of the various neutral salts, the order of the affinities of the acids is followed; that is to say, we begin with sulphuric salts, after which we place nitric salts, and after them, the salts into which the muriatic, the boracic, and the fluoric acids enter; and lastly, finish with the salts which contain carbonic acid, because that acid is the weakest of them all. To denote all these salts, names composed of the acids and their bases are adopted, in order that this nomenclature may express the nature of each; and that there no longer may be any error on this point, the different names which each neutral salt has received at different times, are exhibited.

GENUS I.

Neutral Salts with bases of Fixed Alkali.

SPECIES.	FORMER NAMES.
1. Sulphat of potash. The sulphuric acid united with potash.	*Vitriolated tartar.* *Sal de duobus.* *Arcanum duplicatum.* *Vitriol of potash.*
2. Sulphat of soda. The sulphuric acid with soda.	*Glauber's salt.* *Vitriol of soda.*
3. Nitrat of potash. Nitric acid with potash.	*Common nitre.* *Saltpetre.*
4. Nitrat of soda. Nitric acid with soda.	*Cubic nitre.* *Rhomboidal nitre.*
5. Muriat of potash. The muriatic acid with potash.	*Digestive salt.* *Febrifuge salt of Sylvius.* *Regenerated marine salt.*
6. Muriat of soda. The muriatic acid with soda.	*Marine salt.* *Sea salt.* *Common salt.* *Culinary salt.*
7. Borat of potash. The boracic acid with potash.	*Vegetable borax.*
8. Borax, or supersaturated borate of soda. The boracic acid with soda.	*Common borax.* *Tincal.*
9. Fluat of potash. The fluoric acid with potash.	*Spathose tartar.* *Spar of tartar.*
10. Fluat of soda. The fluoric acid with soda.	*Sparry soda.*
11. Carbonat of potash. The carbonic acid with potash.	*Cretaceous tartar.* *Chalk of potash.*
12. Carbonat of soda. The carbonic acid with soda.	*Cretaceous soda.* *Chalk of soda.*

GENUS II.

Ammoniacal Neutral Salts.

SPECIES.	FORMER NAMES.
1. Ammoniacal sulphat. The sulphuric acid with ammonia.	*Glauber's secret ammoniacal salt.* *Ammoniacal vitriol.*
2. Ammoniacal nitrat. The nitric acid with ammonia.	*Ammoniacal nitre.*
3. Ammoniacal muriat. The muriatic acid with ammonia.	*Sal ammoniac.*
4. Ammoniacal fluat. The fluoric acid with ammonia.	
5. Ammoniacal borat. The boracic acid with ammonia.	
6. Ammoniacal carbonat. The carbonic acid with ammonia.	*Sal volatile.* *Concrete volatile alkali.* *Ammoniacal chalk.*

GENUS III.

Calcareous Neutral Salts.

SPECIES.	FORMER NAMES.
1. Calcareous sulphat. The sulphuric acid with lime.	*Plaster of Paris.* *Gypsum.* *Selenite.* *Calcareous vitriol.*
2. Calcareous nitrat. The nitric acid with lime.	*Calcareous nitre.*
3. Calcareous muriat. The muriatic acid with lime.	*Fixed sal ammoniac.* *Oil of lime.* *Calcareous marine salt.*
4. Calcareous fluat. The fluoric acid with lime.	*Cubic spar.* *Vitreous spar.* *Fusible spar.* *Sparry fluor.* *Fluorated lime.*
5. Calcareous borat. Boracic acid with lime.	
6. Carbonat of lime. The carbonic acid with lime.	*Chalk.* *Calcareous spar.* *Calcareous earth.* *Limestone.*

GENUS IV.

Magnesian neutral salts.

SPECIES.	FORMER NAMES.
1. Magnesian sulphat. The sulphuric acid with magnesia.	*Epsom salt.* *Salt of Sedlitz.* *Bitter purging salt.* *Vitriolated magnesia.*
2. Magnesian nitrat. The nitric acid with magnesia.	
3. Magnesian muriat. The muriatic acid with magnesia.	*Marine salt with the base of magnesia.*
4. Fluat of magnesia. The fluoric acid with magnesia.	
5. Borat of magnesia. The boracic acid with magnesia.	
6. Magnesian carbonat. The carbonic acid with magnesia.	*Effervescent magnesia.* *Mild magnesia.* *Aërated magnesia.* *Magnesian salt.*

GENUS V.

Aluminous Neutral Salts.

SPECIES.	FORMER NAMES.
1. Aluminous sulphat. The sulphuric acid with aluminous earth.	*Alum.* *Vitriol of clay.*
2. Aluminous nitrat. The nitric acid with aluminous acid.	*Argillaceous nitre.* *Nitrous alum.*
3. Aluminous muriat. The muriatic acid with aluminous earth.	*Argillaceous marine salt.* *Marine alum.*
4. Aluminous fluat. The fluoric acid with aluminous earth.	*Sparry clay.* *Argillaceous fluor.*
5. Aluminous borat. The boracic acid with aluminous earth.	*Argillaceous borax.*
6. Aluminous carbonat. The carbonic acid with aluminous earth.	*Effervescent clay.* *Argillaceous chalk.*

GENUS VI.

Neutral Salts with a base of Barytes, or Barytic Neutral Salts.

SPECIES.	FORMER NAMES.
1. Barytic sulphat. The sulphuric acid with barytes.	*Ponderous spar.* *Barytic vitriol.*
2. Barytic nitrat. The nitric acid with barytes.	*Ponderous nitre.* *Barytic nitre.*
3. Barytic muriat. The muriatic acid with barytes.	*Ponderous marine salt.*
4. Barytic fluat. The fluoric acid with barytes.	
5. Barytic borat. The boracic acid with barytes.	
6. Barytic carbonat. The carbonic acid with barytes.	*Aërated ponderous earth.* *Cretaceous ponderous earth.* *Barytic earth.*

To these salts may be added such as are formed by the arsenic, molybdic, tungstenic, and succinic acids: the former of which may be distinguished by the terms *arseniats of potash*, *soda*, &c. the second, *molybdats of potash*, *soda*, and so on.

Of vegetable salts.

The saline substances, which are held in solution in the juices of plants or the water wherein they are infused, are generally known by the name of *essential salts.* These are distinguished into six genera. The first contains vegetable salts analogous to those of the mineral kingdom. The second contains the pure acids of the plants. In the third are placed such acid salts as are combined with a certain quantity of potash: these are called *acidules.* The fourth genus includes those which are formed by the action of the nitric acid upon certain vegetable matters. The fifth is composed of those which owe their formation to heat. The sixth genus is appropriated to such acids as are developed by a peculiar fermentation.

Genus I.—The principal *species* contained in this genus are: 1. *Fixed alkalis combined with carbonic acid.* These are obtained from almost all plants by macerating them with acids. Potash is the most common, but soda exists in marine plants. 2. *Sulphat of potash.* This neutral salt is found in milfoil, in astringent and aromatic plants, in spurge, flax, &c. 3. *Sulphat of soda*, which exists in tamarisk and rotten wood. 4. *Nitre*, obtained from borage, turnsole, and tobacco. 5. *Muriat of potash and soda*, from marine plants. 6. *Sulphat of lime*, which is said to exist in rhubarb.

Genus II.—1. *The citric acid.* 2. *The gallic acid.* 3. *The malic acid.* 4. *The benzoic acid.*

Genus III.—1. *The tartarous acid.* 2. *The oxalic acid.*

Genus IV.—1. *The pyro-tartarous acid.* 2. *The pyro-mucous acid.* 3. *The pyro-ligneous acid.*

Genus V.—1. *The acid of sugar.* 2. *The camphoric acid.* 3. *The suberic acid.* 4. *The aceric acid.*

Genus VI.—1. *The acetic acid.*

Saline Substances from the Animal Kingdom.

The animal kingdom abounds with many of the saline substances common to vegetables, such as lime, soda, the muriatic, oxalic, malic, benzoic, sebacic, and phosphoric acids. Besides these, animals afford, 1. *The lactic acid.* 2. *The saccho-lactic acid.* 3. *The lithic acid.* 4. *The foracic acid.* 5. *The bombic acid.* The nature of these animal acids is not yet sufficiently known to chemists.

In the history of saline substances it is only further necessary to remark, that they possess generally the properties of crystallisation, fusibility, efflorescence, and solubility.

SALTWORT. See Salsola kali.

SALVATE'LLA (sc. *vena salvatella;* from *salus*, health, because the opening of it was formerly thought to be of singular use in melancholy); a vein that runs along the little finger, unites upon the back of the hand with the cephalic of the thumb, and empties its blood into the internal and external cubital veins.

SA'LVIA *(à salvendo)*, sage; the *Salvia officinalis* Linn. *Salvia foliis lanceolato-ovatis integris crenulatis, floribus spicatis, calycibus acutis.* Class, *Diandria.* Order, *Monogynia.* Sage is a perennial plant, a native of the south of Europe, and cultivated in our gardens. There are several varieties of it, differing in size, or in the colour of its flowers, but their properties are the same. They have a peculiar aromatic smell, and a warm aromatic taste, with some degree of bitterness and astringency. This vegetable, in its effects, agrees with other aromatics. It is stimulant, carminative, and tonic. In cold phlegmatic habits, it excites appetite, and proves serviceable in debilities of the nervous system. The best preparation for these purposes is an infusion of the dry leaves, drunk as tea; or a tincture, or extract, made with rectified spirit, taken in proper doses; these contain the whole virtues of the sage; the distilled water and essential oil, only its warmth and aromatic quality, without any of its roughness or bitterness. Aqueous infusions of the leaves, with the addition of a little lemon-juice, prove a useful diluting drink in febrile disorders, being sufficiently agreeable to the palate. Still farther acidulated with vinegar, and with the addition of honey, it affords a useful domestic gargle for sore throats.

SA'LVIA HORTE'NSIS MINOR; the small sage, or sage of virtue. It is a variety of the officinal sage, possessing similar virtues.

SA'LVIA OFFICINA'LIS; the systematic name of the garden sage. See SALVIA.

SA'LVIA SCLA'REA; the systematic name of the garden clary, which is named *horminum* in the Pharmacopœias. The leaves and seeds of this plant are recommended as corroborants and antispasmodics, particularly in leucorrhœa and hysteria. They have a bitterish warm taste, and a strong smell, of the aromatic kind, but their medicinal properties are inconsiderable.

SAMBU'CUS (from *sabucca*, Heb. a musical instrument, formerly made of this tree), the elder: *Sambucus nigra* Linn. *Sambucus cymis quinque partitis, foliis pinnatis, caule arboreo.* Class, *Pentandria.* Order, *Trigynia.* This indigenous plant has an unpleasant narcotic smell, and some authors have thought proper even to report that its exhalations have proved so noxious, as to render it unsafe to sleep under its shade. The parts of this tree that are proposed for medicinal use in the Pharmacopœias are the inner bark, the flowers, and the berries. The first has scarcely any smell, and very little taste; on first chewing, it impresses a degree of sweetness, which is followed by a very slight but durable acrimony, in which its powers seem to reside. From its cathartic property it is recommended as an effectual hydragogue by Sydenham and Boerhaave. In small doses it is said to be a useful aperient and deobstruent in various chronic disorders. The flowers have an agreeable flavour; and infusions of them, when fresh, are gently laxative and aperient. When dry, they are said to promote chiefly the cuticular excretion, and to be particularly serviceable in erysipelatous and eruptive disorders. Externally they are sometimes used in fomentations, &c. and the distilled water is employed as a collyrium. The berries in taste are somewhat sweetish, and not unpleasant; on expression they yield a fine purple juice, which proves a useful aperient and resolvent in sundry chronic diseases, gently loosening the belly, and promoting the urine and perspiration. The only officinal preparations of the elder are, the *Succus baccæ sambuci spissatus* Lond. Edin. and the *Unguentum sambuci* Dubl.

SAMBU'CUS E'BULUS; the systematic name of the dwarf-elder. See EBULUS.

SAMBU'CUS NIGRA; the systematic name of the elder-tree. See SAMBUCUS.

SAMIAN EARTH, the name of two species of marl which the ancients used in medicine, viz. 1. The white kind, called *collyrium samium.* This being astringent, was therefore given in diarrhœas, dysenteries, and hæmorrhagies. They also used it externally in inflammations of all kinds. 2. The brownish-white kind, called *aster samius* by Dioscorides; and this also stands recommended as an astringent.

SA'MIEL, or SAMYEL, the Arabian name of a hot wind peculiar to the desert of Arabia. It blows over the desert in the months of July and August from the north-west quarter, and sometimes it continues with all its violence to the very gates of Bagdad, *but never affects any body within the walls.* Some years it does not blow at all, and in others it appears six, eight, or ten times, but seldom continues more than a few minutes at a time. It often passes with the apparent quickness of lightning. The Arabians and Persians, who are acquainted with the appearance of the sky at or near the time this wind arises, have warning of its approach by a thick haze, which appears like a cloud of dust arising out of the horizon; and they immediately upon this appearance throw themselves with their faces to the ground, and continue in that position till the wind is passed, which frequently happens almost instantaneously; but if, on the contrary, they are not careful or brisk enough to take this precaution, which is sometimes the case, and they get the full force of the wind, it is instant death. Sometimes, however, life remains, although to every outward appearance the person is dead; and in that case the by-standers immediately cover him with clothes, and administer some warm diluting liquor to cause a perspiration, which is but slowly brought about. The Arabs themselves know nothing about the nature of this wind. They say only that it leaves behind it a very strong sulphureous smell, and that the air at these times is quite clear, except about the horizon, in the north-west quarter, before observed, which gives warning of its approach. The effects of this wind are attributed by some to a poisonous vapour, and not to excessive heat. The Samiel is so well known in the neighbourhood of Bagdad and Bassora, that the very children speak of it with dread.

SAMP, a preparation of Indian corn, or *maize*, said to have been invented by the savages of North America, who have no corn mills. The corn is first deprived of its external coat by soaking it ten or twelve hours in a lixivium of water and wood-ashes. This coat, or husk, being separated from the kernel, rises to the surface of the water, while the grain, which is specifically heavier than water, remains at the bottom of the vessel; which grain, thus deprived of its hard coat of armour, is boiled, or rather simmered, for a great length of time, two days for instance, in a kettle of water placed near the fire.—When sufficiently cooked, the kernels will be found to be swelled to a great size and burst open; and this food, which is uncommonly sweet and nourishing, may be used in a great variety of ways; but the best way of using it is to mix it with milk, and with soups, and broths, as a substitute for bread. Count Rumford says, it is even better than bread for these purposes; for besides being quite as palatable as the very best bread, as it is less liable than bread to grow too soft when mixed with these liquids, without being disagreeably hard, it requires more mastication, and consequently tends more to increase and prolong the pleasure of eating.

SAMPHIRE, the *Crithmum maritimum* of Linnæus; a low perennial plant, that grows on the sea-coast in several parts of Britain. It has a spicy aromatic flavour, on which account, the common people use it as a pot-herb. If pickled with vinegar and spice, it makes an elegant condiment, which is in much esteem at the tables of the opulent.

SA'MPSYCHUM; sweet marjoram. See MAJORANA.

SANCTORIUS, a most ingenious and learned physician, professor of medicine in the university of Padua, in the beginning of the 17th century. He contrived a kind of statical chair, by means of which, after estimating the aliments he received, and the sensible discharges, he was enabled to determine with great exactness the quantity of insensible perspiration, as well as what kind of victuals and drink increased or diminished it. On these experiments he erected a curious system, which he published under the title "*De Medicina Statica;*" of which we have an English translation by Dr. Quincy. Sanctorius published several other treatises, which shewed great abilities and learning.

SANDARA'CHA (σανδαραχα, a gum-resin; also a sort of arsenic, from *saghad narak*, Arab.). See SANDARACK.

SANDARA'CHA A'RABUM; a resinous juice which appears to have been the produce of a large species of juniper-tree.

SA'NDARACK (of *Sandrack*, Arab.); or *Sandaracha*, the gum-juniper; a concrete resin which exudes in white tears, rather more transparent than mastich, from the bark of the *Juniperus communis* Linn. See JUNIPERUS. Sandarack is almost wholly soluble in alkohol, with which it forms a very useful whitish varnish that dries speedily. If reduced to powder, it is called *pounce*, which is employed to prevent ink from sinking into paper, after its exterior coating of size has been scraped away.

SANGUIFICA'TIO (from *sanguis*, blood), sanguification; that natural function of the body, by which the chyle is changed into blood. The uses of sanguification are, the generation of blood, which serves to fill the blood-vessels, to irritate and stimulate the heart and arteries, to generate or cause heat, to secrete the humours, and to excite the vital action. See BLOOD.

SANGUINA'LIS (from *sanguis*, blood; so named from its uses in stopping profuse bleedings); a name sometimes given to the *Polygonum aviculare* or knot-grass. See CENTUMNODIA.

SANGUINA'RIA (from *sanguis*, blood; so named from its use as a styptic). The *Polygonum aviculare* or knot-grass is sometimes so termed. See CENTUMNODIA.

SANGUINEOUS APOPLEXY. See APOPLEXIA.

SA'NGUIS; blood. See BLOOD.

SA'NGUIS DRACO'NIS, dragon's-blood. The drug to which this fanciful appellation has been long given, is a red resinous juice which is obtained by wounding the bark of the *Calamus rotang, caudice densissime aculeato, aculeis erectis, spadice erecto*, of Wildenow. Class, *Hexandria*. Order, *Monogynia*. It is chiefly obtained from the Molucca islands, Java, and other parts of the East Indies. It is generally much adulterated, and varies greatly in goodness and purity. The best kind is of a dark red colour, which, when powdered, changes to crimson; it readily melts and catches flame; has no smell, but to the taste discovers some degree of warmth and pungency. The ancient Greeks were well acquainted with the astringent power of this drug; in which character it has since been much employed in hæmorrhages, and alvine fluxes. At present, however, it is seldom used internally, being superseded by catechu and other more certain and effectual remedies of this numerous class. This resin enters no officinal composition but that of the *emplastrum thuris comp.* of the London Pharmacopœia.

SANGUISO'RBA OFFICINA'LIS; the systematic name of the Italian pimpinel. See PIMPINELLA ITALICA.

SANGUISU'GA (from *sanguis*, blood, and *sugo*, to suck); the leech, or blood-sucker. See LEECH.

SANICLE. See SANICULA.

SANICLE, YORKSHIRE. See PINGUICULA.

SANI'CULA (from *sano*, to heal; so called from its virtues in healing), the herb sanicle; *Sanicula Europea* of Linnæus. It was formerly recommended as a mild astringent, and may be supposed to have received its name from its sanative power. Its sensible qualities are a bitterish and somewhat austere taste, followed by an acrimony which chiefly affects the throat. It is only in use, in the present day, amongst the vulgar.

SANI'CULA EBORACE'NSIS; the Yorkshire sanicle or butter-wort. See PINGUICULA.

SANICULA EUROPEA; the systematic name of sanicle. See SANICULA.

SA'NIES, or ICHOR. Both these terms are applied to a thin, limpid, and greenish discharge, which flows from irritated and unhealthy sores.

SA'NTALUM (σανταλον, from *zandal*, Arab.); saunders.

SA'NTALUM ALBUM; the systematic name of the yellow saunders. See SANTALUM CITRINUM. The white saunders of the shops is said to be the alburnum of the same tree whose medullary part is the *santalum citrinum.*

SA'NTALUM CITRINUM, yellow saunders; the *Santalum album* Linn. White saunders wood is of a pale white colour, often with a yellowish tinge, and, being destitute of taste or odour, it is superseded by the santalum citrinum, which is of a brownish yellow colour, of a bitterish aromatic taste, and of a pleasant smell, approaching to that of the rose. Both kinds are brought from the East Indies in billets, consisting of large thick pieces, which, according to Rumphius, are sometimes taken from the same, and sometimes from different trees. For though the white and yellow saunders are the wood of the same species of tree, yet the latter, which forms the central part of the tree, is not always to be found in sufficient quantity to repay the trouble and expence of procuring it especially, unless the trees be old; while the white, which is the exterior part of the wood, is always more abundant, and is consequently much cheaper.

If yellow saunders be distilled with water, it yields a fragrant essential oil, which thickens in the cold into the consistence of a balsam, approaching in smell to ambergris, or a mixture of ambergris and roses: the remaining decoction, inspissated to the consistence of an extract, is bitterish and slightly pungent. Rectified spirit extracts, by digestion, considerably more from it than water: the colour of the tincture is a rich yellow. The spirit distilled off is slightly impregnated with the fine flavour of the wood: the remaining brownish extract has a weak smell, and a moderate balsamic pungency.

This wood is chiefly valued on account of its fragrance. The Chinese are said to fumigate their clothes with it, and to burn it in their temples in honour of their gods. Though retained in the materia medica of the late Edinburgh Pharmacopœia, Dr. Cullen says, it cannot be thought to possess any considerable share of medicinal power. Hoffman considers its virtues as similar to those of ambergris; and some others have esteemed it in the character of a corroborant and restorative, no doubt, on account of the essential oil and resin which it contains.

SA'NTALUM RU'BRUM, red saunders; the *Pterocarpus santalinus* Linn. Several red woods, capable of communicating this colour to ardent spirits, are sold as red saunders; but the true officinal kind appears, on the best authority, to be of this tree, which is extremely hard, of a bright garnet red colour, and bears a fine polish. It is only the inner substance of the wood that is used as a colouring matter, and the more florid red is mostly esteemed. On being cut it is said to manifest a fragrant odour, which is more predominant in old trees. Lewis says this wood is of a dull red, almost blackish, colour on the outside, and a deep brighter red within: its fibres are now and then curled, as in knots. It has no manifest smell, and little or no taste; even of extracts made from it with water, or with spirit, the taste is inconsiderable.

To watery liquors this wood only communicates a yellowish tinge, but to rectified spirit a fine deep red. A small quantity of an extract made with this menstruum, tinges a large one of fresh spirit of the same colour; though it does not, like most other resinous bodies, dissolve in expressed oils. Of distilled oils, there are some which receive a red tincture from the wood itself, and from its resinous extract, but the greater number do not. Red saunders has been esteemed as a medicine; but its only use attaches to its colouring property. The juice of this tree, like that of some others, affords a species of sanguis draconis, or at least furnishes an article that is frequently sold for it. This wood gives colour to the *Tinct. lavend. comp.* of the three Pharmacopœias.

SANTOLI'NA (from *santalum*, saunders, because it smells like that wood). See ABROTANUM FŒMINA.

SANTOLI'NA CHAMÆ-CYPARI'SSUS; the systematic name of the lavender cotton. See ABROTANUM FŒMINA.

SANTO'NICUM (σαντονικον; from *Santonia*, its native place), called also *Cina*, *Semen contra*, and *Semen sanctum;* the Tartarean southern-wood or wormseed. *Artemisia santonica; foliis caulinis linearibus pinnato-multifidis, ramis indivisis, spicis secundis reflexis, floribus quinquefloris,* Linn. Class, *Syngenesia.* Order, *Polygamia superflua.* The seeds of this plant are small, light, and oval; composed of a number of thin membranous coats of a yellowish-green colour, with a cast of brown; easily friable, upon being rubbed between the fingers, into a fine chaffy kind of substance. These seeds are brought from the Levant. They have a moderately strong and not an agreeable smell, somewhat of the wormwood kind, and a very bitter subacrid taste. They are esteemed to be stomachic, emmenagogue, and anthelmintic; but it is more especially with the last-mentioned view that they are now administered, and from their efficacy in this way it is that they have the name of worm-seed.

SAP, the juice by which vegetables are sustained. It has been long disputed whether the sap of plants be analogous to the blood of animals, and circulates in the same manner. The conclusions that Dr. Hales drew from his numerous experiments, were all in opposition to the doctrine that the sap circulates; yet there cannot be a doubt of the fact.

Dr. Walker, professor of natural history in the university of Edinburgh, has published in the first volume of the Philosophical Transactions of Edinburgh an account of a course of very accurate and ingenious experiments, accompanied with observations and conclusions made with a caution which inspires his readers with confidence. It is well known that in the spring vegetables contain a great quantity of sap; and there are some trees, as the birch and plane, which, if wounded, will discharge a great portion of it. Whence is this moisture derived? Whether is it imbibed from the atmosphere, or does it flow from the soil through the roots? These are the questions which require first to be answered; and Dr. Walker's experiments enable us to answer them with confidence. He selected a vigorous young birch, 30 feet high, and 26 inches in circumference at the ground. He bored a hole just above the ground on the 1st of February, and cut one of its branches at the extremity. He repeated this every second day: but no moisture appeared at either of the places till the 5th of May, when a small quantity flowed on making an incision near the ground. He then cut 21 incisions in the trunk of the tree, on the north side, at the distance of a foot from one another, and reaching from the ground to the height of 20 feet. The incisions were solid triangles, each side being an inch long and an inch deep, and penetrating through the bark and wood. Dr. Walker visited the tree almost every day for two months, and marked exactly from which of the incisions the sap flowed. He observed that it flowed from the lowest incision first, and gradually ascended to the highest.

Dr. Walker found that the sap ascends through the wood, and still more copiously between the wood and the bark; but none could be perceived ascending through the pith or the bark. He found also, that when the thermometer at noon is about 49, or between 46 and 50, the sap rises about one foot in 24 hours; that when the thermometer is about 45 at noon, it ascends about one foot in two days; and that it does not ascend at all unless the mid-day heat be above 40. He observed that it moves with more velocity through young than through old branches. In one young branch it moved through seven feet in one day, the thermometer being at 49, while it moved in the trunk of the tree only seven feet in seven days. Dr. Walker has thus explained the reason why the buds on the extremities of branches unfold first: because they are placed on the youngest wood, to which the sap flows most abundantly.

The effects produced by the motion of the sap deserve to be attended to. In those parts to which it has mounted, the bark easily separates from the wood, and the ligneous circles may without difficulty be detached from one another. The buds begin to swell and their scales to separate, while those branches to which the sap has not ascended remain closely folded. When the sap has reached the extremities of the branches, and has thus pervaded the whole plant, it is soon covered with opening buds, and ceases to bleed. The bleeding ceases first in the upper parts of the tree, and in the lower parts successively downwards, and the wood becomes dry. An inverted branch flows more copiously when cut than those which are erect. This is a proof that the ascent of the sap is not occasioned by capillary attraction, for water which has arisen in a small glass tube by this attraction will not descend when the tube is inverted.

It is evident that there is an intimate connection between heat and the ascent of the sap. It did not begin to flow till the thermometer stood at a certain point: when it fell below 40, it was arrested in its progress. The south side of the tree, when the sun was bright, bled more profusely than the north side; and at sunset the incisions at the top ceased to bleed, where it was exposed most to the cold air, while it still continued to flow from the incisions next to the ground; the ground retaining its heat longer than the air.

SAPHÆ'NA (from the Gr. *σαφης*, *visible)*, the name of a large vein of the leg, which ascends along the little toe over the external ankle, and evacuates part of the blood from the foot into the popliteal veins.

SAPIE'NTIÆ DENTES. The last four grinders in the human jaw are so called, because they appear when the person is supposed to be at years of discretion. See TEETH.

SAPI'NDUS SAPONA'RIA; the systematic name of the plant which affords soap-nuts. See SAPONARIÆ NUCULÆ.

SA'PO, soap, a well known composition of oil or fat with caustic alkali. The medicinal soap, *sapo albus Hispanus*, *sapo durus*, *sapo amygdalinus*, is made with oil of sweet almonds, and half its weight of potash or caustic alkali. Of this Dr. Cullen gives the following opinion: " Its power," says he, " is never considerable; and when it does appear, it is upon a ground that practitioners do not commonly apprehend. Many instances have occurred of persons taking this soap to half an ounce or more every day, without its shewing laxative effects; and though it does upon many occasions shew these, it may, I think, be a question, by what quality it operates? If the purest soap be dissolved, as it may readily be in rectified spirit of wine, the salt commonly intermixed with the soap is left undissolved, and the dissolved soap, by a proper evaporation, may be recovered in a dry form. In this state the soap is mild and insipid; and in my opinion cannot give any irritation to the intestines, or to any other the most sensible part of the body."

Dr. Cullen presumes therefore that soap is not a laxative; and if ever it appears to be so, he thinks it must be ascribed to the common salt, which, from the circumstances of the manufacture, is always contained in it. He has some objections to the use of soap in clysters, in nephralgic cases, as proving too laxative, but says the correction will be easy by the process above mentioned, which deprives the soap of its common salt, and fits it no less for the cure of the nephralgia, as it may then be administered in much larger quantity.

Common or soft soap, *sapo mollis*, is made of tallow; Spanish, or Castile soap, of oil of almonds and the alkaline salt called soda or barilla. Black soap is a composition of train oil and an alkaline salt; and green soap, of hemp, linseed, or rape oil. Soap is a substance much used both in surgery and medicine, and enters into various preparations of pills, plasters, and liniments. See SODA.

SAPONA'RIA (from *sapo*, soap; so called because its juice, like soap, is capable of cleaning clothes); soap-wort, or bruise-wort. The root of this plant has been employed medicinally. It has no peculiar smell, but its taste is sweetish, glutinous, and somewhat bitter. On being chewed for some time, it discovers a degree of acrimony, which continues to affect the mouth a considerable time. Neumann found that two ounces of the root yielded eleven drachms of watery extract; but Cartheuser, from a like quantity, only obtained six drachms and twenty-four grains. This extract manifested a sweetish taste, followed by an acrid quality. The spirituous extract is less in quality, but of a more penetrating acrid taste. Decoctions of the root, on being strongly agitated, produce a saponaceous froth or lather. A like soapy quality is observable also in the extract, and still more manifestly in the leaves, insomuch that they have been used as a substitute for soap. Bergius, who made several experiments with it, declares, that the saponaria had all the effects of soap itself.

Some share of medical efficacy has been attributed to this vegetable. The diseases for which the saponaria is recommended, are, syphilis, gout, rheumatism, and jaundice; but these may not, perhaps, be the complaints in which its use is most availing. A fancied resemblance in the roots of saponaria with those of sarsaparilla, seems to have led physicians to think them similar in their effects; and hence they have both been administered with the same intentions, particularly in fixed pains, and venereal affections. Bergius says, " in arthritide, cura mercuriale, &c. nullum aptiorem potum novi." According to several writers, the most inveterate cases of syphilis were cured by a decoction of this plant, without the use of mercury, but we are not to give implicit credit to these accounts. Boerhaave entertained a high opinion of its efficacy in jaundice, and other visceral obstructions.

SAPONA'RIÆ NU'CULÆ, or Baccæ Bermudenses; soap berries. These are spherical, about the size of a cherry, the cortical part yellow, glossy, and so transparent, as to shew the black nut which rattles within, and which includes a white kernel. It is the produce of the *Sapindus saponaria* of Linnæus, which grows in Jamaica. It is said that the cortical part of this berry has a bitter taste, and no smell; that it raises a soapy froth with water, and has similar effects with soap in washing. Authors also assert that it is a medicine of singular and specific virtue in chlorosis. These berries, however, are not known in the shops of this country.

SAPONA'RIA OFFICINA'LIS; the systematic name of the soap-wort. See Saponaria.

SAPO'NULES, or Saponuli; combinations of the essential oils with different bases; as the *saponule of alumine.*

SAPO'NULES, ACID; combinations of the essential oils with different acids.

SAPO'TA. That species which produces the oval fruit, and whose seeds are sometimes given in form of an emulsion in calculous complaints, is the *Acras sapota* Linn. It is a native of South America, and bears a fruit like an apple, which, when ripe, is of a luscious taste, resembling that of the marmalade of quinces. Hence it is called, by some, natural marmalade.

SA'PPAN LIGNUM, a name for logwood. See Lignum Campechense.

SAPPHIRE; one of the gems, of a sky-blue colour.

SARACEN'S CONSOUND. The *virga aurea*, or golden rod, is sometimes so termed. See Virga Aurea.

SARCOCE'LE (σαρκοκηλη; from σαρξ, *flesh*, and κηλη, a *tumor)*, diseased testicle. This is a disease of the body of the testicle, and, as the term implies, consists, in general, in such an alteration made in the structure of it, as produces a resemblance to a hard fleshy substance, instead of that fine, soft, vascular texture, of which it is, in a natural and healthy state, composed.

The ancient writers have made a great number of distinctions of the different kinds of this disease, according to its different appearances, and according to the mildness or malignity of the symptoms with which it may chance to be attended. Thus, the *sarcocele*, the *hydro-sarcocele*, the *scirrhus*, the *cancer*, the *caro adnata ad testem*, and the *caro adnata ad vasa*, which are really little more than descriptions of different states and circumstances of the same disease, are reckoned as so many different complaints, requiring a variety of treatment, and deriving their origin from a variety of different humours. Every species of sarcocele consists primarily in an enlargement, induration, and obstruction, of the vascular part of the testicle; but this alteration is, in different people, attended with such a variety of circumstances, as to produce several different appearances, and to occasion the many distinctions which have been made.

The symptoms vary exceedingly in different patients; but the following are the most general: The first symptom is commonly a small enlargement, without much pain, and no discolouration of the part. The tumor becomes gradually larger, and the hardness increases; but for a considerable time the surface remains smooth; and when the constitution is otherwise good, the disorder will sometimes remain in this situation for a considerable number of years; and in a few rare instances, by a moderate diet, keeping the belly open, suspending the tumor properly, and avoiding violent exercise, or any thing which may considerably increase the impetus of the blood, the disorder has not only been prevented from increasing, but has in a gradual manner disappeared entirely. More commonly, however, the tumor increases in size, and becomes ragged and unequal on its surface. Smart and severe shooting pains are frequently felt through its substance. Sometimes serum is extravasated in the vaginal coat, or matter is collected in different parts of the tumor. The scrotum, now much distended, bursts, and thin, fetid, bloody matter discharging, the disease terminates in an ulcerated cancer of the worst kind.

The spermatic cord is commonly unaffected till the tumor has acquired a considerable size, and generally not till collections of matter have been formed. After this, from being at first only slightly swelled, it gradually increases in hardness and bulk; after which it becomes very painful, knotty, or unequal through its whole extent. The discharge from the scrotum still continues; but although the matter increases in quantity, the size of the tumor is not thereby diminished, but, on the contrary, continually increases; the edges of the sore become hard, livid, and retorted, and fungous excrescences push out from every part of it; the health of the patient becomes entirely destroyed, and he is at last carried off in great misery.

Hernia humoralis, produced by venereal infection, has been considered, by some authors, as a frequent cause of the worst kind of scirrhous testicle; but the fact is very much otherwise, and such an idea has this bad tendency, that it prevents a perseverance in the use of such remedies as might have removed the disease without the necessity of extirpation.

Another cause mentioned by authors as producing scirrhus of the testicle, is the hydrocele of the vaginal coat; but though sarcocele is frequently combined with this disease, there is every reason to think that the primary disorder was in the testicle itself, and that the water is only a consequence of the other complaint. When the hydrocele happens to be the original disease, the testicle is also found frequently altered in its appearance. It is here paler than in its natural state. It is sometimes diminished, but more frequently enlarged. The enlargement, however, is soft, harmless, and free from pain; and in such a situation should never be extirpated. To this point particular attention ought to be paid, otherwise we run the risk of committing a mistake, into which practitioners have been too frequently led—the extirpation of a testicle which ought to have been saved. To keep free of this error, we ought to attend to the following circumstances.

When the disease begins in the testicle itself, especially in the body or glandular part, or when it becomes hard and enlarged previous to any collection of water in the vaginal coat, it is to be considered as of a different nature from that in which an enlargement of the part succeeds to a collection of water; or if, upon evacuating the water, the testicle be found hardened, enlarged, and attended with pain and other marks of scirrhus, especially if the surface be unequal or ulcerated, extirpation ought certainly to be performed. The symptoms above mentioned sometimes, though rarely, begin in the epidydimis. In such cases, however, extirpation will seldom be advisable, as there is here always a suspicion of a venereal affection; and then we ought by all means to try the remedies commonly used in such diseases. In the prognosis, we attend to the age and the habit of body, as well as to the state of the disease, and length of time it has continued.

When the patient is young and the constitution unbroken, we may always hope for a cure, although the symptoms should be very considerable; whereas, in old infirm people, and in habits attended with an emaciated look, with indigestion, and other symptoms of obstructed viscera, whatever state the disease may be in, there will be but a small chance of success.

If the disease has subsisted for a long time without considerably increasing in size, we may reasonably think it is of a milder nature than where it has made a rapid progress. As long as the testicle is only hard, and free from the formation of matter, we may expect a favourable event; but where collections of matter have already formed, either in the substance or upon the surface of the testicle, there is no other chance of saving the patient than by means of extirpation. Previous to this, however, we are to attend to the state of the spermatic cord; for were any of it left in a diseased state, little advantage could be derived from extirpation; nor ought the operation ever to be performed but where we can reach the whole of the diseased parts. We are not to be prevented from performing it, though the cord should be considerably enlarged, provided it do not evidently partake of the disease of the testicle; for the cord is generally somewhat enlarged in the diseased state of the testicle; but this enlargement is for the most part merely either a varicose state of the veins, or a watery disposition of the cellular substance. For an account of the operation, see Castration.

SARCOCO'LLA (σαρκοκολλα, *flesh glue*; from σαρξ, *flesh*, and κολλα, *glue*, because of its supposed power of conglutinating fresh wounds); a concrete gum-resin, supposed to be the produce of the *Penæa mucronata* Linn. It is brought from Persia and Arabia in small grains of a pale yellow colour, having also sometimes mixed with them a few of a deep red colour. Its taste is at first bitter, but this is followed with some degree of sweetness. It has been chiefly used for external purposes, and, as its name imports, has been thought to agglutinate wounds and ulcers; but this vague opinion now no longer exists. It is an ingredient in the *pulvis cerussæ comp.* Lond.

SARCOLO'GIA (σαρκολογια; from σαρξ, *flesh*, and λογος, a *discourse*); sarcology, or the doctrine of the muscles and soft parts of the body.

SARCO'MA (σαρκωμα; from σαρξ, *flesh*), or *Sarcosis*; a fleshy excrescence. It constitutes a genus of disease in the class *locales*, and order *tumores*, of Cullen.

SARCO'MPHALUS (σαρκομφαλος; from σαρξ, *flesh*, and ομφαλος, the *navel*); a fleshy excrescence about the navel.

SARCO'SIS. See Sarcoma.

SARDONIC LAUGH (*Risus sardonicus*; so called from the herb *sardonia*, which grows in the island of Sardonia, and is said to produce it); convulsive laughter. See Risus sardonicus.

SARMENTA'CEÆ (from *sarmentum*, a long shoot), in Linnæus's botany, the 11th natural order, consisting of plants which have climbing stems and branches, like the vine. These plants are far from being a true natural assemblage; in fact they scarcely agree in a single circumstance, except that expressed in the title, which is far from being peculiar to this order. The genera are these, Alstromœria; Aristolochia, *Birthwort*; Asarum, *Asarabacca*; Asparagus, *Sparrowgrass*; Centella; Cissampelos; Convallaria, *Lily-of-the-valley*; Cytinus; Dioscorea; Erythronium, *Dog's-tooth Violet*; Gloriosa, *Superb Lily*; Medeola, *Climbing African Asparagus*; Menispermum, *Moon-seed*; Paris, *True-love*, or *One-berry*; Rajania; Ruscus, *Butcher's-broom*, or *Knee-holly*; Smilax, *Rough Bind-weed*; Tamus, *Black Bryony*; Trillium, *Three-leaved Night-shade*, or *Herb True-love of Canada*; Uvularia.

SARSAPARI'LLA (a word of Spanish origin, signifying a red tree), the *Smilax sarsaparilla* of Linnæus. *Smilax caule aculeato angulato, foliis inermibus ovatis retuso-mucronatis trinerveis.* Class, *Diœcia*. Order, *Hexandria*. This root is brought from the Spanish West Indies. It consists of a great number of long strings hanging from one head: the long roots, the only parts made use of, are of a blackish colour on the outside, and white within, about the thickness of a goose-quill, or thicker, flexible, composed of a very small woody heart, surrounded with fibres running their whole length, which renders them extremely apt to split. They have a glutinous, bitterish, not ungrateful taste, and no smell. Inferior kinds of this root are also sold. They are in general thicker, of a paler colour on the outside, and less white within, with a much thicker woody heart. Neumann got from 960 grains, 360 watery, and 10 alcoholic, extract; and inversely, 240 alcoholic, and 120 watery.

Sarsaparilla was first brought into Europe by the Spaniards, about the year 1563, with the character of being a specific for the cure of the lues venerea, a disease which made its appearance a little before that time, and likewise of several obstinate chronic disorders. Dr. Cullen, however, asserts that it is a very inert mucilaginous substance; and that the diaphoresis, which it is sometimes supposed to produce, is chiefly if not entirely owing to the warm and diluent regimen employed at the same time. "If I were to consult my own experience alone," says he, "I should not give this root a place in the materia medica: for, *tried in every shape*, I have never found it an effectual medicine in syphilis, or any other disease." But more effectually to refute the opinion that sarsaparilla possesses antisyphilitic virtues, we shall here present the reader with the remarks of Mr. Pearson, of the Lock Hospital, in London. That gentleman has divided the enquiry by two distinct questions: viz. 1. Is the sarsaparilla root, when given alone, to be safely relied on, in the treatment of lues venerea? The late Mr. Bloomfield, his predecessor, and during some years his colleague, at the Lock Hospital, solemnly declared that he never saw a single instance in his life where it cured that disorder, without the assistance of mercury, either at the same time given with it, or when it had been previously taken before the decoction was directed. Mr. Pearson's experience, during many years, coincides entirely with this assertion of Mr. Bloomfield. He says, he employed the sarsaparilla, in powder and in decoction, in an almost infinite variety of cases, and feels himself fully authorised to assert, that *this plant has not the power of curing any one form of the lues venerea.* Indeed, like the guaiacum, it is capable of alleviating symptoms derived from the venereal virus; and it even sometimes manifests the power of suspending, for a time, the destructive ravages of that contagion; but *where the poison has not been previously subdued by mercury, the symptoms will quickly return;* and, in addition to them, we often see the most indubitable proofs that the disease is making an actual progress, during the regular administration of the vegetable remedy.

Mr. Pearson's next question is: 2. When the sarsaparilla root is given in conjunction with mercury, does it render the mercurial course more certain and efficacious? In replying to this query, he observes, that the phrase, "to increase the efficacy of mercury," may imply, that a smaller quantity of this mineral antidote will confer security on an infected person, when sarsaparilla is added to it; or it may mean, that mercury would be sometimes unequal to the cure, without the aid of sarsaparilla. If a decoction of this root did indeed possess so admirable a quality, that the quantity of mercury necessary to effect a cure, might be safely reduced, whenever it was given during a mercurial course, it would form a most valuable addition to our materia medica. This opinion has been, however, unfortunately falsified by the most ample experience, and whoever shall be so unwary as to act upon such a presumption, will be sure to find his own and his patient's expectations egregiously disappointed. If the sarsaparilla root be a genuine antidote against the syphilitic virus, it ought to cure the disease when administered alone; but, if no direct proof can be adduced of its being equal to this, any arguments founded on histories where mercury has been previously given, or where both the medicines were administered at the same time, must be ambiguous and indecisive.

It appears probable, that the late Sir William Fordyce, and some other practitioners, entertained a notion, that there were certain venereal symptoms which commonly resisted the action of mercury, and that the sarsaparilla was an appropriate remedy in those cases. This opinion, it is presumed, is not correct, for it militates against all Mr. Pearson has ever observed of the progress and treatment of lues venerea. Indeed, those patients who have lately used a full course of mercury, often complain of nocturnal pains in their limbs; they are sometimes afflicted with painful enlargements of the elbow and knee joints; or they have membranous nodes, cutaneous exulcerations, and certain other symptoms, resembling those which are the offspring of the venereal virus.

It may and does often happen, that appearances like these are mistaken for a true venereal affection, and, in consequence of this error, mercury is administered, which never fails to exasperate the disease. Now, if a strong decoction of sarsaparilla root be given to persons under these circumstances, it will seldom fail of producing the most beneficial effects; hence it has been contended, that symptoms derived from the contagion of lues venerea, which could not be cured by mercury, have finally yielded to this vegetable remedy. It must be acknowledged, that representations of this kind have a specious and imposing air; nevertheless, Mr. Pearson endeavours to prove, that they are neither exact nor conclusive. If any of the above-named symptoms should appear near the conclusion of a course of mercury, when that medicine was operating powerfully on the whole system, it would be a strange and inexplicable thing if they could possibly be derived immediately from the uncontrouled agency of the venereal virus.

This would imply something like a palpable contradiction, that the antidote should be operating with sufficient efficacy to cure the venereal symptoms, for which it was directed; while, at the same time, the venereal virus was proceeding to contaminate new parts, and to excite a new order of appearances.

One source, and a very common one, to which some of the mistakes committed upon this subject may be traced, is a persuasion that every morbid alteration which arises in an infected person is actually owing to the venereal virus, and ought to be ascribed to it as its true cause. This Mr. Hunter has also suggested; and the opinion of that great practitioner, notwithstanding he occasionally directed sarsaparilla for his patients under particular circumstances, is not at all in favour of it as an *anti-venereal* remedy.

Every experienced surgeon, indeed, must be aware, that very little of truth and reality exists in the foregoing representations. The contagious matter, and the mineral specific, may jointly produce, in certain habits of body, a new series of symptoms, which, strictly speaking, are not venereal, which cannot be cured by mercury, and which are sometimes more to be dreaded than the simple and natural effects of the venereal virus. Some of the most formidable of these appearances may be sometimes removed by sarsaparilla, the venereal virus still remaining in the system; and, when the force of that poison has been completely subdued by mercury, the same vegetable is also capable of freeing the patient from what may be called the *sequelæ* of a mercurial course, in which cases chiefly Mr. Hunter directed it.

Sarsaparilla is sometimes employed in rheumatic affections, scrofula, and cutaneous complaints, where an acrimony of the fluids prevails. The officinal preparations of it are: *Decoct. smil. sars.* Edin. *Decoct. sars.* Lond. Dubl. *Decoct. sarsap. comp.* Lond. Dubl.

SARSAPARI'LLA GERMA'NICA. The root of the *Carex arenaria* of Linnæus, which grows plentifully on the sea-coast, is so named. The *carex disticha* and *hirta* have also been collected, and their roots used indifferently instead of the true sarsaparilla. The root of the carex arenaria has been found serviceable in some topical affections of the trachea, in rheumatic pains, and gouty affections, but it is seldom employed in the present practice.

SARTO'RIUS (from *sartor*, a tailor, because tailors cross their legs with it), a flat and slender muscle, the longest indeed of the human body, and from an inch and a half to two inches in breadth. It is situated immediately under the integuments, and extends obliquely from the upper and anterior part of the thigh to the upper, anterior, and inner part of the tibia, being inclosed by a thin membranous sheath, which is derived from the *fascia lata*. It arises, by a tendon of about half an inch in breadth, from the outer surface and inferior edge of the anterior superior spinous process of the ilium, but soon becomes fleshy, and runs down a little way obliquely inwards, and then for some space upon the rectus, nearly in a straight direction; after which it passes obliquely over the vastus internus, and the lower part of the adductor longus, and then running down between the tendons of the adductor magnus and the gracilis, is inserted, by a thin tendon, into the inner part of the tibia, near the inferior part of its tuberosity, and for the space of an inch or two below it. This tendon sends off a thin aponeurosis, which is spread over the upper and posterior part of the leg. The office of the sartorius is to bend the leg obliquely inwards, or to roll the thigh outwards, and at the same time to bring one leg across the other.

SA'SSAFRAS (*quasi saxafraga*, from *saxum*, a stone, and *frango*, to break; so called because a decoction of its wood was supposed good in cases of calculus); the wood of the *Laurus sassafras* Linn. *Laurus foliis trilobis integrisque.* Class, *Enneandria.* Order, *Monogynia.* Sassafras is imported from North America in long straight pieces, very light, and of a spongy texture, and covered with a rough fungous bark. It has a fragrant smell, and a sweetish, aromatic, sub-acrid taste; the root, wood, and bark, agree in their medical qualities, and are all mentioned in the Pharmacopœias; but the bark is the most fragrant, and thought to be more efficacious than the woody part, and the branches are preferred to the large pieces. This drug was formerly held in great estimation, and publications were professedly written on the subject of its virtues. It is now, however, thought to be of very little importance, and seldom used but in conjunction with other medicines, as a supposed corrector of the fluids. The officinal preparations of it are, the *Ol. volat.* Edin. Lond. *Decoct. sarsap. comp.* Lond. Dubl. *Decoct. Guaiac. comp.* Edin.

SATELLITE VEINS, a name for those veins which accompany the brachial artery as far as the bend of the cubit.

SATURATION, a term employed in pharmacy and chemistry to express that state of a body which has a power of dissolving another, to a certain extent only. Thus, nitric acid, for instance, can only dissolve a certain quantity of lime, beyond which it does not act, having lost its former affinity. Water can only be made to dissolve a certain quantity of common salt: this degree of solution is termed the *point of saturation*, and the solvent is then said to be saturated with the substance on which it has been left to act.

SATURE'JA (from *satyri*, the lustful satyrs, because it is said to make those who eat it lascivious), the *Culina sativa Plinii, vel Thymba;* summer-savory. It is a low shrub, the *Satureja sativa* of Linnæus, cultivated in our gardens for culinary purposes. It has a warm, aromatic, penetrating taste, and smells like thyme, but milder. It is an ingredient in most of the warm stews and made dishes. Its sensible effects are known to be trifling, and such are also its medical properties.

SATURE'JA CAPITA'TA; the systematic name of the ciliated savory. See THYMUS CRETICUS.

SATURE'JA HORTE'NSIS; the systematic name of the summer-savory. See SATUREJA.

SATU'RNUS (from the planet or heathen god of that name); the old chemical name for lead.

SATYRI'ASIS (σατυριασις; from σατυρος, a *Satyr*, because they are said to be greatly addicted to venery), also called *Satyriasmus*, *Priapismus*, and *Salacitas*; an excessive and violent desire for coition in men. It is a genus of disease in the class *locales*, and order *dysorexiæ*, of Cullen. The pulse in this affection is quick, and the breathing short; the patient is sleepless, thirsty, and loaths his food; the urine is evacuated with difficulty, and a fever soon comes on. These symptoms, however, are probably not so much the consequence of satyriasis, as merely concomitant effects resulting from the same cause. And indeed this affection is most frequently the concomitant of a certain modification of insanity. The nature and cause of this affection are in most instances very little ascertained; but as far as we are acquainted with the treatment, it agrees very much with the same affection in the other sex. See NYMPHOMANIA.

SATY'RION (σατυριον; from σατυρος, an animal given to venery, so called because it was supposed to excite venery if only held in the hand), dog-stones, or male orchis; the root of the *Orchis mascula bulbis indivisis, nectarii labio quadrilobo crenulato, cornu obtuso petalis dorsalibus reflexis* Linn. Class, *Gynandria.* Order, *Diandria.* This root has a place in the materia medica of the Edinburgh Pharmacopœia, on account of the glutinous slimy juice which it contains. The root of the *orchis bifolia* is also collected and dried for the same purposes. Satyrion root has a sweetish taste, a faint and somewhat unpleasant smell. Its mucilaginous or gelatinous quality has recommended it as a demulcent. The salep, which is imported from the East, is a preparation of this root. Considered as an article of diet, it is justly accounted nutritious, as containing a great quantity of farinaceous matter in a small bulk. See Salep.

SATY'RIUM. See Satyrion.

SAUCE ALONE. See Alliaria.

SAUER KRAUT, in English corruptly named *Sour Krout*, a preparation of cabbage, for which the following receipt is given:

"Take of the cabbages in common use, cut them into thin slices, put them into a cask that is previously cleaned, dried, and lined in its whole inside with the sour paste called leaven; on each layer of the sliced cabbage sprinkle a small handful of salt, and press it down. When as much is put into the cask as it will contain, after being thus forcibly pressed, and all the liquor is poured off and is squeezed out of the cabbages, cover it with a clean cloth, lay the loose cask head on, and over that any heavy weight, that the pressure may be continued. Thus, let it stand, in a warm place, until it ceases to ferment, and then it is fit for use. When used, boil a proper quantity for the present meal in water, during two hours or more, then, pouring off the liquor, add to it a little butter, and eat it as other vegetable substances."

If the cask is closed up as soon as the fermentation of the cabbage is finished, this preparation may be preserved many years. It is found to be a convenient part of seamen's diet, as a preservative from the scurvy. See Scorbutus. Of this preparation Dr. Cullen says, "As the cabbage has been subjected to an active fermentation, so a great deal of acid is evolved in it; and after what we have said above of acid as an alimentary matter, it will be readily allowed, that *Sauer kraut* may be considered as such. But as the whole of the matter is not thus converted, but that a great portion of the saccharine matter of the cabbage still remains in it, so it will be still more readily allowed, that this preparation may be considered as alimentary, and well suited to the purposes to which it has been especially applied, that is, the obviating and curing the scurvy."

SAUNDERS, RED. See Santalum rubrum.

SAUNDERS, YELLOW. See Santalum citrinum.

SAVIN, or Savine. See Sabina.

SAVINE. See Sabina.

SAVOURY. See Satureja.

SAXIFRA'GA ALBA, the white saxifrage; *Saxifraga granulata* Linn. Though that great writer has described the taste of this plant to be acrid and pungent, little of these can be discovered, either in the tubercles of the root, or the leaves. For medicinal use, therefore, though this species of saxifrage has been long employed as a popular remedy in nephritic and gravelly disorders, it is of little value; neither does it appear from its sensible qualities, or any published instances of its efficacy, to deserve a place in the materia medica. The superstitious doctrine of *signatures* suggested the use of the root, which is a good example of what Linnæus has termed *radix granulata*. The bulbs or tubercles of such roots answer an important purpose in vegetation, by supplying the plants with nourishment and moisture, and thereby enabling them to resist the effects of that drought to which the dry soils they inhabit peculiarly expose them.

SAXIFRA'GA CRASSIFO'LIA. The root of this species of saxifrage is extolled by Professor Pallas as an antiseptic.

SAXIFRA'GA GRANULA'TA; the systematic name of the white saxifrage. See Saxifraga alba.

SAXIFRA'GA RU'BRA. See Filipendula.

SAXIFRA'GA VULGA'RIS, *Hippomarathrum*, or *Fœniculum erraticum*; English or meadow saxifrage. It is the *Peucedanum silaus* of Linnæus. The roots, leaves, and seeds, of this plant have been recommended as aperients, diuretics, and carminatives; and appear, from their aromatic smell, and moderately warm, pungent, bitterish taste, to have some claim to these virtues, though they are rarely used at present.

SAXIFRAGE, BURNET. See Pimpinella.

SAXIFRAGE, ENGLISH. See Saxifraga vulgaris.

SAXIFRAGE, MEADOW. See Saxifraga vulgaris.

SAXIFRAGE, WHITE. See Saxifraga alba.

SCAB, a hard crust covering superficial ulcerations. It is formed by a concretion of the fluid discharged from them, in consequence of the evaporation of its thinner parts.

SCA'BIES; itch. It is a synonyme of Psora. See Psora.

SCABIO'SA (from *scaber*, rough; so called from its rough hairy surface), the common scabious: *Scabiosa arvensis*, *corollis quadrifidis, radiantibus; foliis pinnatifidis incisis; caule hispido*, Linn. Both the plant and its flowers are sometimes used medicinally. The plant possesses a bitter and subastringent taste. It was formerly much employed in the cure of leprous affections, whence its name, and also in diseases of the lungs.

SCABIO'SA ARVE'NSIS; the systematic name of the common field-scabious. See Scabiosa.

SCABIO'SA SUCCI'SA; the systematic name of the devil's-bit scabious. See Morsus diaboli.

SCA'LA TY'MPANI; the superior spiral cavity of the cochlea.

SCA'LA VESTI'BULI; the inferior spiral cavity of the cochlea.

SCALD-HEAD, the vulgar name for tinea capitis. See Tinea capitis.

SCALE, a lamina of morbid cuticle, hard, thickened, whitish, and opake, having at first the figure and extent of the cuticular lozenge; which afterwards often increases into irregular layers, or crusts. Both scales and crusts repeatedly fall off, and are reproduced in a short time.

SCALE'NI MUSCULI (*Scalenus*, from σκαληνος, *irregular* or *unequal*). Anatomical writers have differed greatly in their descriptions of this muscle, which is situated at the side of the neck, between the transverse processes of the cervical vertebræ and the upper part of the thorax. The ancients, who named it from its resemblance to an irregular triangle, considered it as one muscle. Vesalius and Winslow, however, have divided it into two; Fallopius and Cowper into three; Douglas into four, and Albinus into five portions, each of which they describe as a distinct muscle. Without deviating in the least from anatomical accuracy, Dr. Hooper thinks it may be considered as one muscle, divided into three portions. The anterior portion arises commonly from the transverse processes of the six inferior vertebræ of the neck, by as many short tendons, and descending obliquely outwards, is inserted, tendinous and fleshy, into the upper side of the first rib, near its cartilage. The axillary artery passes through this portion, and sometimes divides it into two slips, about an inch and a half above its insertion. The middle portion arises, by distinct tendons, from the transverse processes of the last four vertebræ of the neck, and descending obliquely outwards and a little backwards, is inserted tendinous into the outer and upper part of the first rib, from its root to within the distance of an inch from its cartilage. The space between this and the anterior portion, affords a passage to the nerves going to the upper extremities. It is in part covered by the third or posterior portion, which is the thinnest and longest of the three. This arises from the transverse processes of the second, third, fourth and fifth vertebræ of the neck, by distinct tendons, and is inserted into the upper edge of the second rib, at the distance of about an inch and a half from its articulation, by a broad flat tendon. The scalenus moves the neck to one side, when it acts singly, or bends it forwards, when both muscles act; and when the neck is fixed, it elevates the ribs and dilates the chest at the same time.

SCALE'NUS PRIMUS. See Scaleni musculi.

SCALE'NUS SECUNDUS. See Scaleni musculi.

SCALE'NUS TERTIUS. See Scaleni musculi.

SCALPELLA'TUM, a term by some authors used in the same sense as the Greeks applied φιμωσις, for a denudation of the glans of the penis, when the prepuce could not be drawn over it.

SCALPING, the operation of laying the skull bare. It is required in the use of the trephine when the bone has been fractured or depressed.

SCA'LPRUM (from *scalpro*, to *rasp* or *raise)*; a lenticular or raspatory, an instrument called also a rugine.

SCAMMO'NIUM (of the Gr. σκαμμωνια; a corruption of the Arabian word *chamozah)*, scammony; a concrete gum-resin; the juice of the *Convolvulus scammonia; foliis sagitatis postice truncatis, pedunculis teretibus subtifloris* Linn. Class, *Pentandria.* Order, *Monogynia.* The milky juice of the root affords the officinal scammony, which is procured in the following manner by the peasants who collect it in the beginning of June: having cleared away the earth from about the root, they cut off the top in an oblique direction, about two inches below where the stalks spring from it. Under the most depending part of the slope they fix a shell, or some other convenient receptacle, into which the milky juice gradually flows. It is left there about twelve hours, which time is sufficient for draining off the whole juice: this, however, is in small quantity, each root affording but a very few drachms. The juice from the several roots, being put together, in a little time, grows hard, and is the genuine scammony. It is brought from Aleppo and Smyrna in masses, generally of a light shining grey colour, and friable texture; of rather an unpleasant smell, and bitterish and slightly acrid taste. The scammony of Aleppo is by far the purest. That of Smyrna is ponderous, black, and mixed with extraneous matters.

Scammony appears to have been well known to the Greek and Arabian physicians. It is an efficacious and strong purgative. Some have condemned it as unsafe, and laid various ill qualities to its charge; the principal of which is, that its operation is uncertain, a full dose proving sometimes ineffectual, whilst at others a much smaller one occasions dangerous hypercatharsis. This difference, however, is owing entirely to the different circumstances of the patient, and not to any bad quality, or irregularity of operation, of the medicine. Where the intestines are lined with an excessive load of mucus, the scammony passes through, without exerting itself upon them; where the natural mucus is deficient, a small dose of this or any other resinous cathartic, irritates and inflames. Many have endeavoured to diminish the activity of this drug, and to correct its imaginary virulence, by exposing it to the fumes of sulphur, dissolving it in acids, and the like: but these only destroy a part of the medicine, without making any alteration in the rest. Scammony in substance, judiciously managed, stands not in need of any corrector: if triturated with sugar, or with almonds, it becomes sufficiently safe and mild in its operation. It may likewise be conveniently dissolved, by trituration, in a strong decoction of liquorice, and then poured off from the feces. The common dose of scammony is from three to ten or twelve grains.

Scammony enters the following officinal preparations: *Elect. scammon.* Lond. Dubl. *Pulv. scam. comp.* Lond. Edin. Dubl. *Pulv. scam. cum aloe*, Lond. *Pulv. scam. cum calom.* Lond. *Extract. coloc. comp.* Lond. *Pulv. senn. comp.* Lond. *Pil. aloes cum coloc.* Edin.

SCAMMONY. See Scammonium.

SCA'NDIX CEREFO'LIUM; the systematic name of the officinal chervil. See Cerefolium.

SCA'NDIX ODORA'TA; the systematic name of the sweet cicely, a plant which possesses virtues similar to those of the common chervil. See Cerefolium.

SCA'PHA (σκαφη; a *skiff*, or *cock-boat;* from σκαπτω, to make hollow, because formerly they were made by excavating a large tree), a name for the excavation or cavity of the auricula or external ear, situated between the helix and antihelix.

SCA'PHOID BONE; a bone of the tarsus. See Scaphoides.

SCAPHOI'DES OS (σκαφοειδης; from σκαφη, a *skiff*, and ειδος, a *likeness;* applied to the first bone of the first row in the wrist, from its resemblance to a little boat). See Naviculare os.

SCA'PULA (from the Hebrew *schipha);* the shoulder-blade. This bone approaches nearly to a triangular figure. It is fixed to the upper, posterior, and lateral part of the thorax, extending from the first to about the seventh rib. Its anterior and internal surface is irregularly concave, from the impression, not of the ribs, as most anatomical writers have supposed, but of the subscapularis muscle. Its posterior and external surface is convex, and divided into two unequal fossæ by a considerable spine, which, rising small from the posterior edge of the scapula, becomes gradually higher and broader as it approaches the anterior and superior angle of the bone, till at length it terminates in a broad and flat process, at the top of the shoulder, called the *processus acromion*. On the anterior edge of this process there is an oblong, concave, articulating surface, which is covered with cartilage, for the articulation of the scapula with the clavicle. At its lower part the acromion is hollowed, to allow a passage to the supra and infra spinati muscles. The ridge of the spine affords two rough, flat surfaces, for the insertion of the trapezius and deltoid muscles. Of the two fossæ into which the external surface of the bone is divided by the spine, the superior one, which is the smallest, serves to lodge the supra spinatus muscle; and the inferior and larger fossa, gives origin to the infra spinatus.

In demonstrating this bone, the triangular shape of the scapula leads us to consider its angles and its sides. The upper posterior angle is neither so thick, nor has so rough a surface, as the inferior one: but the most remarkable of the three angles of this bone is the anterior one, which is of great thickness, and formed into a glenoid cavity of an oval shape, the greatest diameter of which is from below upwards. This cavity, in the recent subject, is furnished with cartilage, and receives the head of the os humeri. The cartilaginous crust, which surrounds its brims, makes it appear deeper in the fresh subject than in the skeleton. A little beyond this glenoid cavity the bone becomes narrower, so as to give the appearance of a neck; and above this rises a considerable process, which, from being thick at its origin, becomes thinner, and in some degree flattened at its extremity. This process projects considerably, and is curved downwards. From its supposed resemblance to the beak of a bird, it is called the *coracoid process*. From the whole external side of this process, a strong and broad ligament is stretched to the processus acromion, becoming narrower as it approaches the latter process, so as to be of a somewhat triangular shape. This ligament, and the two processes with which it is connected, are evidently intended for the protection of the joint, and to prevent a luxation of the os humeri upwards. Of the three sides of the scapula, the posterior one, which is the longest, is called the *basis*, which is turned towards the vertebræ. Its other two sides are called *costæ*. The superior, which is the upper and shortest, is likewise thinner than the other two, having a sharp edge. It is nearly horizontal, and parallel with the second rib; and is interrupted, near the basis of the coracoid process, by a semicircular nitch, which is closed by a ligament that extends from one end of it to the other, and affords a passage to vessels and nerves. Besides this passage, there are other nitches in the scapula, for the transmission of vessels; viz. one between the coracoid process and the head of the bone, and another between its neck and the processus acromion. The third side of the scapula, or the inferior costa, as it is called, is of considerable thickness, and extends obliquely from the neck of the bone to its inferior angle, reaching from about the third to the eighth rib. The scapula has but very little cellular substance, and is of unequal thickness, being very thin at its middle part, where it is covered by a great number of muscles, and having its neck, the acromion, and coracoid process, of considerable strength.

The *use* of the scapula is, to serve as a fulcrum to the arm; and, by altering its position on different occasions, to allow always the head of the os humeri a well-situated socket to move in: and thereby to assist and to enlarge greatly the motions of the superior extremity, and to afford the muscles which rise from it more advantageous actions, by altering their direction to the bone which they are to move. This bone also serves to defend the back part of the thorax, and is often employed to sustain weights, or to resist forces, too great for the arm to bear.

The base, acromion, coracoid process, and head of the scapula, are all in a cartilaginous state at birth; and the first three are joined as epiphyses; while the head, with the glenoid cavity, is not formed into a distinct separate bone, but is gradually produced by the ossification of the body of this bone being continued forwards.

SCARBOROUGH WATER, a ferruginous spring found at Scarborough, in Yorkshire. There are two species of this chalybeate water produced in this place, and they differ considerably in their composition, though they rise nearly contiguous to each other. The one is a simple carbonated chalybeate similar to that at Tunbridge; the other, which is better known, more frequented, and more particularly distinguished as Scarborough water, has, in conjunction with the iron, a considerable admixture of a purging salt, which adds much to its value. The diseases in which it is ordered are similar to those in which Cheltenham water is prescribed, only it is frequently necessary to increase the purgative effect of this water by adding similar salts. It is therefore chiefly as an alterative that this water can be employed in its natural state.

SCARF-SKIN. See EPIDERMIS and SKIN.

SCARIFICATION; a superficial incision made with a lancet, or other chirurgical instrument called a scarificator, through the skin.

SCARIFICA'TOR, an instrument to scarify a part. It is very conveniently effected by a number of points set in a plane, which are all struck into the part at once.

SCARI'OLA. See LACTUCA SYLVESTRIS.

SCARI'OLA GALLO'RUM; a name sometimes given to the *lactuca scariola*. See LACTUCA SYLVESTRIS.

SCARLATI'NA (from *scarlatto*, Ital. a lively red); the scarlet fever. It is a genus of disease in the class *pyrexiæ*, and order *exanthemata*, of Cullen; characterised by contagious synocha; the fourth day the face swells; a scarlet eruption appears on the skin in patches;

which after three or four days ends in the desquamation of the cuticle, or is succeeded by anasarca. It has two species: 1. *Scarlatina simplex*, the mild. 2. *Scarlatina cynanchica*, or *anginosa*, with sore-throat.

With various general symptoms of fever, the patient at first complains of a dejection of spirits, a slight soreness or rather stiffness in the neck, with a sense of straitness in the muscles of the neck and shoulders, as if they were bound with cords. The second day of the fever this soreness in the throat increases, and the patients find a difficulty in swallowing; but the difficulty seems less occasioned by the pain excited in the attempt, or by the straitness of the passage, than by an inability to throw the necessary muscles into action. The skin feels hot and dry, but not hard; and the patients experience frequent, small, pungent pains, as if touched with the point of a needle. The breath is hot and burning to the lips, and thirst makes them wish to drink; but the tendency to sickness, and the exertions necessary in deglutition, are so unpleasant, that they seldom care to drink much at a time. They have much uneasiness also from want of rest during the night. In the morning of the third day, the face, neck, and breast, appear redder than usual: in a few hours this redness becomes universal; and increases to such a degree of intensity, that the face, body, and limbs, resemble a boiled lobster in colour, and are evidently swollen. Upon pressure the redness vanishes, but soon returns again. The skin is smooth to the touch, nor is there the least appearance of pimples or pustules. The eyes and nostrils partake more or less of the general redness; and in proportion to the intensity of this colour in the eyes, the tendency to delirium prevails.

Things continue in nearly this state for two or three days longer, when the intense scarlet gradually abates, a brown colour succeeds, and the skin becoming rough, peels off in small scales. The tumefaction subsides at the same time, and the patients gradually recover their strength and appetite. During the whole course of the disease, the pulse is quick, small, and uncommonly feeble; the urine small in quantity: the sub-maxillary glands somewhat enlarged and painful to the touch. The velum pendulum palati, the uvula, the tonsils, and gullet, as far as the eye can reach, partake of the general redness and tumefaction; but although collections of thick mucus, greatly resembling the specks or sloughs in the putrid sore-throat, sometimes occur, yet those are easily washed off; for real ulcerations of those parts were never observed.

These are the most usual appearances of this disorder: but it too frequently assumes a much more fatal form. In some children the delirium commences in a few hours after the first attack; the skin is intensely hot; the scarlet colour appears on the first or second day, and they die very early on the third. Others again, who survive this rapid termination, instead of recovering, as is usual, about the time the skin begins to get its natural colour, fall into a kind of lingering, and die at last in the course of six or eight weeks. In adults, circular livid spots were frequently observed about the breast, knees, and elbows; also large blotches of red, and others of white intermixed, and often changing places.

In the month of October, when the air becomes colder, the scarlet colour of the skin was both less frequent and less permanent. Many patients had no appearance of it at all; whilst others, especially adults, had a few minute red pimples, crowned with white pellucid heads. The inside of the throat was considerably tumefied; its colour a dull red, sometimes tending to a livid. The pulse beat in general a hundred and thirty, or a hundred and forty strokes in a minute; was small, but hard, and sometimes sufficiently so to justify the opening of a vein; and the blood thus taken away, in every instance when cool, appeared sizy, and the whole crassamentum firm.

Unhappily, the baneful influence of this disorder does not terminate with the febrile symptoms; but, in ten or fifteen days from the cessation of the fever, and when a complete recovery might be expected, another train of symptoms occur, which at last frequently terminate fatally. The patients, after a few days' amendment, feel a something that prevents their further approach to health; an unaccountable languor and debility prevails, a stiffness in the limbs, an accelerated pulse, disturbed sleep, disrelish to food, and a scarcity of urine. These symptoms, we are told, are soon succeeded by swelling, of a real dropsical nature, forming sometimes an anasarca, and on other occasions an ascites; and not unfrequently scarlatina has proved fatal from supervening hydrothorax in consequence of the effusion of water into the chest. It is unnecessary to remark, that when this happens, a fatal termination is more sudden than from any other modification of dropsy.

With regard to the diagnosis in this complaint, Dr. Withering observes, that it may be distinguished from the *petechial fever*, by the eruption in the latter appearing seldom before the fourth day, by the regularity and distinctness of the spots, and by its principally occupying the neck, the back, and the loins. On the other hand, in the scarlet fever, the eruption generally appears about the third day; consists either of broad blotches, or else one continued redness, which spreads over the face and the whole body.

In the fever called *purpurea*, the pustules are prominent, keep their colour under pressure, and never appear early in the disease; whereas in the scarlet fever, the eruption appears more early, is not prominent, but perfectly smooth to the touch, and becomes quite white under pressure. Although the *purple fever* and *scarlatina* may be connected by some general cause, yet they cannot be mere modifications of the same eruption: for examples occur, of the same person being first seized with one of these disorders, and afterwards with the other; but Dr. Withering never met with an instance of the same person having the scarlet fever twice; and he believes it to be as great an improbability as a repetition of the small-pox.

This disorder is particularly *distinguished from the measles*, we are told, by the want of that cough, watery eye, and running at the nose, which are known to be the predominant symptoms in the early state of the measles, but are never known to exist in the scarlatina. From the *erysipelas* this disease is distinguishable, by the limited seat of the former, together with its not being contagious.

The *ulcerated sore-throat*, however, is more difficult to distinguish from this disease than any other; and yet the distinction is a matter of the greatest importance, as the method of treatment, according to Dr. Withering, ought to be extremely different.—But although, in a number of circumstances, these two diseases bear a very great resemblance, yet, with a little attention, the one may in general, he thinks, be distinguished from the other. From Dr. Fothergill's account of the sore-throat attended with ulcers, our author has made out the following characteristical circumstances of the two diseases, contrasted to one another.

Scarlatina Anginosa.	*Angina Gangrenosa.*
Season. . . Summer . . Autumn.	*Season* . . Spring . . Winter.
Air . . . Hot . . Dry.	*Air.* . . Warm . . Moist.
Places . . High . . Dry . . Gravelly.	*Places* . . . Close . . Low . . Damp . . Moist.
Subjects. Vigorous. Both sexes alike. . . Robust in most danger.	*Subjects.* Delicate . . women and female children. Robust adults not in danger.
Skin. Full scarlet..smooth . . if pimply, the pimples white at the top . . Always dry and hot.	*Skin.* Red tinge . . pimply . . The pimples redder than the interstices . . bedewed with sweat towards morning.
Eyes. Shining, equable, intense redness, rarely watery.	*Eyes.* Inflamed and watery, or sunk, and dead.
Throat. In summer, tonsils, &c. little tumefied; no slough . . In autumn more swelled. Integuments separating . . Slough white.	*Throat.* Tonsils, &c. considerably swelled and ulcerated . . . Sloughs dark brown.
Breath. Very hot, but not fetid.	*Breath.* Offensive to the patients and assistants.
Voice. In summer, natural.	*Voice.* Flat and rattling.
Bowels. Regular at the accession.	*Bowels* . . Purging at the accession.
Blood. Buffy . . Firm.	*Blood* . . Florid . . Tender.
Termination. The 3d, 5th, 8th, or 11th day.	*Termination.* No stated period.
Nature. Inflammatory.	*Nature.* Putrid.

Dr. Withering remarks, that all the above contrasted symptoms will not be met with in every case, but it is enough that some of them appear, and that if conjoined with the consideration of the prevailing constitution, they enable us to direct that mode of treatment which will most contribute to the relief of the sick.

But notwithstanding the attention which Dr. Withering has bestowed upon this subject, we are still inclined to think, that the disease which he has so accurately described under the title of *scarlatina anginosa*, is in reality the same affection with the malignant ulcerous sore-throat of Huxham and Fothergill. During different epidemics, this disease, like the small-pox and measles in different seasons, is considerably varied in its appearance. But still there occurs such a similarity as clearly marks the sameness of the affection. And indeed this, as in the case of the small-pox, is abundantly demonstrated, by infection from one contagion giving protection against succeeding ones, although the appearances be much varied. This has particularly appeared at Edinburgh, where the disease prevailed as an epidemic on three different years, viz. 1774-5, 1782-3, and 1789-90. During the first of these, in the greater number of patients, the sore-throats were of a very gangrenous malignant nature: during the second, the disease more commonly appeared under the form of what might be called *simple scarlatina:* and during the third epidemic, the contagion was, if we may be allowed the expression, of an intermediate nature. But it is further to be remarked, that during every one of those epidemics, when several children of a family were at the same time subjected to the infection, in one the disease would have been attended with almost all the symptoms mentioned in the column of *scarlatina anginosa*, with respect to skin, eyes, throat, breath, bowels, terminations of the affection, &c. In another, would have occurred all the symptoms with respect to those particulars which he has mentioned under the column of *angina gangrenosa.* While at the same time, in numberless instances, even in the same patient, the disease at its commencement has shewn evident marks of an inflammatory, and at its termination of a putrid, tendency. And there cannot be a doubt, that both the scarlatina anginosa, and angina gangrenosa, as described by Fothergill and Huxham, have occurred in every season and situation, and have affected persons of every age and constitution not before subjected to either disease.

Dr. Withering affirms: That the immediate cause of this disease is a poison of a peculiar kind, communicable by contagion. 2. That this poison first takes possession of the mucous membrane lining the fauces and the nose; and either by its action upon the secretory glands, or upon the mucus itself, assimilates that mucus to its own nature. 3. That it is from this beginning, and from this only, that it spreads to the stomach, &c. and at length acts upon the system at large. 4. That its first action upon the nerves is of a sedative or a debilitating nature. 5. That in consequence of certain laws of the nervous system, when the debilitating effects operate upon the sensorium commune, a reaction takes place; and that this reaction is, *cæteris paribus*, proportioned to the debilitating power. 6. That, in consequence of this reaction of the nervous system, the vibratory motion of the capillary blood-vessels dependent thereon is greatly increased; an unusually large quantity of blood is accumulated in those vessels; the heart and large blood-vessels are deprived of their customary proportion; and hence, though stimulated to more frequent contraction, the pulse must necessarily be feeble. 7. That as violent exertions are followed by debility, upon the cessation of the fever, the capillary vessels, which had acted with such unusual violence, are left in a state of extreme debility, and are long in recovering their tone; hence it is that so many patients afterwards become dropsical.

The different remedies, which either are in common use or have been recommended as proper in this disease, next come under our consideration.

Blood-letting has been recommended by authors; but such was the state of the pulse in this disorder, at least during the summer-months, that Dr. Withering found it not, in any instance, advisable to take away blood. In some cases, indeed, where the fiery redness of the eyes seemed to demand the use of leeches, they were had recourse to, but never with any advantage. In the harvest months, when the pulse was more firm, and when suffocation seemed to be threatened from the swelling in the fauces, blood-letting was sometimes advised: but still with less advantage than one would have expected in almost any other situation.

Vomiting. This, our author observes, seems to be the remedy of nature; and he is surprised how it should have been omitted by several authors who have gone before him. Vomiting, he says, most amply fulfils the indications arising both from a consideration of the cause and of the effects; and a liberal use of this remedy he holds forth as the true foundation for successful practice in scarlet fever and sore-throat. His common form of emetic is a combination of antim. tartar. and ipecacuanha, given in pretty smart doses; and these are to be repeated at least once in forty-eight hours, and in the worst cases so often as twice in the twenty-four hours.

Purging. The action of purgatives is considered by Dr. Withering as altogether repugnant to the curative indications in this disease: for the poison, as formerly remarked, being received into the system by the fauces, the operation of a purge, instead of discharging it, can only promote its diffusion along the alimentary canal; and in fact, we are told, that when even a spontaneous purging supervenes in this disease, the patients sink so amazingly fast, that it is not within the reach of art to support them. When, however, a considerable quantity of acrid matter, passing from the fauces into the stomach, makes its way to the rectum, a considerable degree of looseness often takes place. And although evacuations from the system in general by means of cathartics may be hurtful, yet patients often obtain great relief from a free discharge of this matter; and by discharging it, purgatives have the effect even of preventing an evacuation from the system, which would otherwise take place.

Sudorifics. Cordials. Alexipharmics. None of these medicines were found beneficial. With respect to cordials, Dr. Withering observes, that although they seem to be indicated by the great loss of strength and feeble pulse, yet the certain consequence of their use always was, an increase of restlessness, of the delirium, and of the heat.

Diuretics. These were found very beneficial. The vegetable fixed alkali is recommended as the most proper article of this kind: a drachm or two may be easily swallowed every twenty-four hours, by giving a small quantity in every thing the patient drinks. Diuretics, however, have been found principally serviceable, by practitioners in general, in those cases where the urine is observed to be scanty, and where dropsical symptoms have taken place.

Cinchona. No medicine, we apprehend, ever had a fairer trial in any disease than the Peruvian bark had in this epidemic; for the feeble pulse, great prostration of strength, with here and there a livid spot, were thought to be such undeniable evidences of a putrid tendency, that the bark was poured down with an unsparing hand. But this was only at first; for these livid spots and the sloughs in the throat being found to be the effects of inflammation instead of putrefaction, and the bark instead of diminishing, rather increasing these symptoms, it was at last entirely laid aside by Dr. Withering in his practice. But although Peruvian bark may not have been successful with a particular epidemic at a particular place; yet from the concurring testimony of other practitioners, it is very commonly found to be productive of good effects: and there is perhaps no remedy in which greater dependence is in general put, particularly in the advanced periods of the disease, where the fœtor is considerable.

Upon the same principles that the bark was prescribed, carbonic gas was at first likewise advised, but with no evident effects either one way or another. Dulcified acids were also had recourse to, but with no advantage.

Opiates. These, although recommended by some authors for the removal of inquietude and watchfulness, yet in this epidemic, instead of effecting these purposes, always increased the distress of the patient.

Blisters. In the summer appearance of the disease, blisters were universally detrimental; they never failed to hasten the delirium; and if the case was of the worst kind, they too often confirmed its fatal tendency. But although this may have been the case during the epidemics which Dr. Withering describes, it has by no means been generally observed. On the contrary, by the early application of blisters to the external fauces, both the glandular swellings and likewise the discharge from the mouth and fauces have been much diminished; and practitioners have believed, not without probable reason, that the after-affections of the throat, were less considerable than would otherwise have been the case. Dr. Withering allows, that in the autumnal season, when the inflammation was less generally diffused through the body, they were less detrimental; but he thinks that they did not here produce any beneficial effects.

Injected gargles, of sage tea with honey and vinegar, or those prepared of contrayerva decoction, sweetened with oxymel of squills, &c. will be found very beneficial in bringing away large quantities of viscid ropy mucus from the fauces. The immersion of the feet and legs in warm water, although it did no harm, yet did not either procure sleep, or abate the delirium, as it frequently does in other kinds of fever. As in summer it was found difficult to keep the patients sufficiently cool, they were ordered to lie upon a mattress instead of a feather-bed; a free circulation of air was kept up; and where the patients' strength would admit of it, they were ordered frequently out of doors. Animal food and fermented liquors were denied them, and nothing allowed but tea, coffee, chocolate, milk and water, gruel, barley-water, and such-like diluents.

With respect to the dropsical disorder which so frequently succeeds to this complaint, it was never observed, Dr. Withering remarks, when the preceding symptoms had been properly treated. When called upon to patients in the dropsical state, he began his practice by a dose of calomel at night, and a purgative in the morning. When a febrile pulse attended the other symptoms, emetics were useful, as well as the saline draughts and other neutral salts. When great debility, comatose or peripneumonic symptoms occurred, blisters were found very serviceable: but when dropsical symptoms were the principal cause of complaint, small doses of rhubarb and calomel were advised; recourse was also had to diluted solutions of fixed alkalis, squills, Seltzer water, and other diuretics. When the urine flows freely, iron and other tonics are recommended; together with gentle exercise, well-seasoned food, wine, and the wearing of flannel in contact with the skin.

Dr. Withering recites a number of cases, treated according to the principles above laid down. The successful termination of these cases demonstrates the propriety of the practice which he has recommended; at least for the epidemic under the form in which it then appeared.

SCARLET FEVER. See SCARLATINA.

SCA'TICA CRESSES. See IBERIS.

SCHARBOCK, a Danish name for the scurvy, when it is attended with livid spots.

SCHERO'MA; a driness of the eye from a want of the lachrymal fluid. The effects are, of the lachrymal fluid being deficient, the eyes become dry, and in their motions produce a sensation as though sand, or some gritty substances, were between the eye and the eyelid; the vision is obscured, the globe of the eye appears foulish and dull, a symptom unfavourable in acute diseases. The species described by authors are: 1. *Scheroma febrile*, or a driness of the eyes, which is observed in fevers, complicated with a phlogistic diathesis of the blood. 2. *Scheroma exhaustorum*, which happens after great evacuations, and in persons dying. 3. *Scheroma inflammatorum*, which is a symptom of the opthalmia sicca. 4. *Scheroma itinerantium*, or the driness of the eyes, which happens in sandy places to travellers, as in the deserts; or from dry winds, which dry up the humidity necessary for the motion of the eyes. Few remedies succeed better in this complaint, than a weak solution of ether in rose-water, dropped into the eye.

SCHIST, a name given to several different kinds of stones, but more especially to some of the argillaceous kind; as, 1. The bluish-purple schistus, *schistus tegularis* or common rough-slate. This is so soft that it may be slightly scraped with the nail, and is of a very brittle lamellated texture, of the specific gravity of 2,876. It is fusible *per se* in a strong heat, and runs into a black scoria. By a chemical analysis it is found to consist of 26 parts of argillaceous earth, 46 of siliceous earth, 8 of magnesia, 4 of calcareous earth, and 14 of iron. The dark-blue slate, or schistus scriptorius, contains more magnesia and less iron than the common purple schistus, and effervesces more briskly with acids. Its specific gravity is 2,701. 2. The *pyritaceous schistus* is of a grey colour, brown, blue, or black; and capable of more or less decomposition by exposure to the air, according to the quantity of pyritous matter it contains and the state of the iron in it. When this last is in a semi-phlogisticated state it is easily decomposed; but very slowly, or not at all, if the mass is much dephlogisticated. The aluminous schistus belongs to this species. 3. The *bituminous schistus* is generally black, and of a lamellated texture, of various degrees of hardness, not giving fire with steel, but emitting a strong smell when heated, and sometimes without being heated. M. Magellan mentions a species which burns like coal, with a strong smell of mineral bitumen, but of a yellowish brown, or rather dark ash, colour, found in Yorkshire. This kind of schistus does not shew any white mark when scratched, like the other schistus.

SCHLOT. The brine from which our table salt is obtained, is evaporated in large iron pans. At the beginning of the evaporation, the detached earth and the selenites separate and precipitate; and the selenites carries with it a great quantity of Glauber's salt. This precipitate forms a matter which has an earthy appearance, and is called *Schlot*, or *Scratch*, by the workmen.

SCHOENA'NTHUS (*σχοινανθος*; from *σχοινος*, *a rush*, and *ανθος*, *a flower)*; the sweet-rush, or camel's hay. See JUNCUS ODORATUS.

SCHORL, or *Shirle*, or *Cockle*, a species of stone of the garnet kind, belonging to the siliceous class. It is called *Schoerlus* by Bergman, *Lapis corneus chrystallizatus* by Wallerius, and *Stannum chrystallis columnaribus* by Linnæus. It is hard and heavy, shooting into crystals of a prismatic figure, principally of a black or green colour. The name *cockle* for these kinds of stones is an old Cornish word; but is sometimes also applied to very different substances. The term *shirl* is adopted from the Germans. The English mineral name of *call* has also been used by some authors as synonymous with *cockle*, and these are even confounded together at the mines; but the *call*, definitively speaking, is the same with the substance called *wolfram* by the Germans. The specific gravity of these stones is between 3000 and 3400, though always in proportion to their different solidities. They crack in the fire, and are very difficult to be fused; resisting both microcosmic salt and mineral alkali. They cannot totally be dissolved in nitrous acid; but the dissolved part is precipitated in a gelatinous form on the addition of an alkali. On a chemical analysis they are found to contain siliceous earth, argil, calcareous earth, and iron; which last is found in a much greater quantity when they are opaque than when transparent. According to Bergman, some contain 55 parts of siliceous earth, 39 of argillaceous, and 6 of pure calcareous earth; but some contain 10 or 12 of magnesia. In

Britain they are chiefly found in Cornwall, about the tin mines, and some fine crystallised kinds have been brought from Scotland. There are four varieties of this mineral; but it is not used medicinally.

SCIA'TICA, the same as *Ischias;* a rheumatic affection of the hip joint. See ISCHIAS.

SCIA'TIC ARTERY, or *Ischiatic artery;* a branch of the internal iliac. See ARTERIES.

SCIA'TIC NERVE, or *Ischiatic nerve*, a branch of a nerve of the lower extremity, formed by the union of the lumbar and sacral nerves. It is divided, near the popliteal cavity, into the tibial and peroneal portions, which are distributed to the leg and foot.

SCIA'TIC NOTCH, or *Ischiatic notch.* See INNOMINATUM OS.

SCI'LLA (of the Gr. *σκιλλα*; from *σκιλλω*, to *dry;* so called from its supposed property of drying up humours), *Ornithogalum maritimum* vel *Squilla*, the squill or sea-onion. *Scilla maritima* Linn. *Scilla nudiflora, bracteis refractis.* Class, *Hexandria.* Order, *Monogynia.* The squill is a native of Spain, Sicily, and Syria, growing on the sea-coast. The red-rooted variety has been supposed more efficacious than the white, and is therefore still preferred for medicinal use. The root of the squill appears to have been known as a medicine in the early ages of Greece.

It is about the size of a man's fist, pear-shaped, with the apex upwards, and consists of fleshy scales, attenuated at both edges, surrounded by other scales, which are arid, shining, and so thin that the root at first sight seems to be tunicated. The recent roots are full of a clear viscid juice, have scarcely any smell, but a very bitter, nauseous, and extremely acrid, taste. Rubbed on the skin, it inflames and blisters. It is more commonly met with in the shops, in the form of the dried scales, which should be brittle, semipellucid, smooth, but marked with lines; and when chewed, should feel tenacious, and taste very bitter, without manifest acrimony. The active constituent of the squill is the acrid principle; and, therefore, it becomes almost inert by too much drying, or by being kept too long in the form of powder. It also contains bitter extractive matter, much mucilage, albumen, and starch.

Dr. Cullen says this root has been celebrated as an expectorant and diuretic from the most ancient times; and, under a proper management, it seldoms fails to operate more or less as such. It has not, however, any specific power, as it seems to be universally stimulant with respect to every sensible part or excretory to which it is applied. It readily stimulates the stomach, and proves emetic, insomuch as to have been formerly employed solely in the latter character. When so managed as to pass the stomach, it stimulates the intestines, and proves purgative; and when carried into the mass of blood, it is generally found to stimulate the mucous glands of the lungs, and to prove an expectorant.

Proving thus so generally stimulant, we can readily understand why it would prove a diuretic; and Dr. Cullen says, that probably it has something, in the nature of the acrimony it contains, that suits it to be taken up, and to pass readily by the kidneys, where its acrimony increases the secretion.

This effect, however, does not uniformly happen; for if it be thrown into the stomach in such quantity as to prove emetic or purgative, it is thereby prevented from reaching the blood-vessels and kidneys. To obtain its diuretic effects, therefore, we must avoid its emetic and purgative operations, which, Dr. Cullen says, may commonly be done by giving the squill in small doses, to be repeated after proper intervals only; and he found, that by accompanying this root with an opiate, the emetic and purgative operation of it was avoided, and the effects more entirely exercised on the kidneys.

Since it appears that the squill, when operating strongly on the stomach and intestines, is the less likely to shew its diuretic effects, and as it contains an acrimony that is in part very volatile, and most subject to act on the stomach, the fresh root is a less desirable remedy where the latter operation is required, than the squill in a dried state. It is on this account, in fact, that the dried squill is more frequently employed in dropsical cases than the fresh. The drying of the squill, however, is a business that requires much attention, as it may readily be overdone, and the remedy by that means rendered entirely useless: and it is to be observed also, that the squill may not only be rendered inert by an excess of heat in the first drying, but that the dry powder itself, if kept long in dry air, will also, in time, lose much of its power. This overdrying of the squill, in one way or other, happens more frequently than many are aware of; and it has led Dr. Cullen to allow, that some operation on the stomach, some nausea excited by the squill, is a *necessary test* of its activity.

When the squill is in good condition, to avoid its operation on the stomach and intestines, it has been said, that it should be given in small doses, and repeated after long intervals only; but it is proper to observe here, that when the disease requires a repetition, the doses of the squill, as they are repeated, may be gradually increased, and the intervals of their exhibition made shorter; and when they come to be tolerably large, it is then that an opiate may be conveniently employed in directing the operation of the squill more certainly to the kidneys.

When there is an effusion of water into the cavities, and therefore less water goes to the kidneys, Dr. Cullen says, that a neutral salt accompanying the squill may be of use in determining this more certainly to the kidneys: and whenever it can be perceived that it takes this course, he is persuaded that it will also be always useful, and generally safe, during the exhibition of the squill, to increase the usual quantity of drink.

To the question, whether the diuretic operation of squill may not be assisted by some mercurial preparation given at the same time? Dr. Cullen replies, that when there is any appearance of the medicine going to the kidneys, it cannot be doubted that mercury, as stimulating every excretory to which it is applied, must here also be useful. Accordingly it has been a frequent practice to join mercury with squills; but there is reason to doubt, if the common practice of employing *calomel* on this occasion be proper. Calomel determines the squill more certainly to operate by stool; and unless the cure of the disease is to be trusted entirely to purging, the calomel may readily prevent the diuretic operation of the squill. Dr. Cullen therefore preferred the less purgative preparations of mercury, as being better suited to the intended purpose. With this view he prescribed a solution of the hydrarg. muriat. which so often, of itself, goes to the kidneys, as being more proper than any other.

The Colleges direct proper caution to be used in drying squills. That of Edinburgh orders it to be done thus:

> "Cut the squills, after having removed their membranaceous integuments, as thin as possible, and suspend the cut slices in the shade to dry. When dry, reduce them to powder, which is to be kept in a corked phial."

By this method the squill dries much sooner than when its several coats are only separated; the internal part being here laid bare, which, in each of the entire coats, is covered with a thin skin, that impedes the exhalation of the moisture. The root loses in this process four-fifths of its original weight; the parts which exhale with a moderate heat appear to be merely watery: hence six grains of the dry root are equivalent to half a drachm of it when fresh; a circumstance to be particularly regarded in the exhibition of this medicine. But if too great heat has been employed to dry it, it becomes almost inert, and it also loses by long keeping in the state of powder.

Besides the *dried squill*, the Pharmacopœias furnish us with the following officinal preparations:—*Syr. scill. maritim.* Edin. *Oxymel scillæ* Lond. *Mel scillæ* Lond. *Mel scillit.* Dubl. *Tinct. scillæ* Lond. Dubl. *Cons. scillæ* Lond. *Pil. scillæ* Lond. *Pil. scillit.* Edin. Dubl.

SCI'LLA MARI'TIMA; the systematic name of the officinal squill. See Scilla.

SCI'NCUS (σκινκος; from *sheque*, Heb.), the skink; an amphibious animal of the lizard kind, which is caught about the Nile. From thence it is brought in a dried state into this country; remarkably smooth and glossy, as if varnished. The flesh of this animal, particularly of the belly, has been accounted diuretic, alexipharmic, aphrodisiac, and useful in leprous disorders; but the accounts given of it cannot be relied on.

SCIRO'CHO, or Sirocho, a name generally given in Italy to every unfavourable wind. In the south-west it is applied to the hot suffocating blasts from Africa, and in the north-east it means the cold bleak winds from the Alps. Mr. Brydone, in his Tour to Sicily and Malta, gives an interesting account of the enervating effects of this wind.

SCI'RRHUS, or Schirrus (σκιρρος; from σκιρροω, *to harden)*, a genus of disease in the class *locales*, and order *tumores*, of Cullen; known by a hard tumor of a glandular part, indolent, and not readily suppurating. This description, Mr. Pearson observes, agrees with the true or exquisite scirrhus; but when it has proceeded from the indolent to the malignant state, the tumor is then unequal in its figure, it becomes painful, the skin acquires a purple or livid hue, and the cutaneous veins are often varicose.

It is probable, that any gland in the living body may be the seat of this disease; but it appears more frequently as an idiopathic affection in those glands that form the several secretions, than in the absorbent glands: and of the secreting organs, those which separate fluids that are to be employed in the animal economy, suffer much oftener than the glands which secrete the excrementitious parts of the blood. Indeed, it may be doubted, whether an absorbent gland be ever the primary seat of a true scirrhus. Daily experience evinces, that these glands may suffer contamination from their connection with a cancerous part; but under such circumstances, this morbid alteration being the effect of a disease in that neighbouring part, it ought to be regarded as a secondary or consequent affection. Mr. Pearson says he never yet met with an unequivocal proof of a *primary scirrhus in an absorbent gland;* and if a larger experience shall confirm this observation, and establish it as a general fact, it will afford material assistance in forming the diagnosis of this disease. The general term scirrhus, he observes, has been applied, with too little discrimination, to indurated tumors of lymphatic glands. When these appendages of the absorbent system enlarge in the early part of life, the disease is commonly treated as strumous; but as a similar alteration of these parts may, and often does, occur at a more advanced period, there ought to be some very good reasons for ascribing malignity to one rather than to the other. In old people the tumor is indeed often larger, more indurated, and less tractable, than in children; but when the alteration originated in the lymphatic glands, it will very rarely be found to possess any thing cancerous in its nature.

If every other morbid alteration in a part were attended with pain and softness, then induration and defective sensibility might point out the presence of a scirrhus. But this is so far from being the case, that even encysted tumors, at their commencement, frequently excite the sensation of impenetrable hardness. All glands are contained in capsulæ, not very elastic, so that almost every species of chronic enlargement of these bodies must be hard: hence this induration is rather owing to the structure of the part, than to the peculiar nature of the disease; and as glands in their healthy state are not endowed with much sensibility, every disease that gradually produces induration, will rather diminish than increase their perceptive powers. Induration and insensibility may therefore prove that the affected part does not labour under an acute disease; but these symptoms alone can yield no certain information concerning the true nature of the morbid alteration. These indolent affections of the glands that so frequently appear after the meridian of life, commonly manifest a hardness and want of sensation, not inferior to that which accompanies a true scirrhus: and yet these tumors will often admit of a cure by the same mode of treatment, which we find to be successful in scrofula; and when they prove unconquerable by the powers of medicine, we generally see them continue stationary and harmless to the latest period of life. Writers have, indeed, said much about certain tumors changing their nature, and assuming a new character; but Mr. Pearson suspects, that the doctrine of the mutation of diseases into each other, stands upon a very uncertain foundation. Improper treatment, he says, may, without doubt, exasperate diseases, and render a complaint which appeared to be mild and tractable, dangerous or destructive; but to aggravate the symptoms, and to change the form of the disease, are things that ought not to be confounded. He does not, indeed, affirm, that a breast which has been the seat of a mammary abscess, or a gland that has been affected with scrofula, may not become cancerous; for they might have suffered from this disease had no previous complaint existed; but these morbid alterations generate no greater tendency to cancer than if the parts had always retained their natural condition. There is no necessary connection between the cancer and any other disease, nor has it ever been clearly proved that one is convertible into the other.

Chirurgical writers have generally designated tumor as an essential symptom of the scirrhus; and it is very true, that this disease is often accompanied with an increase of bulk in the part affected. From long and careful observation Mr. Pearson is however induced to think, that an addition to the quantity of matter is rather an accidental than a necessary consequence of the presence of this peculiar affection. He very justly observes, that when the breast is the seat of a scirrhus, the altered part is hard, perhaps unequal in its figure, and definite; but these symptoms are not always connected with an actual increase in the dimensions of the breast. On the contrary, the true scirrhus is frequently accompanied with *a contraction and diminution of bulk*, a retraction of the nipple, and a puckered state of the skin.

The irritation produced by an indurated substance lying in the breast, will very often cause a determination of blood to that organ, and a consequent enlargment of it; but we may consider this as an inflammatory state of the surrounding parts, excited by the scirrhus, acting as a remote cause, and by no means essential to the original complaint. From the evident utility of topical blood-letting under these circumstances, a notion has prevailed, that the scirrhus is an inflammatory disease. On this subject Mr. Fearon has written very fully. But the strongly marked dissimilarity of a phlegmon and an exquisite scirrhus, in their appearances, progress, and mode of termination, obliges Mr. Pearson to dissent from his opinion. That one portion of the breast may be in a scirrhous state, while the other parts are in a state of inflammation, is agreeable to reason and experience; but that an inflammation, which is an acute disease, and a scirrhus, whose essential characters are almost directly the reverse of inflammation, shall be co-existent in the same part, is not a very intelligible supposition. Tumor and inflammation are commonly met with on a variety of other occasions, and in this particular instance they may be the effects of the disease, but are not essentially connected with its presence.

An incipient scirrhus is seldom accompanied with a discoloration of the skin; and a dusky redness, purple or even livid appearance of the surface, is commonly seen when there is a malignant scirrhus. The presence or absence of colour can, however, at the best, afford us but a very precarious criterion of the true nature of the complaint. When the disease is clearly known, an altered state of the skin may assist us in judging of the progress it has made; but as the skin may suffer similar variations in a number of very dissimilar diseases, it would be improper to found an opinion upon so delusive a phenomenon.

Dr Aitkin reckons the *Physconia*, a genus in Dr. Cullen's system, a species of scirrhus: and includes *sarcocele* as another species. The seat of a scirrhus is usually some glandular part; though some other parts may be affected with it. Not only the breasts and uterus in women, and the testicles in men, are subject to it, but the tongue, the tonsils, the abdominal viscera, and particularly the liver.

Scirrhus of the breast is distinguished by the following marks:—When the tumor is first observed, it is commonly in form of a small hard knot in the glandular part of the mamma, while the skin at the same time is free from inflammation. It frequently continues in that state for several months: by degrees, however, it increases considerably in size, and at last a sharp pain is felt shooting towards the axilla. The lymphatic glands at the under edge of the pectoral muscle and in the axilla are often enlarged, and an occult cancer is now formed. By degrees the integuments over this part of the tumor in the mamma become discoloured, and at last an ulceration or open cancer breaks out.

The liver, either in part, or through its whole system, may become scirrhous. The symptoms in this part generally are obscure in their beginning, but gradually increase. When there is inflammation it occasions feverishness, and the general health is much disordered. These symptoms however will sometimes vanish, and for a time the health will seem to be restored. The intervals become shorter, and then the appetite and flesh fail, a little cough comes on, sometimes a hiccough, and the event is fatal. In some, all this shall happen in a few months; in others it takes up several years. In the worst of these cases, though the countenance is of a leaden colour, yet sometimes there will not be any signs of a jaundice; for this symptom does not happen except the ducts are compressed by the scirrhus, so as to hinder the passage of the secreted gall through the common gall-duct. An indurated liver is often very evidently distinguishable by applying the hand to the region of it; though, in many cases, instead of being enlarged, it is shrunk, consolidated, and less than its natural size. See LIVER, UTERUS, SARCOCELE, CICUTA, &c. For an account of the termination of scirrhus in cancer, see CANCER; under which article, the several modes by which the progress of scirrhus has been usually resisted by practitioners, are sufficiently detailed for any practical purpose. Unhappily, little is to be effected by any known remedy, except the disease is accessible to the knife, and even that resource will fail us if withheld too long.

In the fourth volume of the Medical Observations, we have an account of a scirrhous tumor in the right breast of a lady, which seems to have been more of the true carcinomatous nature than the foregoing. It had first made its appearance in the left breast, but dissolved after a continuance of some years. From this time she had pains in her right breast, for which sea-bathing and other remedies were tried in vain. A tumor was then perceived in the breast, which by degrees shewed itself to be of a cancerous nature. Just now the cicuta was entered upon. The tumor then extended about four inches in diameter, was hard, and fixed to the ribs; the skin was of a deep purple colour, and corrugated, but no ulceration had taken place. She took cicuta internally in such quantities as to affect her head, and the breast was fomented with a decoction of it; but, notwithstanding this, and the use of other powerful remedies, an ulceration took place in the large tumor, and another scirrhus, about the size of a pigeon's egg, appeared in the axilla. The external use of cicuta seemed in this case to have afforded relief, though the final event is not communicated.

SCITAMENE'Æ (from *scitamentum*, a dainty), in Linnæus's botany, the 8th natural order of plants, consisting of beautiful exotics, all natives of very warm countries. Some of them furnish exquisite fruits; but though the plants rise very high, they are perennial only by their roots. Those which have only one filament, have in all their parts an aromatic odour, and an acrid or poignant taste; qualities, however, possessed in a much greater degree by the roots, which are hot and resinous. The genera are, Alpinia; Amomum, *Ginger;* Canna, *Indian Flowering-reed;* Costus; Curcuma, *Turmeric;* Kæmpferia; Maranta, *Indian Arrow-root;* Musa, *Banana, Plantain-tree;* Thalia.

SCLA'REA (from σκλεϱος, *hard;* because its stalks are hard and dry); the garden-clary. See SALVIA SCLAREA.

SCLERO'TICA TU'NICA (*sclerotica;* from σκληϱοω, to *harden;* so called from its hardness); the sclerotic coat. This is the outermost coat of the eye, of a clear white colour, dense, and tenacious. The anterior transparent part, is termed the *cornea transparens.* See CORNEA. It is into this coat of the eye that the muscles of the bulb are inserted.

SCOLOPE'NDRA, also called the *centipes* from its great number of feet. In the East Indies this insect grows to six inches in length, and as thick as a man's finger. It consists of many joints; and from each joint proceeds a leg on each side. It is covered with hair, and seems to have no eyes; but there are two feelers on the head, with which it finds out the way when creeping about. The head is very round, with two small sharp teeth, with which it inflicts wounds that are very painful and dangerous. We are told of a sailor that was bit by one on board a ship: that he felt excessive pain, and his life was supposed to be in danger; but by the application of roasted onions to the part he recovered. The bite of the scolopendra *morsitans* in Jamaica is said to be as poisonous as the sting of a scorpion. Some of the species live in holes in the earth: others under stones, and among rotten wood; so that the removing of these is exceedingly dangerous in the countries where the scolopendræ breed. These insects, like the scorpion, are supposed to be produced perfect from the parent or the egg, and to undergo no changes after their first exclusion. They are found of all sizes; which is a sufficient reason for believing that they preserve their first appearance through the whole of their existence. It is probable, however, that, like most of this class, they often change their skins; but of this we have no certain information. The *scolopendra forficata* is the largest in this country, of a dun colour, smooth, and composed of nine scaly segments, without reckoning the head. The feet are fifteen in number on each side, and the last, longer than the rest and turned backwards, form a kind of forky tail. The antennæ are twice the length of the head, and consist of forty-two short segments. The insect's progressive motion is very quick, and sometimes serpentine. This species is inoffensive. For the treatment of the bite of the large scolopendra, see the article VENOM.

SCOLOPE'NDRIA; the spleen-wort or miltwaste is sometimes so called. See CETERACH.

SCOLOPE'NDRIUM (σκολοπενδριον; from σκολοπενδρα, the *earwig;* so called because its leaves resemble the earwig); also named *Phyllitis*, and *Lingua cervina;* hart's-tongue, an indigenous plant. *Asplenium scolopendrium; frondibus simplicibus cordato-lingulatis integerrimis stilibus hirsutis*, Linn. Class, *Cryptogamia.* Order, *Filices.* This plant grows on shady banks, walls, &c. It has a slightly astringent and sweetish mucilaginous taste. When rubbed, it imparts a disagreeable smell. Hart's-tongue is one of the *five capillary* herbs, formerly much used to strengthen the viscera, restrain hæmorrhages and alvine fluxes, and to remove obstructions of the liver and spleen. It was also used for the general purposes of a demulcent and pectoral.

SCO'LYMUS (σκολυμος; from σκολος, a *thorn;* so named from its prickly leaves), a name by which the artichoke is sometimes called. See CINARA.

SCO'PA RE'GIA; an old name for butcher's-broom, or knee-holly. See RUSCUS.

SCO'PULUS (dim. of *scopa*, a broom), a brush. See BRUSH. The flesh-brush, which promotes a free perspiration, and quickens the passage of the blood through the minute vessels of the part to which it is assiduously applied, is a useful agent in medicine; particularly in cases of atony, rheumatism, palsy, &c.

SCORBU'TUS (from *schorboet*, Germ.), the scurvy; a genus of disease in the class *cachexiæ*, and order *impetigines*, of Cullen. It is characterised by extreme debility; a complexion pale and bloated; spongy gums; livid spots on the skin; breath offensive; œdematous swellings in the legs; hæmorrhages; foul ulcers; fetid urine; and extremely offensive stools.

The first indication of the scorbutic diathesis is generally a change of colour in the face, from the natural and healthy look, to a pale and bloated complexion, with a listlessness, and aversion from every sort of exercise. The gums soon after become itchy, swell, and are apt to bleed on the slightest touch; the breath grows offensive, and the gums swelling daily more and more, turn livid, and at length become extremely fungous and putrid, as being continually in contact with the external air; which in every case favours the putrefaction of substances disposed to run into that state, and is indeed absolutely requisite for the production of actual rottenness.

The symptoms of the scurvy, like those of every other disease, are somewhat different in different subjects, according to the various circumstances of constitution; and they do not always proceed in the same regular course in every patient. But what is very remarkable in this disease, notwithstanding the various and immense load of distress under which the patients labour, there is no sickness at the stomach, the appetite keeps up, and the senses remain entire almost to the very last: when lying at rest they make no complaints, and feel little distress or pain; but the moment they attempt to rise or stir themselves, then the breathing becomes difficult, with a kind of straightness, or catching, and great oppression, and sometimes they have been known to fall into a syncope. This catching of the breath upon motion, with the loss of strength, dejection of spirits, and rotten gums, are held as the essential or distinguishing symptoms of the disease. The skin is generally dry, except in the very last stage, when the patients become exceedingly subject to faintings, and then it grows clammy and moist: in some it has an anserine appearance; but much oftener it is smooth and shining; and, when examined, is found to be spread over with spots, not rising above the surface, of a reddish, blueish, livid, or purple colour, with a sort of yellow rim round them. At first these spots are for the most part small, but in time they increase to large blotches. The legs and thighs are the places where they are principally seen; more rarely on the head and face. Many have a swelling of the legs, which is harder, and retains the impression of the finger longer than the common dropsical or truly œdematous swelling. The slightest wounds and bruises, in scorbutic habits, degenerate into foul and untoward ulcers: and the appearance of these ulcers is so singular and uniform, that they are easily distinguished from all others. Scorbutic ulcers afford no good digestion, but give out a thin and fetid ichor mixed with blood, which at length has the appearance of coagulated gore, lying caked on the surface of the sore, not to be separated or wiped off without some difficulty. The flesh underneath these sloughs feels to the probe soft and spongy, and is very putrid. Neither detergents nor escharotics are here of any service; for though such sloughs be with great pains taken away, they are found again at the next dressing, where the same sanguineous putrid appearance always presents itself. Their edges are generally of a livid colour, and puffed up with excrescences of proud-flesh arising from below the skin. As the violence of the disease increases, the ulcers shoot out a soft bloody fungus, which often rises in a night's time to a monstrous size; and although distroyed by cauteries, actual or potential, or cut away with a knife, is found at next dressing as large as ever. It is a considerable time, however, before these ulcers, bad as they are, come to affect the bones with a caries. These appearances will always serve to assure us that an ulcer is scorbutic, and should put us on our guard with respect to the giving mercurials, which are the most pernicious things that can be administered in these cases.

Scorbutic people, as the disease advances, are seldom free from pains; though these have not the same seat in all, and often in the same person shift their place. Some complain of universal pain in all their bones; but most violent in their limbs, and especially the joints: the most frequent seat of their pain, however, is some part of the breast. The pains of this disease seem to arise from the distraction of the sensible fibres by the extravasated blood being forced into the interstices of the periosteum and of the tendinous and ligamentous parts; whose texture being so firm, the fibres are liable to higher degrees of tension, and consequently of pain.

The state of the bowels is various; in some there is an obstinate costiveness; in others a tendency to a flux, with extremely fetid stools: the urine is also highly fetid, generally high-coloured; and, when it has stood for some hours, throws up an oily scum on the surface. The pulse is variable; but most commonly slower and more feeble than in the time of perfect health. A stiffness in the tendons, and weakness in the joints of the knees, exist early in the disease; but as it grows more inveterate, the patients generally lose the use of their limbs altogether; having a contraction of the flexor-tendons in the ham, with a swelling and pain in the joint of the knee. Some have their legs monstrously swelled, and covered over with livid spots, or ecchymoses; others have hard tumors there: some, though without swelling, have the calves of the legs, and the flesh of the thighs, quite indurated. As persons far gone in the scurvy are apt to faint, and even to expire, on being moved and brought out into the fresh air, the utmost care and circumspection are requisite when it is necessary to stir or remove them.

Scorbutic patients are at all times, but more especially as the disease advances, extremely subject to profuse bleedings from different parts of the body; as from the nose, gums, intestines, lungs, &c. and likewise from the ulcers, which generally bleed plentifully if the fungus be cut away. It is not easy to conceive a more dismal and diversified scene of misery than what is beheld in the third and last stage of this disease: it being then that the anomalous and more extraordinary symptoms appear, as the bursting out of old wounds, and the dissolution of old fractures that have been long united.

The term *scurvy* has been indiscriminately applied, even by physicians, to almost all the different kinds of cutaneous foulness; owing to some writers of the last century, who comprehended such a variety of symptoms under this denomination, that there are few chronic affections which may not be so called, according to their scheme. But the disease here meant is the true putrid scurvy, so often fatal to seamen, and to people pent up in garrisons without sufficient supplies of sound animal food and fresh vegetables; or which is sometimes known to be endemic in certain countries, where the nature of the soil, the general state of the atmosphere, and the common course of diet, all combine in producing that singular species of corruption in the mass of blood which constitutes this disease; for the appearances, on dissecting scorbutic subjects, sufficiently shew, that the scurvy may, with great propriety, be termed a disease of the blood.

Dr. Lind has, in a postscript to the third edition of his treatise on the scurvy, given the result of his observations drawn from the dissection of a considerable number of victims to this fatal malady, from which it appears that the true scorbutic state, in an advanced stage of the disease, consists in numerous effusions of blood into the cellular interstices of most parts of the body, superficial as well as internal; particularly the gums and the legs; the texture of the former being almost entirely cellular, and the generally dependent state of the latter rendering those parts, of all others in the whole body, the most apt to receive and retain the stagnant blood, when its crasis comes to be destroyed; and it loses that glutinous quality which, during health, hinders it from escaping through the pores in the coats of the blood-vessels, or through exhalent extremities.

A dropsical disposition, especially in the legs and breast, was frequently, but not always, observed in the subjects that were opened, and the pericardium was sometimes found distended with water: the water thus collected was often so sharp as to shrivel the hands of the dissector; and in some instances, where the skin happened to be broken, it irritated and festered the wound.

The fleshy fibres were found so extremely lax and tender, and the bellies of the muscles in the legs and thighs so stuffed with the effused stagnating blood, that it was always difficult, and sometimes impossible, to raise or separate one muscle from another. He says that the quantity of this effused blood was amazing: in some bodies it seemed that almost a fourth part of the whole mass had escaped from the vessels; and it often lay in large concretions on the periosteum, and in some few instances under this membrane immediately on the bone. And yet, notwithstanding this dissolved and depraved state of the external fleshy parts, the brain always appeared perfectly sound, and the viscera of the abdomen, as well as those in the thorax, were in general found quite uncorrupted. There were spots indeed, from extravasated blood, observed on the mesentery, intestines, stomach, and omentum; but these spots were firm, and free from any mortified taint; and, more than once, an effusion of blood, as large as a hand's-breadth, has been seen on the surface of the stomach; and what was remarkable, that very subject was not known, while living, to have made any complaint of sickness, pain, or other disorder, in either stomach or bowels.

These circumstances and appearances, with many others that are not here enumerated, all prove to demonstration, a putrescent, or at least a highly depraved, state of the blood: and yet Dr. Lind takes no small pains to combat the idea of the scurvy's proceeding from animal putrefaction; a notion which, according to him, " may, and hath misled physicians to propose and administer remedies for it altogether ineffectual."

He also, in the preface to his third edition, talks of the mischief done by an attachment to delusive theories. He says, " It is not probable that a remedy for the scurvy will ever be discovered from a preconceived hypothesis, or by speculative men in the closet, who have never seen the disease, or who have seen at most only a few cases of it; " and adds, that " though a few partial facts and observations may, for a little, flatter with hopes of greater success, yet more enlarged experience must ever evince the fallacy of all positive assertions in the healing art."

Sir John Pringle, however, is of a very different opinion. He " is persuaded, after long reflection, and the opportunities he has had of conversing with those who to much sagacity had joined no small experience in nautical practice, that upon an examination of the several articles which have either been of old approved, or have of late been introduced into the navy, it will appear, that though these means may vary in form and in mode of operating, yet they all some way contribute towards preventing putrefaction; whether of the air in the closer parts of a ship, of the meats, of the water, of the clothes and bedding, or of the body itself."

What Dr Lind has above advanced is the more remarkable, as in the two former editions of his book, he embraced the hypothesis of animal putrefaction being the cause of the scurvy; and if these effusions of blood, from a destruction of its crasis and the dissolved state of the muscular fibres, together with the rotten condition of the mouth and gums, do not betray putrescency, it is hard to say what does, or what other name we shall bestow on this peculiar species of depravation which constitutes the scurvy.

The blood, no doubt, derives its healthy properties, and maintains them, from the due supplies of wholesome food; while the insoluble, superfluous, effete, and acrid parts, are carried off by the several discharges of stool, urine, and perspiration.

Our senses of taste and smell are sufficient to inform us when our food is in a state of soundness and sweetness, and consequently wholesome; but it is from chemistry that we must learn the principles on which these qualities chiefly depend.

Experiments of various kinds have proved, that the soundness of animal and vegetable substances depends very much, if not entirely, on the presence of their aërial principle; since rottenness is never observed to take place without an emission of fixed air from the putrefying substance; and even when putrefaction has made a considerable progress, if carbonic acid can be transferred, in sufficient quantity, from some other substance in a state of effervescence or fermentation, into the putrid body, the offensive smell of this will be destroyed; and if it be a bit of putred flesh with which the experiment is made, the firmness of its fibres will be found in some measure restored.

The experiments of Dr. Hales, as well as many others made since his time, shew that an aërial principle is greatly connected with, and remarkably abundant in, the gelatinous parts of animal bodies, and in the mucilage or farina of vegetables. But these are the parts of our food which are most particularly nutritive; and Dr. Cullen, whose opinion on this, as on every other medical subject, must be allowed of the greatest weight, affirms, in his Lectures on the Materia Medica, that the substances on which we feed are nutritious only in proportion to the quantities of oil and sugar which they respectively contain. This oil and sugar are blended together in the gelatinous part of our animal food, and in the mucilaginous and farinaceous part of esculent vegetables; and, while thus intimately combined, are not perceivable by our taste, though very capable of being developed and rendered distinct by the power of the digestive organs; for in consequence of the changes produced during digestion, the oily and the saccharine matter become manifest to our senses, as we may see and taste in the milk of animals, which is chiefly chyle a little advanced in its progress toward sanguification; the oil is observed to separate spontaneously, and from which a quantity of actual sugar may be obtained by a very simple process.

Thus much being premised, we can now readily comprehend, how the blood may chance to lose those qualities of smoothness, mildness, and tenacity, which are natural to it. For if, in the first place, the fluids, and organs subservient to digestion, should be so far distempered or debilitated that the nutritious parts of the food cannot be properly developed, the blood must be defrauded of its due supplies; which will also be the case if the aliment should not originally contain enough of oily and saccharine matter, or should be so circumstanced, from being dried or salted, as to hinder the ready extrication of the nutritious parts; or lastly, if the natural discharges should be interrupted or suspended, so that the superfluous, acrid, and effete fluids are retained in the general mass; in all these instances the blood must of necessity run into proportionate degrees of depravation.

And hence we may understand how it may possibly happen, that when persons are greatly weakened by some preceding disorder, and at the same time debarred the use of proper bodily exercise, the scorbutic diathesis should take place, even though they enjoy the advantages of pure air and wholesome diet.

But these are solitary cases, and very rarely seen; for whenever the scurvy seizes numbers, and can be considered as an epidemic disease, it will be found to depend on a combination of the major part, or perhaps all, of the following circumstances: 1. A moist atmosphere, and more especially if cold be joined to this moisture. 2. Too long cessation from bodily exercise, whether it be from constraint, or a lazy slothful disposition. 3. Dejection of mind. 4. Neglect of cleanliness, and want of sufficient clothing. 5. Want of wholesome drink, either of pure water or fermented liquors. 6. Above all, the being obliged to live continually on salted meats, perhaps not well cured, without a due proportion of the vegetables sufficient to correct the pernicious tendency of the salt, by supplying the bland oil and saccharine matter requisite for the purposes of nutrition.

These general principles respecting the causes and nature of scurvy, seem to afford a better explanation of the phenomena of the disease than any conjectures respecting it that have hitherto been proposed. It must, however, be allowed, that Dr. Lind is by no means the only writer who is disposed to consider this disease as not referable to the condition of the circulating fluids. In an ingenious treatise on this subject, Dr. Milman strenuously contends, that the primary morbid affection in this complaint is a debilitated state of the solids arising principally from want of aliment. But his arguments on this subject, as well as those of Dr. Lind, are very ably answered by a still later writer on this subject, Dr. Trotter, who has drawn his observations respecting it from very extensive experience, and who considers it as clearly established, by incontrovertible facts, that the proximate cause of scurvy depends on some peculiar state of the blood. Dr. Trotter, in the second edition of his Observations on the Scurvy, from the result of further observation and later discoveries in chemistry, has attempted, with much ingenuity, to prove, that the morbid condition of the blood, which takes place in scurvy, arises from the abstraction of vital air, or, as it is now generally called, *oxygen;* and this opinion, though still, perhaps, in some particulars, requiring further confirmation, is, it must be allowed, supported by many plausible arguments.

The *scurvy may be prevented,* by obviating and correcting those circumstances in respect of the non-naturals which were mentioned as contributing to the disease, and laid down as causes. It is therefore a duty highly incumbent on officers commanding at sea, or in garrisons, to use every possible precaution; and, in the first place, to correct the coldness and moisture of the atmosphere by sufficient fires: in the next, to see that their men be lodged in dry, clean, and well-ventilated births or apartments: thirdly, to promote cheerfulness, and enjoin frequent exercise, which alone is of infinite use in preventing the scurvy: fourthly, to take care that the clothing be proper, and cleanliness of person strictly observed: fifthly, to supply them with wholesome drink, either pure water or sound fermented liquors; and if spirits be allowed, to have them properly diluted with water and sweetened with melasses or coarse sugar: and lastly, to order the salted meats to be sparingly used, or sometimes entirely abstained from; and, in their place, let the people live on different compositions of the dried vegetables; fresh meat and recent vegetables being introduced as often as they can possibly be procured.

A close attention to these matters will, in general, prevent the scurvy from making its appearance at all, and will always hinder it from spreading its influence far. But when these precautions have been neglected, or the circumstances such that they cannot be put in practice, and the disease has actually taken place, our whole endeavour must be to restore the blood to its original state of soundness: and happily, such is the nature of this disease, that if a sufficiency of new articles, of the truly mild nutritious sort, and particularly such as abound with vital air, such as recent vegetables, or different acid fruits, can be thrown into the circulation while the fleshy fibres retain any tolerable degree of firmness, the patient will recover; and that in a surprisingly short space of time, provided a pure air, comfortable lodgings, sufficient clothing, cleanliness, and exercise, lend their necessary aid.

This being the case, the plan of treatment is to be conducted almost entirely in the dietetic way; as the change in the mass of blood, which it is necessary to produce, must be brought about by things that can be received into the stomach by pints or pounds, and not by those which are administered in drops or grains, drachms or ounces. For here, as there is no disorder of the nervous system, we have no need of those active drugs which are indispensably necessary in febrile or nervous diseases; the scorbutic diathesis being quite opposite to that which tends to produce a fever or any species of spasmodic disorders; nay, Dr. Lind says, he has repeatedly found, that even the infection of an hospital fever is long resisted by a scorbutic habit.

It will now naturally occur to the reader, what those alimentary substances must be which bid the fairest to restore the blood to its healthy state; and he needs scarcely to be told, that they are of those kinds which the stomach can bear with pleasure, though taken in large quantities, which abound in jelly or mucilage, and which allow those nutritious parts to be easily developed; for though the viscera in scorbutic patients may be all perfectly sound, yet we cannot expect that either the digestive fluids or organs should possess the same degrees of power, which enable them, during health, to convert the crude dry farinacea, and the hard salted flesh of animals, into nourishment. We must therefore search for the *antiscorbutic virtue* in the tender sweet flesh of herbivorous animals; in new milk; and in the mucilaginous acid juices of recent vegetables, whether they be fruits, leaves, or roots.

The sour juices of lemons, oranges, and limes, have been generally held as antiscorbutics in an eminent degree, and their power ascribed to their acid; from an idea that acids of all kinds are the only correctors of putrefaction. But the general current of practical observations shews, and our experiments confirm it, that the virtue of these juices depends on their *aërial principle;* accordingly, while perfectly recent and in the mucilaginous state, and especially if mixed with wine and sugar, the juices of any one of these fruits will be found a most grateful and powerful antiscorbutic.

Dr. Lind observing, "that the lemon-juice, when given by itself undiluted, was apt, especially if overdosed, to have too violent an operation, by occasioning pain and sickness at the stomach, and sometimes a vomiting; therefore found it necessary to add wine and sugar. A pint of Madeira wine, and two ounces of sugar, were put to four ounces and a half of juice, and this quantity was found sufficient for weak patients to use in twenty-four hours: such as were very weak sipped a little of this frequently according as their strength would permit; others who were stronger took about two ounces of it every two hours; and when the patients grew still stronger, they were allowed eight ounces of lemon-juice in twenty-four hours."

While this very pleasant mixture, which is both a cordial and an antiseptic, may be had, it would be needless to think of prescribing any other; but when the fresh juice cannot be procured, we must have recourse to such other things as may be obtained. But the various modes of combining and administering these, so as to render them perfectly agreeable to the stomach, must always be regulated by circumstances, and therefore it will be in vain to lay down particular directions; since all that we have to do is, to fix on such fruits and other fresh vegetables as can be most conveniently had and taken, and contrive to give them in those forms, either alone or boiled up with fresh meat into soups, that will allow the patients to consume the greatest quantities.

The first promising alteration from such a course is usually a gentle diarrhœa; and if, in a few days, the skin becomes soft and moist, it is an infallible sign of recovery; especially if the patient gain strength, and can bear being stirred or carried into the open air without fainting.

But if the belly should not be loosened by the use of the fresh vegetables, nor the skin become soft and moist, then they must be assisted by *elect. sennæ*, or by stewed prunes, or a decoction of tamarinds with crystals of tartar, in order to abate the costiveness; also drinking a light decoction of the woods and the use of warm bathing, in order to relax the pores of the skin; for nothing contributes more to the recovery of scorbutic patients than moderate sweating.

With regard to *particular symptoms*, antiseptic gargles composed of a decoction of Peruvian bark and infusion of roses, with a solution of myrrh, or the mineral acid gargles with honey, must be used occasionally, in order to cleanse the mouth, and give firmness to the spongy gums. Swelled and indurated limbs, and stiffened joints, must be bathed with warm vinegar, and relaxed by the steam of water, repeatedly conveyed to them, and confined to the parts by means of close blankets: ulcers on the legs must never be treated with unctuous applications nor sharp escharotics; but the dressing should consist of lint or soft rags, dipt in a strong decoction of Peruvian bark.

This disease at no time requires, or indeed bears, large evacuations, either by bleeding or purging: and, as has been already mentioned, the belly must only be kept open by the fresh vegetables or the mildest laxatives. But we are always to be careful that scorbutic persons, after a long abstinence from greens and fruits, be not permitted to eat voraciously at first, lest they fall into a fatal dysentery.

All, however, that has now been laid down as necessary towards the cure, supposes the patients to be in situations where they can be plentifully furnished with all the requisites; but unhappily these things are not to be procured at sea, and often deficient in garrison; therefore, in order that a remedy for the scurvy might never be wanting, Dr. Macbride, in the year 1762, first conceived the notion, that the *infusion of malt*, commonly called *wort*, might be substituted for the common antiscorbutics; and it was accordingly tried. More than three years elapsed before any account arrived of the experiments having been made: at length, ten histories of cases were received, wherein the wort had been tried, with very remarkable success; and this being judged a matter of great importance to the seafaring part of mankind, these were immediately communicated to the public in a pamphlet under the title of, "*An Historical Account of a new Method of treating the Scurvy at Sea.*" Certain it is, that in many instances it has succeeded beyond expectation, whilst in others it has fallen short: but whether this was owing to the untoward situation of the patients, or inattention on the part of the persons who were charged with the administration of the wort, not preparing it properly, or not giving it in sufficient quantity, or to its own want of power, must be collected from the cases and journals themselves.

During Captain Cook's third voyage, the most remarkable, in respect of the healthiness of the crew, that ever was performed, the wort is acknowledged to have been of singular use. To Sir John Pringle, he gave an account of the methods pursued for preserving the health of his people; and which were productive of such happy effects, that he performed "a voyage of three years and eighteen days, through all the climates from 52° north to 71° south, with the loss of one man only by disease, and who died of a complicated and lingering illness, without any mixture of scurvy. Two others were unfortunately drowned, and one killed by a fall:" so that out of the whole number, 118, with which he set out from England, he lost only four.

He says, that much was owing to the extraordinary attention of the admiralty, in causing such articles to be put on board as either by experience or conjecture were judged to tend most to preserve the health of seamen; and with respect to the wort, he expresses himself as follows:

"We had on board a large quantity of *malt*, of which was made *sweet wort*, and given (not only to those men who had manifest symptoms of the scurvy, but to such also as were, from circumstances, judged to be most liable to that disorder) from one or two to three pints in the day to each man, or in such proportion as the surgeon thought necessary, which sometimes amounted to three quarts in twenty-four hours: this is without doubt one of the best antiscorbutic sea medicines yet found out; and if given in time, will, with proper attention to other things, I am persuaded, prevent the scurvy from making any great progress for a considerable time: but I am not altogether of opinion that it will cure it, in an advanced state, at sea." On this last point, however, the captain and his surgeon differ; for this gentleman positively asserts, and his journal (in Dr. Macbride's possession) confirms it, that the infusion of malt *did* effect a cure in a confirmed case, and at sea.

The malt being thoroughly dried, and packed up in small casks, is carried to sea, where it will keep sound, in every variety of climate, for at least two years: when wanted for use, it is to be ground in a hand-mill, and the infusion prepared from day to day, by pouring three measures of boiling water on one of the ground malt; the mixture being well mashed, is left to infuse for ten or twelve hours, and the clear infusion then strained off. The patients are to drink it in such quantities as may be deemed necessary, from one to three quarts in the twenty-four hours: a panada is also to be made of it, by adding biscuit, and currants or raisins; and this palatable mess is used by way of solid food. This course of diet, like that of the recent vegetables, generally keeps the bowels sufficiently open; but in cases where costiveness nevertheless prevails, gentle laxatives must be interposed from time to time, together with diaphoretics, and the topical assistants, fomentations and gargles, as in the common way of management.

Captain Cook was also provided with a large stock of *sour krout* (see Sauer Kraut). A pound of this was served to each man, twice a-week, while they were at sea. Sour krout, since the trial made of it on board Captain Cook's ships, has been extensively used by direction of the British government in many other situations, where scorbutus has prevailed: and it has been found to be highly serviceable both in preventing and in curing the disease. It was particularly found during the late American war to be highly beneficial to the British troops besieged in Boston, who were at that time entirely fed on salt provisions sent from England. The scurvy at one period broke out among them with very alarming appearances; but by the seasonable arrival of a quantity of sour krout, it was effectually overcome. Care, however, must be bestowed, that this article be properly prepared and properly kept. When due attention is paid to these particulars, it may be preserved in good condition for many months; and is considered both by sailors and soldiers as a very acceptable addition to their salt provisions. But when served out to them in a putrid state, it is not only highly disagreeable to the taste, but probably also pernicious in its effects.

Among other means of preventing scurvy, Captain Cook had also a liberal supply of *portable soup;* of which the men had generally an ounce, three days in the week, boiled up with their pease; and sometimes it was served to them oftener: and when they could get fresh greens, it was boiled up with them, and made such an agreeable mess, that it was the means of making the people eat a greater quantity of greens than they would otherwise have done. And what was still of further advantage, they were furnished with sugar in lieu of butter or oil, which is seldom of the sweetest sort; so that the crew were undoubtedly great gainers by the exchange.

In addition to all these advantages of being so well provided with every necessary, either in the way of diet or medicine, Captain Cook was remarkably attentive to all the circumstances respecting cleanliness, exercise, sufficient clothing, provision of pure water, and purification of the air in the closer parts of the ship.

Newly brewed *spruce-beer* made from a decoction of the tops of the spruce-fir, and melasses, is an excellent antiscorbutic; it acts in the same way that the wort does, and will be found of equal efficacy, and therefore may be substituted. Where the tops of the spruce-fir are not to be had, this beer may be prepared from the essence of spruce as it has been called, an article which keeps easily for a great length of time. But in situations where neither the one nor the other can be had, a most salutary mess may prepared from oatmeal, by infusing it in water, in a wooden vessel, till it ferments, and begins to turn sourish; which generally happens, in moderately warm weather, in the space of two days. The liquor is then strained off the grounds, and boiled to the consistence of a jelly, which is to be eaten with wine and sugar, or with butter and sugar.

Nothing is more commonly talked of than a *land scurvy*, as a distinct species of disease from that which has been now described; but no writer has yet given a description so clear as to enable us to distinguish it from the various kinds of cutaneous foulness and eruption, which indeed are vulgarly termed *scorbutic*, but which are a-kin to the itch or leprosy, and for the most part require mercurials. These, however, are very different diseases from the true scorbutus, which it is well known may prevail in certain situations on land as well as at sea, and is in no degree to be attributed to sea-air.

SCO'RDIUM (*ςκορδιον*; from *ςκοροδον*, *garlic;* so called because it smells like garlic), also called *Trissago palustris*, and *Chamædrys palustris;* water-germander: *Teucrium scordium* Linn. The leaves of this plant smell somewhat like garlic. To the taste they are bitterish and slightly pungent. This plant, though formerly in high estimation, is now justly fallen into disuse. It is recommended as an ingredient in antiseptic cataplasms and fomentations.

SCO'RIÆ (from *σκωρ*, *excrement)*, dross; the refuse or useless parts of any substance, but particularly of metals when in a state of fusion.

SCORIFICATION, a term in metallurgy, signifying the art of reducing a body, either entirely or in part, into scoria.

SCO'RPIO, a venomous insect, which has eight feet, besides two frontal claws. The eyes are eight in number, three on each side of the thorax, and two on the back. It has two claw-shaped palpi, a long jointed tail, with a pointed weapon at the extremity; it has likewise two combs situated betwixt the breast and abdomen. There are six species, all natives of southern climates.

In several parts of the continent of Europe it is but too well known, though it seldom grows above four inches long: but in the warm tropical climates, it is seen a foot in length, and in every respect as large as a lobster, which it somewhat resembles in shape. There have been enumerated nine different kinds of this dangerous insect, including species and varieties, chiefly distinguished by their colour; there being scorpions yellow, brown, and ash-coloured; others that are the colour of rusty iron, green, pale yellow, black, claret colour, white, and grey. There are four principal parts distinguishable in this animal; the head, the breast, the belly, and the tail. The scorpion's head seems, as it were, joined to the breast; in the middle of which are seen two eyes; and a little more forward, two eyes more, placed in the fore part of the head: those two eyes are so small, that they are scarcely perceivable; and it is probable the animal has but little occasion for seeing. The mouth is furnished with two jaws: the undermost is divided into two, and the parts notched into each other, which serve the animal as teeth, and with which it breaks its food, and thrusts it into its mouth: these the scorpion can at pleasure pull back into its mouth, so that no part of them can be seen. On each side of the head are two arms, each composed of four joints; the last of which is large, with strong muscles, and made in the manner of a lobster's claw. Below the breast are eight articulated legs, each divided into six joints; the two hindmost of which are each provided with two crooked claws, and here and there covered with hair. The belly is divided into seven little rings; from the lowest of which is continued a tail, composed of six joints, which are bristly, and formed like little globes, the last being armed with a crooked sting. This is that fatal instrument which renders this insect so formidable: it is long, pointed, hard, and hollow; it is pierced near the base by two small holes, through which, when the animal stings, it ejects a drop of poison, which is white, caustic, and fatal. The reservoir in which this poison is kept, is in a small bladder near the tail, into which the venom is distilled by a peculiar apparatus. If this bladder be strongly pressed, the venom will be seen issuing out through the two holes above mentioned; so that it appears, that when the animal stings, the bladder is pressed, and the venom issues through the two apertures into the wound.

There are few animals more formidable, or more truly mischievous, than the scorpion. As it takes refuge in a small place, and is generally found sheltering in houses, it must frequently sting those among whom it resides. In some of the towns of Italy, and in France, in the province of Languedoc, it is one of the greatest pests that torment mankind: but its malignity in Europe is trifling, when compared to what the natives of Africa and the east are known to experience. In Batavia, where they grow twelve inches long, there is no removing any piece of furniture without the utmost danger of being stung by them. Bosman assures us, that along the Gold Coast they are often found larger than a lobster; and that their sting is inevitably fatal. In Europe, however, they are by no means so large, so venomous, or so numerous. The general size of this animal does not exceed two or three inches; and its sting is very seldom found to be fatal. Maupertuis, who made several experiments on the scorpion of Languedoc, found it by no means so invariably dangerous as had till then been represented. He provoked one of them to sting a dog, in three places of the belly where the animal was without hair. In about an hour after, the poor animal seemed greatly swollen, and became very sick: he then cast up whatever he had in his bowels; and for about three hours continued vomiting a whitish liquid. The belly was always greatly swollen when the animal began to vomit; but this operation always seemed to abate the swelling; which alternately swelled, and was thus emptied, for three hours successively. The animal after this fell into convulsions, bit the ground, dragged himself along upon his four feet, and at last died, five hours after being bitten. He was not partially swollen round the place which was bitten, as is usual after the sting of a wasp or a bee; but his whole body was inflated, and there only appeared a red spot on the places where he had been stung.

Some days after, however, the same experiment was tried upon another dog, and even with more aggravated cruelty; yet the dog seemed no way affected by the wounds; but howling a little when he received them, continued alert and well after them; and soon after was set at liberty, without shewing the smallest symptoms of pain. So far was this poor creature from being terrified at the experiment, that he left his own master's house, to come to that of the philosopher, where he had received more plentiful entertainment. The same experiment was tried by fresh scorpions upon seven other dogs, and upon three hens; but not the smallest deadly symptom was seen to ensue. From hence is appears, that many circumstances, which are utterly unknown, must contribute to give efficacy to the scorpion's venom. Whether its food, long fasting, the season, the nature of the vessels it wounds, or its state of maturity, contribute to or retard its malignity, is yet to be ascertained by succeeding experiments. In the trials made by our philosopher, he employed scorpions of both sexes, newly caught, and seemingly vigorous and active. The success of this experiment may serve to shew, that many of those boasted antidotes which are given for the cure of the scorpion's sting, owe their success rather to accident than their own efficacy. They only happen to cure when their sting was no way dangerous; but in cases of actual malignity they might probably be utterly unserviceable.

The scorpion of the tropical climates being considerably larger, is probably much more venomous. The boasted antidotes given for the bite have been exaggerated. Helbigius, however, who resided for many years in the east, assures us, that he was often stung by the scorpion, and never received any material injury from the wound: a painful tumor generally ensued; but he always cured it by rubbing the part with a piece of iron or stone, as he had seen the Indians practise before him, until the flesh became insensible. Seba, Moor, and Bosman, however, give a very different account of the scorpion's malignity; and assert, that, unless speedily relieved, the wound becomes fatal.

The means recommended by Dr. Moseley for curing the bites of this and other venomous creatures are pointed out under the article Venom. In the mean time the following cure may be worth the reader's notice.

" Mrs. Pidgeley, at Kingston in Jamaica, in January 1781, was stung by a scorpion in the foot, above the little toe. The part became instantly red and painful; and soon after livid. The pain increased to great severity. Some rum was applied to the wound, on which the pain immediately left the foot, and passed up to the groin, with great agony. The pain still passed upwards, and diffused itself about the pit of the stomach, neck, and throat, attended with tremors, cold sweats, and languor. As the pain passed the abdomen, it occasioned a violent purging and fainting, which ceased on its advancing higher." The author was called to her, and gave her the following medicines, a few doses of which removed every symptom. She had been extremely ill for thirty-six hours.

℞ Sal. Succin. ℈ij;
Camphor. gr. xij;
Cinnabar. Antimon. gr. x;
Confect. arom. q. s. Fiant boli sex.

One of these was taken every hour, with four spoonfuls of the following mixture:

℞ Aq. Menthæ sativ. ℥vij;
Tin. opii camph. ʒij;
Syr. Croci ℥ss. Misce.

SCORZONE'RA (from *escorzo*, Span. a serpent; so called because it is said to be effectual against the bite of all venomous animals), also named *Viperaria*, and *Serpentaria Hispanica;* viper's-grass: *Scorzonera humilis; caule subnudo, unifloro; soliis lato-lanceolatis, nervosis, planis*, Linn. The roots are sometimes employed medicinally as alexipharmics, and in hypochondriacal disorders and obstructions of the viscera. The root of the *Scorzonera Hispanica* is esculent, and oleraceous, but little efficacious as a medicine.

SCORZONE'RA HISPA'NICA; the systematic name of the esculent viper's-grass.

SCORZONE'RA HU'MILIS; the systematic name of the officinal viper's-grass. See Scorzonera.

SCRIBONIUS (Largus); an ancient physician, who lived in the reign of Augustus or Tiberius. He was the author of several works, of which the best edition is that of John Rhodius.

SCROBI'CULUS CORDIS (*crobiculus*, dim. of *scrobs*, a ditch), a name for the pit of the stomach.

SCRO'FULA, or Scrophula (from *scropha*, a *hog*, because this disorder takes place in swine); called also *Struma*, and by the French *Ecrouelles:* a peculiar enlargement or tumor of one or more of the conglobate glands. Dr. Cullen places this genus of disease in the class *cachexiæ*, and order *impetigines;* which he defines, " tumors of the conglobate glands, particularly of the neck, attended with a swelling of the upper lip and column of the nose; a florid countenance, smooth skin, and tumid abdomen." He distinguishes four species: 1. *Scrophula vulgaris*, when it is without other disorders, external and permanent. 2. *Scrophula mesenterica*, when internal, with loss of appetite, pale countenance, swelling of the belly, and an unusual fetor of the excrements. 3. *Scrophula fugax*. This is of the most simple kind; it is seated only about the neck, and for the most part is caused by the resorption from sores on the head. 4. *Scrophula Americana*, when it is joined with the yaws.

Scarcely any part of the body is exempted from this disease; but it is only the lymphatic vessels in any part that are the immediate seat of it. The lymphatic glands of the mesentery are first affected. The conglomerate glands are not affected otherwise than by being disturbed with the disorder of adjacent conglobate lymphatic glands. As the disorder attacks this or that particular part, so a variety of different symptoms are produced. If it affect the eyes, it produces an *ophthalmia;* the eye-lids, an *epiphora*, with soreness and ulceration. If it attack the canthus of the eye, it produces a *fistula lachrymalis;* if the nose, an *ozæna;* the lips, the *labrisulcium*, or thick pouting tumor, especially of the upper lip, with a fissure in the middle. In the throat, it is shewn by *tumefied tonsils;* and under the tongue, by a *ranula*, &c. That affection of the joint known by the name of a *white swelling* is of this sort, as well as the enlargement on the fore-part of the neck termed *bronchocele*. The *steatoma*, *atheroma*, and *meliceris*, often occur in persons affected with *scrofula*, and are probably derived from that source.

The disposition to scrofula seems to be hereditary; yet a generation, or perhaps two, may pass without its being manifested in them; but in the next it again revives. As to the cause, it is something that occasions the coagulable lymph to run into concretions. A variety of causes indeed have been mentioned, as tending to produce scrofula; viz. crude indigestible food; bad water; living in damp, low situations; its being hereditary, and in some countries endemic, &c. But whatever may in different circumstances be the exciting or predisposing causes of the scrofula, the disease itself either depends upon, or is at least much connected with, a debility of the constitution in general, and probably of the lymphatic system in particular, the complaint always shewing itself by some affections of the latter. And that debility has at least a considerable influence in its production is probable, not only from the manifest nature of some of the causes said to be productive of scrofula, but likewise from such remedies as are found most serviceable in the cure, which are all of a tonic and invigorating nature.

Children of scrofulous habits have usually a florid complexion, and a fulness of the face, more than is common to others; and the usual appearances are, scirrhous tumors, chiefly in glandular parts, and which are rarely affected with pain, or brought to suppurate. A multiplicity of symptoms attend in different cases, but only a few of them are observed in any individual. Among the most frequent, besides the tumors just named, are swelled and sore upper lip, with soreness about the nose and cheeks. The eyes are inflamed, and a very sharp humour runs from them; in a morning, the eyes are glued together, so that they cannot easily be opened. Dry scabs form on or near the elbows, &c.

Mr. Hunter says, " the scrofula is a disease so marked that few can mistake it; that it is hardly proper to class it among poisons, as it cannot be said to be catching; yet it has the power of assimilating other matter into its own likeness. The matter is produced without inflammation. It does not produce any effect on the constitution, or on the absorbents, or on the lymphatic glands; but only a single gland will be affected. Hence the constitution is not affected. The predisposing cause," he says, " is climate principally; such as cold damps with alternate heats; and between the latitude of forty-five north, and the higher latitudes, are those places where it rages with the most violence. In England, and in Germany, it is common; but whether it is found in the southern latitudes, is not known. That cold is a predisposing cause of it, is evident from its not being known in the warm, constant climates. Persons are continually affected with it who come from hot to cold climates; and those are cured who go from cold to warm ones. It is generally supposed to be hereditary. The weak and debilitated habits are most likely to have it: they are the most susceptible of its various actions, and the parts the most exposed to it are the most debilitated: besides, the age at which persons are the most disposed to it is the most delicate."

If the scrofula attacks a bone, it becomes carious. If the caries take place in the bones of the fingers, the cure is difficult; but if in the foot or hand, the discharge generally exhausts the patient, unless prevented by amputation. When a scrofulous tumor is hard and unequal, it is apt to become cancerous. If many of the glands of the neck are indurated, it often happens that those in the mesentery are so too. And the greater the number of parts affected with the disease, the greater is the difficulty of even alleviating them.

The scrofula, in fact, is a disorder which often eludes the most powerful medicines, and therefore physicians cannot with any certainty promise a cure. It is seldom, however, that it proves mortal in a short time, unless it attacks the internal parts, such as the lungs, where it frequently produces tubercles that bring on a fatal consumption. When it attacks the joints, it frequently produces ulcers, which continue for a long time, and gradually waste the patient; while, in the mean time, the bones become foul and corrode, and death ensues after a long scene of misery. The prognosis in this respect must be regulated entirely by the nature of the symptoms.

It was long supposed that scrofula depended upon an acid acrimony of the fluids; and this, it is probable, gave rise to the use of burnt sponge, different kinds of soap, and other alkaline substances, as the best remedies for acidity. But although a sourness of the stomach, primæ viæ, &c. no doubt, frequently occurs in these complaints, yet this symptom seems to be entirely the consequence of that general relaxation which in scrofula so universally prevails, and which does not render it in the least necessary to suppose a general acescency of the fluids to take place; as the one very frequently, it is well known, even in other complaints, occurs without the least suspicion of any acid acrimony existing in the other. This, Dr. Cullen says, is also rendered very probable from the indolent nature of scrofulous tumors, which have been known to subsist for years without giving any uneasiness; which could not have been the case, if an acid, or any other acrimony, had prevailed in them.

In the *treatment of scrofula*, different morbid conditions, existing in different parts, require, according to circumstances, various means of cure: but, upon the whole, the remedies directed may be considered as used with a view either to the tumors, to the ulcerations, or to the general state of the system. Mercurial purges are sometimes of use as resolvents in scrofulous swellings; but nothing has such considerable influence as a frequent and copious use of Peruvian bark. Cold bathing too, especially in the sea, together with frequent moderate exercise, is often of singular service here; as is likewise change of air, especially to a warm climate. In the scrofulous inflammation of the eyes, or ophthalmia strumosa, the Peruvian bark has also been given with extraordinary advantage: and we meet with an instance of its having cured the gutta rosacea in the face; a complaint which it is often difficult to remove.

From the various cases related of tumefied glands, it appears, that when the habit is relaxed and the circulation weak, either from constitution or accident, the bark is a most efficacious medicine, and that it acts as a resolvent and discutient. It will not, however, succeed in all cases; but there are few in which a trial can be attended with much detriment. Dr. Fothergill observes, that he has never known it to avail much where the bones were affected, nor where the scrofulous tumor was so situated as to be accompanied with much pain, as in the joints, or under the membranous coverings of the muscles; for, when the disease attacks those parts, the periosteum seldom escapes without some injury, by which the bone will, of course, be likewise affected. Here the Peruvian bark is of no effect: instead of lessening, it rather increases the fever that accompanies those circumstances; and, if it do not really aggravate the complaint, it seems at least to accelerate the progress of the disease.

Various are the modes in which the bark is administered: Dr. Fothergill made use of a decoction, with the addition of some aromatic ingredients and a small quantity of liquorice-root, as a form in which a sufficient quantity may be given without exciting disgust. But where it is easily retained in the stomach in substance, perhaps the best form of exhibiting it is that of powder; and in this state it is often advantageously conjoined with powder of cicuta, and taken in milk.

The powder, however, soon becomes disagreeable to very young patients; and the extract seems not so much to be depended upon as may have been imagined. In making the extract, it is exposed to so much heat, as must have some effect upon its virtues, perhaps to their detriment. In administering it, likewise, if great care be not taken to mix it intimately with a proper vehicle, or some very soluble substance, in weak bowels it very often purges, and thereby not only disappoints the physician, but injures the patient. A small quantity of the *Cortex Winteranus* added, gives the medicine a grateful warmth; and a little liquorice, a few raisins, gum-arabic, or the like, added to the decoction before it be taken from the fire, by making the liquor viscid, enables it to suspend more of the fine particles of the bark; by which process the medicine is not only improved in efficacy, but at the same time rendered less disagreeable.

Dr. Fothergill says, that the cicuta, even by itself, is not without a considerable share of efficacy in removing scrofulous disorders. He mentions the case of a gentlewoman, about twenty-eight years of age, afflicted from her infancy with scrofulous complaints, severe ophthalmies, glandular swellings, &c. cured by the extract, taken constantly for the space of a year. He observes, however, that when given to children even in small doses, it is apt to produce spasmodic affections; for which reason he rarely exhibited it to them when very young, or even to adults of very irritable habits. Dr. Fothergill gives several other instances of the success of cicuta in scrofulous cases, and even in one which seemed to be not far removed from a confirmed phthisis; but owns that it seldom had such good effects afterwards: yet he is of opinion, that where there are symptoms of tubercles forming, a strumous habit, and a tendency to phthisis, the cicuta will often be serviceable. It is anodyne, corrects acrimony, and promotes the formation of good matter. With regard to the quality of the medicine, he observes, that the extract prepared from hemlock before the plant arrives at maturity, is much inferior to that which is made when the hemlock has acquired its full vigour, and is rather on the verge of decline; just when the flowers fade, the rudiments of the seeds become observable, and the habit of the plant inclines to yellow. We have fully stated these cautions, however, under the article HEMLOCK.

Mr. Pott advises, in all scrofulous affections, to produce large artificial purulent discharges, such as issues and perpetual blisters. Dr. Saunders, in his Lectures on the Practice of Physic, recommends, that when the bark is given and continued two or three weeks, during which time the patient is much better, and a cure seems to advance fast, but afterwards appears to have no further effect, the disease gaining ground upon the patient,—in such a case, to prevent habit from rendering the bark ineffectual, we should begin immediately with the cicuta, or with sea-water, or such other remedy as at that time may appear most proper; and continuing it a while, return to the bark; and thus alternate the medicines every two or three weeks, or as their efficacy is perceived to abate. As the force of habit powerfully destroys the effect of remedies, it is necessary to alternate them. He further advises to avoid all those means that would be likely to make the tumors suppurate; for this is useless, or worse. In general, *to increase the tone of the fibres*, and *to resolve the tumors*, are the principal endeavours that should be made towards a cure; to these ends, the *bark*, *chalybeates*, *sea* and *cold bathing*, *hemlock*, *burnt sponge*, and *occasional purging* with calomel, contribute. To glandular and scrofulous tumors, external applications are not without use. Living in the sea air, and the use of tepid salt-water baths, apportioned to the constitution of the patient, are highly beneficial. So are poultices of the quercus marina bruised: or sea-water, where the quercus cannot be had, mixed with oatmeal, may be applied to the tumors.

When these tumors burst, a scrofulous ulcer is formed, which never yields a good discharge; but a viscid, glairy, and sometimes a whitish curdled, matter, which afterwards is changed into a watery sanies. The edges of the sores are frequently, though not always, painful; and are at first raised or tumefied, but afterwards are much thinner. So long as the scrofulous disposition subsists in the habit, these ulcers generally remain a long time without shewing any disposition either to heal or grow worse. At other times they heal very quickly, and again break out in some other part of the body.

Some observe that scrofulous ulcers have their surface rather convex, and with an uniform glossy appearance. Mr. Bell observes, that so long as the general morbid diathesis continues in the system, it is commonly in vain to attempt their cure; nor would it indeed often be safe. Emollient applications of all sorts are highly injurious when applied to scrofulous tumors or ulcers. They weaken the solids, already too much disposed to relaxation; prevent all endeavours of nature to bring about a firm incarnation; and occasion a kind of erysipelatous spreading of the ulcer. The mischiefs occasioned by emollient applications indeed are clearly shewn, by the speedy change produced by almost every kind of means of the opposite class. The most simple of the astringent and stimulant kind answer best. Even cold water has frequently a good effect on throwing aside other dressings, and washing the sore with it. Water, with any kind of saline or mineral impregnation, is also of advantage; particularly *sea-water*. The *greasy* saturnine and other applications are improper in these cases.

A continuation of such simple dressings as these is all that, in general, should be attempted, so long as any disorder of the constitution remains; but Mr. Bell observes, that in some cases the ulcers are so inveterate as to require other aids also; as when they become swelled, painful, and discharge a corroding, acrid matter: when such appearances occur, a carious bone may frequently be suspected to be at the bottom of the sore; and then, Nature must be assisted, by freeing her from such parts of it as are most diseased, and that are become loose. This, in some situations, may be done; but when the complaint is fixed in any of the large joints, art can rarely afford much assistance; and as amputation is not always advisable, from the risk of the disease returning to some other part, Nature alone must often be trusted to. In such a situation, recourse should be had to the *continued use of sea-bathing*, and the *bark* with *hemlock;* and we should attempt particularly to promote a proper discharge from the sores. And when, by a due use of the necessary means, there is a tendency in the sores to heal, issues should be formed, so as to produce a discharge as nearly equal to that from the sores as may be; thus the cure is carried on, both more effectually and safely. These issues are generally required through life. Gentle compression is peculiarly useful in this kind of ulcer: it particularly prevents and removes that thickness in their edges that sometimes is observed.

On opening the bodies of persons who have died of this disease, many of the viscera are usually found in a diseased state, but more particularly the glands of the mesentery, which are not only much tumefied, but often ulcerated. The lungs are frequently discovered beset with a number of tubercles or cysts, which contain matter of various kinds. Scrofulous glands, on being examined by dissection, feel somewhat softer to the touch than in their natural state, and when laid open, they are usually found to contain a soft curdy matter, mixed with pus.

SCROPHULA'RIA (from *scrofula*, the king's evil; so called from the unequal tubercles upon its roots, like scrofulous tumors); the fig-wort.

SCROPHULA'RIA AQUA'TICA. See BETONICA AQUATICA.

SCROPHULA'RIA MINOR. The herb pile-wort is sometimes so called. See CHELIDONIUM MINUS.

SCROPHULA'RIA NODO'SA; the systematic name of the fig-wort. See SCROPHULARIA VULGARIS.

SCROPHULA'RIA VULGA'RIS, *Millemorbia*, or *Scrophularia;* common fig-wort or kernel-wort. *Scrophularia nodosa; foliis cordatis, trinervatis; caule obtusangulo*, Linn. The leaves and root have been celebrated both as an internal and external remedy against inflammations, the piles, scrofulous tumors, and old ulcers; but they are now only used in this country by the vulgar.

SCRO'TAL HERNIA; a protrusion of any part of an abdominal viscus into the scrotum. See HERNIA.

SCROTUM; the cutaneous covering of the testes. This, outwardly, is a bag common to both, formed by a continuation of the skin of the neighbouring parts, and commonly very uneven, having a great number of rugæ on its outer surface. Interiorly, however, it is fleshy, and forms a muscular capsula for each testicle, termed *dartos*. The exterior or cutaneous portion of the scrotum is nearly of the same structure with the skin in general, of which it is a continuation; only it is something finer; and it is likewise plentifully stored with sebaceous glands and bulbs of roots of hair.

Though it is a common covering for both testicles, it is nevertheless distinguished into two lateral parts by a superficial and uneven prominent line, which appears like a kind of suture, and from thence has been termed *raphe*. This line is a continuation of that which divides, in the same manner, the cutaneous covering of the penis; and it is continued through the perinæum, which it divides likewise all the way to the anus. It is only superficial, and does not appear on the inside of the skin.

The inner surface of this cutaneous bag is lined by a very thin cellular membrane, through which the bulbs and glands appear very distinctly when we view its inside. The rugæ of the scrotum are in the natural state commonly a mark of health, and then its size is not very large. It increases in size, chiefly according to its length; and then the rugæ disappear more or less, according to the degrees of the preternatural state or indisposition.

The *dartos* of the scrotum has been accounted a true cutaneous muscle; but it is chiefly a cellular substance condensed, with a great number of blood-vessels entering into its composition, but without fat. This substance is thin, and by the disposition of its fibres, forms a bag with two cavities, or two small bags joined laterally to each other, and contained within the cutaneous portion.

The lateral parts of these two bags, which are turned from each other, are longer that those which are joined together; and by this union a *septum* is formed between the testes, which may be called *mediastinum scroti*.

The raphe adheres to the edge of this septum, and thereby braces down the middle of the cutaneous portion, which from thence appears to have in part two cavities; and this was perhaps what gave occasion to make the French word for the scrotum to be in the plural number. The other edge of the septum adheres to the urethra.

The dartos has a strict connection with the rest of the cellular substance, especially at the upper part below the groin, where its anterior and external lateral portions terminate by a kind of tendinous or ligamentary expansion, which is strongly united to the internal cellular membrane. Dr. Monro has shewn this as a particular fascia lata, which gives insertion to the portions of the dartos just mentioned, and as a broad frænum which keeps the same portions together.

The aponeurotic or ligamentary expansion of the dartos is fixed in the ramus of the os pubis, between the musculus triceps and the origin of the corpus cavernosum of the same side, all the way to the lower part of the symphysis of these bones. The internal portion of these muscular bags, or that which forms the septum scroti, is fixed to the urethra by means of a communication between the same ligamentary expansion, and another in its vicinity.

The scrotum is liable to a variety of complaints; one of which has been noticed under the article Prurigo Scroti. In this part there is a troublesome and constant itching, from ascarides in the rectum, from friction by violent exercise in hot weather, and very often from morpiones: but sometimes it is connected with prurigo podicis, and is referable to a morbid state of the skin, or superficial glands of the part. See Prurigo Podicis. This assumes a more important form of complaint than the prurigo, from the causes mentioned above. Here the scrotum assumes a brown colour, often becoming thick, scaly, and wrinkled. The itching extends to the skin covering the penis, more especially along the course of the urethra, and gives the patient little respite.

The scrotum is liable also to inflammation and abscess, which sometimes are attended with a considerable degree of fever, and that not without danger of life. In this case we should, if possible, remove the inflammation without permitting suppuration to take place. This is to be done by topical, and, if necessary, general bleeding, and the use of antiphlogistics. Discutient cataplasms applied cold, and renewed as often as they become warm, are proper; and, by all means, we should confine the patient to his bed. The scrotum should also be suspended in a bag-truss. If, at last, it is thought proper to encourage a suppuration, we must employ warm fomentations and poultices with the previous application of camphorated oil. The patient must be supported with a generous diet, proper cordials, and the bark with *conf. aromatica.* When, by the size and prominence of the swelling, the softness of the integuments, their shining red colour, the peeling off of the cuticle from the cutis, the mitigation of pain in the part itself, an œdomatous appearance of the integuments upon being pressed, but above all, the fluctuation of matter under the fingers, it appears that maturation is perfected, then it becomes necessary to open the tumor on its most depending part.

Another disease, too often met with in the *scrotum*, is the cancer peculiar to chimney-sweepers; hence called *cancrum mundatorum*, the *chimney-sweeper's cancer*, *chimney-sweeper's-wart*, or *soot-wart*. From whatever cause it may be, it is evident beyond a doubt that chimney-sweepers are peculiarly liable to this; and Mr. Pott was the writer who noticed it. He thinks it may be owing to a lodgment of soot in the rugæ of the scrotum at first, and that it afterwards becomes a disease of the habit. It always makes its first attack on, and its appearance in, the inferior part of the scrotum; where it produces a superficial, painful, ragged, ill-looking sore, with hard and rising edges. It does not usually appear before, whence it is often taken both by the patient and the surgeon for venereal; and being aggravated with mercurials, is soon much exasperated. In no great length of time, it pervades the skin, dartos, and membranes, and seizes the testicle, which it enlarges, hardens, and renders truly and thoroughly distempered. From thence it makes its way up the spermatic process into the abdomen, most frequently indurating the inguinal glands. When arrived within the abdomen, it affects some of the viscera, and then very soon becomes painfully destructive. Mr Pott says, the only chance of putting a stop to, or of preventing, this mischief, *is immediately to remove the part affected*, viz. that part of the scrotum where the sore is. If the latter be suffered to remain till the virus has seized the testicle, it is generally too late, even for castration.

Fistulous ulcers are sometimes met with in the scrotum. If these communicate with the urethra, a particular attention to them will be required. The cause may be an abscess in the scrotum; or a wound made through the *scrotum* into the urethra; the venereal disease first affecting the urethra, and from thence producing the ulcer. The external sore is generally very small and sinuous; the lips grow callous; the discharge is thin, copious, and almost continual; and if there is a communication with the urethra, the urine will more or less escape through the external wound at the times of making water; it will also insinuate itself into the cellular membrane of the *scrotum* and its neighbouring parts, and be confined; whence many inconveniences arise that cannot be removed until the orifice made through the urethra is healed.

When this disorder originates in the urethra, as is often the case, it may be known by introducing a bougie; for a stricture will be met with there. See Stricture.

SCRU'PULUM, a scruple; a medicinal weight consisting of 20 grains, and making the third of a drachm.

SCURF (*Furfura*, Lat.); small exfoliations of the cuticle, which take place after the long existence of some eruptions on the skin; a new cuticle being formed underneath during the exfoliation. See Psoriasis.

SCURVY. See Scorbutus.

SCURVY-GRASS. See Cochlearia hortensis.

SCURVY-GRASS, LEMON. See Cochlearia hortensis.

SCURVY-GRASS, SCOTCH; the *Convolvulus soldanella* of Linnæus. See Brassica marina.

SCUTELLA'RIA GALERICULA'TA; the systematic name of the plant called skull-cap. See Tertianaria.

SCUTIFORM CARTILAGE. See Thyroid cartilage.

SCY'BALA (of the Gr. σκυϐαλον, *dung)*, hard dry excrement; voided, in separate masses, from the intestines.

SEA-AIR, that part of the atmosphere which is above the sea. Sea-air is not only salubrious, but remarkably beneficial in some diseases. This may be owing to its containing a greater portion of oxygen, and being less impregnated with noxious vapours, than the land. Dr. Ingenhousz made several experiments to ascertain the salubrity of sea-air. By mixing equal measures of common air and nitrous air, he found, that at Gravesend they occupied about 104, or one measure and $\frac{4}{100}$ of a measure: whereas at sea, about three miles from the mouth of the Thames, two measures of air (one of common and one of nitrous air) occupied from 0.91 to 0.94. He attempted a similar experiment on the middle of the channel between the English coast and Ostend; but the motion of the ship rendered it impracticable. He found that in rainy and windy weather the sea-air contained a smaller quantity of oxygen than when the weather was calm. On the sea-shore at Ostend it occupied from 94½ to 97; at Bruges he found it at 105; and at Antwerp 109½. Dr. Ingenhousz thus concludes his paper: It appears, from these experiments, that the air at sea and close to it, is in general purer and fitter for animal life than the air on the land, though it seems to be subject to the same inconstancy in its degree of purity with that of the land. People are in general very healthy at Gibraltar, though there are very few trees near that place; which Dr. Ingenhousz thinks is owing to the purity of the air, arising from the neighbourhood of the sea. Most small islands are very healthy. At Malta, people are little subject to diseases, and live to a very advanced age. Sea-air contributes, perhaps, not less than sea-water, to the amendment of patients affected with scrofula.

SEA-HOLLY. See Eryngium.

SEA-MOSS. See Corallina.

SEA-OAK. See Quercus marina.

SEA-ONION. See Scilla.

SEA-PLANTS; those vegetables that grow in salt water within the shores of the sea. The old botanists divided these into three classes. 1. The first class, according to their arrangement, contained the *algæ*, the *fuci*, the *sea-mosses* or *confervas*, and the different species of sponges. 2. The second contained substances of a hard texture, like stone or horn, which seem to have been of the same nature with what we call *zoophyta;* with this difference, that we refer sponges to this class, and not to the first. 3. The third class was the same with our *lithophyta*, comprehending *corals, madrepora*, &c. It is now well known that the genera belonging to the second and third of these classes, and even some referred to the first, are not vegetables, but animals, or the productions of animals. See Corallina, Madrepora, Spongia. Sea-plants, then, properly speaking, belong to the class of cryptogamia, and the order of algæ; and, according to Bomare, are all comprehended under the genus of fucus. We may also add several species of the ulva and conferva and the sargazo. The fuci and marine ulvæ are immersed in the sea, are sessile, and without root. The marine confervæ are either sessile or floating. The sargazo grows beyond soundings.

SEA-SALT. See Murias sodæ.

SEA-SICKNESS, a disorder incident to most persons on their first going to sea, occasioned by the agitation of the vessel. In voyages, sea-sickness, though it continues in general only for the first day or two, is extremely harassing to some people at intervals, especially on any increased motion of the vessel. Sometimes, by long continuance, it causes fever, head-ache, quick-pulse, thirst, white tongue, and a total deprivation of the retention of the stomach; evils which are always difficult to remove, and frequently terminate only with the voyage. This indisposition is considerably alleviated by a small teaspoonful of ether, taken now and then in a glass of water, and applying some of it to the temples and nostrils. The ancient writers recommend acid fruits, bread and vegetables soaked in vinegar, after the stomach has been cleansed by vomiting; but not to attempt to suppress the vomiting until that end was obtained. An old remedy for sea-sickness, and a very common one among sailors, is a draught or two of sea-water; which, though a disgusting medicine at such a time, yet where the first passages are foul and loaded, generally produces the desired effect when the perturbation it occasions ceases.

SEA-WATER, or salt-water; the produce of the ocean. This is arranged by chemists among the simple saline waters. Its chemical analysis gives a proportion of 1 of saline contents to about 23¼ of water; but on our shores it is not greater than 1 of salt to about 30 of water. Sea-water on the British coast may, therefore, be calculated to contain in the wine pint, of muriated soda 186.5 grains, of muriated magnesia 51, of selenite 6 grains; total 243½ grains, or half an ounce and 3½ grains, of saline contents. The disorders for which the internal use of sea-water has been and may be resorted to, are in general the same for which all the simple saline waters may be used, as above. The peculiar power of sea-water and sea-salt as a discutient, employed either internally or externally, in scrofulous habits, is well known, and is attended with considerable advantage when judiciously applied.

The sea, with respect to temperature, may be divided into two regions: The first begins at the surface of the water, and descends as far as the influence of the sun's rays; the second reaches from thence to the bottom of the sea. In summer the lower region is considerably colder than the upper: but it is probable that during winter the very reverse takes place; at least the comte de Marsigli found it so repeatedly in the Mediterranean. This naturally results from the situation of the water near the bottom of the sea. Uninfluenced by the changes in the atmosphere, it retains always nearly the same degree of temperature: and this is considerably above congelation; for the lower region of the sea, at least in the temperate parts of the world, was never known to freeze. Captain Ellis let down a sea-gauge in latitude 25° 13′ north, and longitude 25° 12′ west, in order to take the degrees of temperature and saltness of the sea at different depths. It descended 5346 feet, which is a mile and eleven fathoms. He found the sea salter and colder in proportion to its depth till the gauge had descended 3900 feet, when the mercury in the thermometer came up at 53; but the water never grew colder, though he let down the gauge 2446 feet lower. At the surface the thermometer stood at 84.

Sea-bathing has been found eminently useful, we may almost say the only thing that is useful, in scrofulous cases. See SCROFULA. Of late a *warm-bath of sea-water* has been preferred in cases of internal scrofula, and with good reason.

As it is sometimes necessary to preserve sea-water in casks for bathing and other purposes, it is of importance to know how to keep it from putrefaction. Many experiments were made to determine this point by Mr. Henry, of Manchester. His first experiment was this: "To one quart of sea-water were added two scruples of fresh quick-lime; to another, half an ounce of common culinary salt; and a third was kept as a standard without any addition. The mouths of the bottles being loosely covered with paper, they were exposed to the action of the sun in some of the hottest weather in summer. In about a week the standard became very offensive; and the water, with the additional quantity of salt, did not continue sweet many hours longer; whereas that with lime continued many months without ever exhibiting the least marks of putridity." When he added a drachm more of quick-lime, the whole of the magnesia contained in the water was separated; and when a further addition was made, a lime-water was immediately formed. He therefore concluded, that two scruples of quick-lime are sufficient to preserve a quart of sea-water. The proportions, however, may vary a little, according to the strength of the quick-lime employed.

SEA-WRACK. See QUERCUS MARINA.

SEALED-EARTHS. See TERRA SIGILLATA.

SEAMEN. The *means of preserving the health* of this valuable class of men have long, and justly, occupied the attention of medical men. The following observations on the subject appear in the sixth volume of the Memoirs of the Royal Society of Medicine at Paris for the years 1784 and 1785. In 1783, the marshal de Castries, intending to make some changes in the regulations of the navy, particularly with regard to diet, proposed to the society the two following questions: 1. "What are the most wholesome aliments for seamen, considering the impossibility of procuring them fresh meat? And what kinds of salt meat, or fish, of pulse, and of drink, are most proper for them, and in what quantity, not omitting to enquire into the regimens in use amongst other maritime nations for what may be adopted by us, and into what experience has evinced the utility of, from the accounts of the most celebrated navigators?" 2. "A number of patients labouring under different diseases being assembled in naval hospitals, and different constitutions affected by the same disease requiring difference of diet, what general dietetic rules for an hospital would be best adapted to every exigence, dividing the patients into three classes: the first in which liquids alone are proper; the second in which we begin to give solids in small quantities; and the state of convalescence in which a fuller diet is necessary?" A committee was appointed to draw up an answer to these, who investigated the subject very minutely. The result of their labours is there given at large. The observations most worthy of notice are, that the scurvy of the English seamen, who live chiefly on salt meat, is a putrid disease; whilst that of the Dutch, who use farinaceous vegetables and dried pulse in large quantities, has more of an hydropical tendency. A mixture of both, even at the same meal, is recommended. This is supported by philosophical reasoning, and the example of Captain Cook, who was partly indebted to this mixed regimen for the preservation of his crew. Salt fish should never be used: salt beef grows hard, and after boiling, its fibrous parts only remain, which are more calculated to load the stomach than recruit the strength. Salt bacon may be kept at sea eighteen months; it does not lose its moist and nutrimental parts, and unites better with pulse, but should not be used when rancid. Live animals kept on board ships tend to produce diseases amongst the crew. Rice should be used largely. Flour puddings are bad food unless they contain suet or fresh fat, and are well boiled: but flour would be much better made into bread, which might be done at sea with no great trouble. *Sauer kraut*, commonly called sour krout, should be used freely. Mustard, vinegar, sugar, melasses, and honey, are good antiscorbutics. Of drinks, wine is the best: wort, spruce-beer, or the Russian *quas*, are good substitutes. Spirits are only to be used in cold climates, and in small quantity. The greater part of the excellent memoir in answer to the second question, perfectly coincides with M. Duhamel du Monceaux's "Means of Preserving the Health of Seamen," and M. Poissonnier des Perrieres's treatises "On the Diseases of Seamen," and "On the Advantages of changing the Diet of Seamen," and his "Examination of Pringle's Dissertation."

SEASONING, the first illness to which persons habituated to colder climates are subject on their arrival in the West Indies. This seasoning, unless they live very temperately, or are in a proper habit of body (though some people are unmolested for many months), seldom suffers them to remain long before it makes its appearance in some mode or other; particularly if at first they expose themselves in a shower of rain, or too long in the sun, or in the night-air; or when the body is much heated, if they drink large draughts of cold liquors, or bathe in cold water; or use much exercise; or commit excess in drinking wine or spirits; or by heating the body and inflaming the blood; or by subjecting themselves to any cause that may suddenly check perspiration, which at first is generally excessive.

Some people, from a favourable state of body, have no seasoning. Thin people, and very young people, are most likely to escape it. Women generally do from their temperance, and perhaps their menstruation contributes to their security; indeed hot climates are favourable to the delicacy of their habits, and suitable to their modes of life. Some escape by great regularity of living; some, by the breaking out of the rash, called the *prickly heat;* some by a great degree of perspiration; and some by observing a cooling regimen. The disorders are various that constitute this seasoning of *new comers* as they are called; depending on age, constitution, and habit of body. But all seasoning diseases are of the inflammatory kind; and yield to antiphlogistic treatment proportioned to their violence. When all precaution to guard against sickness has failed, and prudence proved abortive to new-comers, they will have this comfort at least for their pains, that their disorders will seldom be severe, and will generally have a speedy termination; and that their *seasoning*, as it is emphatically called, will be removed by bleeding, a dose of salts, rest, and a cooling regimen.

SEBA'CEÆ GLA'NDULÆ *(sebaceæ,* from *sebum,* suet); sebaceous glands, or those which secrete a sebaceous or suetty humour.

SEBA'CIC ACID, an acid which is procured from fat. This acid exists in a concrete form, crystallises in needles, and is void of odour. Its taste is slightly acid. When heated it liquefies like tallow. It is soluble in cold water, and boiling water dissolves it very readily. It is also soluble in alcohol. It precipitates the acetites and nitrates of silver and mercury. Mr. Accum points out the following *method of obtaining sebacic acid:*

"Distil hog's-lard, wash the product with hot water, and drop into it a solution of acetite of lead, till it occasions no further precipitate. Collect this precipitate, wash it, and dry it. Having done this, pour over it sulphuric acid, and heat it; a substance resembling fat will then appear on the surface. This, being collected, dissolved in boiling water, and suffered to cool, crystallises, and is sebacic acid."

The combination of sebacic acid with different bases, forms the salts called *Sebates.* Sebate of potash, soda, ammonia, or lime, are crystallisable.

SEBADI'LLA. See CEVADILLA.

SEBATES, salts formed by the union of the acid of fat, or the sebacic acid, with different bases: there are twenty-four species enumerated in M. Fourcroy's Elements of Chemistry. See SEBACIC ACID.

SEBE'STEN (σεϐαϛον, an Egyptian word), the dark coloured fruit of the *Cordia myxa; foliis ovatis, subra glabris; corymbis lateralibus; calycibus decemstriatis,* Linn. This possesses glutinous and aperient qualities, and has been exhibited, in the form of decoction, in various diseases of the chest, hoarseness, cough, difficult respiration, &c. but it is now disused.

SECACUL, in the materia medica of the ancients, a name given by Avicenna, Serapion, and others, to a root which was like ginger, and was brought from the East Indies, and used as a provocative to venery. The interpreters of their works have rendered this word *iringo;* and hence some have supposed that our *eryngium* or *eryngo* was the root meant by it: but this does not appear to be the case on a strict enquiry, and there is some reason to believe, that the famous root at this time called *ginseng* was what they meant.

SECA'LE, rye; the seed of the *Secale cereale* Linn. This is principally used as an article of diet in the northern countries of Europe. It is also employed for affording an ardent spirit. Rye, when mixed with wheat, is called *meslin,* and was formerly a very common crop in some parts of Britain. The farmers in Yorkshire believe that this mixed crop is never affected by mildew. About a century ago, rye-bread was also much used in England; but being made of a black kind of rye, it was of the same colour, clammy, very detergent, and consequently not so nourishing as wheat. This grain is subject to a disease which the French call *ergot,* and the English *horned rye;* which sometimes happens when a very hot summer succeeds a rainy spring. According to Tissot, horned rye is such as suffers an irregular vegetation in the middle substance between the grain and the leaf, producing an excrescence of a brownish colour, about an inch and a half long, and two-tenths of an inch broad. Bread made of this kind of rye has a nauseous acrid taste, and produces spasmodic and grangrenous disorders. In 1596, an epidemic disease prevailed in Hesse, which the physicians ascribed to bread made of horned rye. Some, we are told, were seized with an epilepsy, and these seldom or never recovered; others became lunatic, and continued stupid the rest of their lives: those who apparently recovered had annual returns of their disorder in January and February; and the disease was said to be contagious, at least in a certain degree. The facts which we have now mentioned are taken from a work of Tissot, which was never printed. The same disease was occasioned by the use of this bread, in several parts of the continent, in the years 1648, 1675, 1702, 1716, 1722, and 1736; and has been very minutely described by Hoffman, A. O. Goelicke, Vater Burghart, and J. A. Srink.

In the year 1709, one fourth part of all the rye raised in the province of Salonia in France was horned, and the surgeon to the hospital of Orleans had no less than 500 patients under his care that were disordered by eating it. They were called *ergots,* from *ergot,* the French name for horned rye; they consisted chiefly of men and boys, the number of women and girls being very small. The first symptom was a kind of drunkenness, then the local disorder began in the toes, and thence extended sometimes to the thigh, and the trunk itself, even after amputation; which affords good reason against that operation before the gangrene is stopped. In the year 1710, the celebrated Fontenelle describes a similar case in the History of the Academy of Sciences of France.

SECA'LE CEREA'LE; the systematic name of the rye plant. See SECALE.

SECONDARY, in general, denotes something that acts as second or in subordination to another. Thus, in diseases, we have *secondary symptoms.* Too many instances of this occur in venereal cases.

SECONDARY FEVER, that constitutional affection which arises after a crisis, or the discharge of some morbid matter, as after the declension of the small-pox, or the measles; and such a fever is frequently dangerous.

SECRETION, an animal function in which a part is separated from the whole, and generally with some change of its qualities. In the case of nutrition it is evident, that all parts secrete for themselves; and that some few, as the lungs, the stomach, the vessels, and the nerves, officiate besides for the general use of the whole system. If all the ingesta were to remain and to be assimilated, the body would go on continually increasing. But living bodies are constantly in a state of waste and repair. In most animals, part of the ingesta is carried off by evacuation, without having entered the mouths of the absorbents; part, which enters the absorbents and veins, is thrown off by exhaling arteries or the urinary passage: and experiments with madder prove, that the lymphatics, besides originating from all the cavities, and carrying back the lubricating fluids, do enter the substance of the hardest bones, and convey particles that had been assimilated, back into the blood.

This office has not been generally ascribed to the absorbents; nor has it been very generally supposed that the blood receives the excrementitious matters of the system, and that one intention of the circulation was either to return them for re-assimilation, or to discharge them by exhaling vessels or by the kidneys. Decayed parts, however, are discovered in the fæces evacuated by the intestines, in the clouds, the sediment, and colour of the urine, and by the smell of the perspirable matter. The last two, on certain occasions, and for some time, have often supplied the place of one another; and all the three, the fæces, the urine, and perspirable matter, we have reason to believe, are remarkably distinguished by two kinds of odour; the one peculiar to the whole species, the other peculiar to the individual. By the perspirable matter which adheres to the ground, and of which the odour is diffused by moisture, the dog not only distinguishes a man from any other animal, but is able to trace his master through a crowd.

The natural evacuations of plants, and of some few animals which feed by absorbents, are all by perspiration or exhaling vessels. The urine in quadrupeds is, before emission, collected in a vesicle, and thence carried off by the genital organ. In birds, and in a number of fishes, the ureters empty themselves into the rectum, and their contents are evacuated with the fæces.

Besides being used to denote the function, the word *secretion* is sometimes employed for the *matters secreted*. In this sense there are various secretions. Besides the fæces, the urine, and the sweat, and the vapour from the lungs, which are excrementitious, there are secretions, which answer useful purposes in the system. Of these the most important and general are the bile, the saliva, the gastric juice, and the pancreatic, which assist in digestion; the lymph and the fat, which lubricate the parts; the mucus, which protects them from acrid substances; the nervous fluid, which forms a very conspicuous link between body and mind; the seminal fluid, employed in generation to propagate the species; and the lacteal, intended for some time to support the young after they emerge from the fœtal state.

The *saliva* is a fluid that mixes with the food in the time of mastication. It is secreted from the parotid, the sublingual, and submaxillary glands. It is watery and somewhat viscid; is found to retard and moderate fermentation; and has sometimes a tendency to form calculi like the urine. By these concretions it incrusts the teeth, and sometimes obstructs the salivary ducts.

Upon first examination the *gastric liquor* seems to possess a solvent power upon animal and vegetable substances, without any great preference of affinity. The reason is, it varies according to the nature of the aliment; "it is sometimes acid, sometimes insipid. Brugnatelli has found," says Chaptal, "in the gastric juice of carnivorous birds, and some others, a disengaged acid, a resin, and an animal substance, united with a small quantity of common salt. The gastric juice of ruminating animals contains ammonia, an extractive animal substance, and common salt. The phosphoric acid has also been found disengaged in the gastric juice."

The *bile* secreted by the liver is glutinous or imperfectly fluid like oil, of a very bitter taste, a green colour inclining to yellow, and froths by agitation like solution of soap. Its constituent principles are noticed under the article BILIS. Like the saliva and urine, bile has a tendency to form concretions, which are called *biliary calculi* or GALL-STONES (see the latter). They are sometimes found of an irregular texture, of a brown, black, yellowish, or greenish colour. They sometimes consist of transparent crystalline laminæ, like mica or talc, and are sometimes radiated from the center to the circumference. They are always inflammable, of a more solid consistence than the generality of animal oils, and resemble spermaceti both in their solidity and crystallisation; they are soluble in ardent spirit when assisted by a moderate heat: the warm solution, when filtered, deposits by cooling a number of laminated white brilliant crystals, such as Poulletier de la Salle found in the bile, and which have been compared to the salt of benzoin, the concrete acid of borax, and to spermaceti. Many of their characters indicate that they are a substance of the same nature with the last mentioned. Fourcroy found that the substance of which these crystals are composed exists not only in the crystallised gall-stones or bile; he observed it to a very considerable degree in a human liver which had been exposed to the air for several years, and had lost its volatile parts by putrefaction. He detected it also in a saponaceous form in bodies which had been many years buried under ground; and Dr. Pearson, of London, has since artificially converted the muscular fibre into a substance of a similar kind, highly inflammable, and resembling spermaceti. The symptoms produced by these concretions, and the remedies applicable in such cases, are noticed under the article GALL-STONE.

The *pancreatic juice* resembles the saliva, and was examined in the last century, with a good deal of care, by De Graaf and Swammerdam. It has often been observed forming stony concretions. See PANCREAS.

The *lymph* consists chiefly of water; but, like the serous part of the blood, contains a substance which is coagulable by heat, by acids, and by spirits of wine. It is found in the cellular membrane, in the ventricles of the brain, in the pericardium, on the surface of the pleura, in the abdomen, in the bursæ mucosæ, and in the joints under the name of *synovia*, where it has more than an ordinary degree of viscidity, and of the lubricating quality. Sometimes, when it stagnates in the sheaths of the tendons and bursæ mucosæ, it acquires thickness, and forms indolent transparent tumors, which become at last gelatinous. Lymph is secreted chiefly by arteries.

Animal fat is a substance of a nature similar to those oils which are called *fat* in the vegetable kingdom. Its colour is usually white, sometimes yellow, and its taste insipid. Its consistence is various in different animals. In cetaceous animals and fishes it is nearly fluid: in carnivorous animals more fluid than in the frugivorous: in birds, finer, sweeter, and more unctuous, and generally less solid, than in quadrupeds. In the same animal it is more solid near the kidneys and under the skin than in the vicinity of the moveable viscera. As the animal grows old, it becomes yellower and more solid: and in most animals is more copious in winter than in summer. In man and some other animals, it is collected in particular follicles of the cellular membrane, accumulated in great quantities in the groin, in the axilla, in the epiploon, around the kidneys, and around the blood-vessels: it is likewise secreted on the surface of the skin, which it protects from acrid substances, and where it sometimes concretes, often from a want of cleanliness, in the form of small worms. In many cases it seems to be secreted by organic pores, and under the surface of the skin by glands. It is accumulated from a diminution of perspiration, from the nature of the aliments, from morbid affection, and from idiosyncrasy.

It is a bad conductor of heat, and preserves the warmth of those regions where it is situated. It is more adhesive and less apt to evaporate than water, and is therefore a better lubricating fluid. When resorbed, it counteracts the saline impregnation if too copious; and its nutritive power is as three to one when compared to that of the muscular fibre. These properties may partly serve to explain its use around the several branches of the blood-vessels in those parts which require warmth, and in those which are anywise exposed to motion. They will likewise account for its being more copious in winter than in summer; and for its being found in great quantities in those animals in general which are constrained to a long abstinence. It forms sometimes steatomatous tumors, and contains the sebacic acid, which acts readily on lead, copper, and iron.

Mucus is more viscid than the lymph, and is not coagulable by fire or alcohol. It is mild, not disposed to putrefaction, nor soluble in water. This secretion is performed by glands. These glands, in the pulmonary phthisis, secrete often a mucus that resembles pus, and occasions a suspicion of ulcers where there are none. Mucus is found in the nose, through the whole length of the alimentary canal from the mouth to the anus, in the aspera arteria, in the bronchia, in the kidneys, ureters, bladder, and most of all in the urethra. It forms hard stony concretions sometimes in the lungs.

The *seminal fluid* has been seldom the subject of chemical analysis. It is heavier than water, soluble in urine, deliquesces in air and with heat; it hardens with the fixed alkali, and is not coagulable by alcohol. It contains a number of animalculæ; and in the system in which it is secreted, it affects the passions, the manners, and the voice, the state of the muscles, the secretion of fat, and the growth of the hair. In many fishes this fluid is contained in a sort of bags. In most animals it is secreted by glands, which are called *testes*, and is accumulated in the vasa deferentia, or, where they exist, in the seminal vesicles. Of these vesicles Swammerdam observed long ago, that in the scorpion they were probably "adapted by nature to secrete a seminal matter different from that supplied by the testicles; they are largely," he says, "supplied with glandules to answer that purpose, and consist of a considerably thick and spongy substance." Mr. Hunter since has endeavoured to shew, that they secrete a particular fluid in all animals.

So little are we acquainted with the *nervous fluid*, that some have doubted of its existence. The discovery, however, of Galvani, and the numerous experiments that have since been making on animal electricity, leave us not without all hope that something yet may be known of its properties, that will greatly illustrate some obscure phenomena in the animal economy.

The *lacteal* secretion is confined to one sex, and is peculiar to the class of mammalia. See MILK.

It would be impossible here to enumerate the uses of all the different kinds of secretions in living bodies. Each species of plant and animal has generally some peculiar secretion; and this secretion in the individual has often some distinguishing quality, discoverable by taste, by colour, or by smell. These different secretions have likewise each their particular uses.

The differences among the various secretions of the same system seem principally owing to a difference of stimulants, and in some difference in the action, the form, and the irritable power, of the secretory organ. Passions of the mind very often affect the secretions; and it frequently happens that passion and medicine affect one secretory organ and not another. It is therefore probable that the organs of secretion, and the smallest fibre is an organ of this kind—we say, it is probable that the organs of secretion, like the eye, the ear, and all the different organs of sense, are each affected in some measure by peculiar stimulants; as the stomach by hunger, the fauces by thirst, and the genital organs by the venereal orgasm.

Fermentative mixture, and some original impregnation of the organs, have also been brought to explain the several phenomena of secretion. We conclude with observing, that however much the various fluids of living bodies may differ in appearance, chemical analysis has generally reduced them to a water, a gluten, a saline impregnation, and an oil.

SECUNDINES, or AFTER-BIRTH; a name for the placenta, and membranes, which are expanded from its edge, and which form a complete involucrum of the fœtus and its waters. See Placenta, and Ovum.

SECU'NDUM ARTEM, *according to art*, is a term frequently used in prescription, and denoted by the letters S. A. which are usually affixed, when the making up of the recipe in perfection requires some uncommon care and dexterity.

SEDA'NTIA (from *sedo*, to ease or assuage); sedatives. These are medicines which directly, and without evacuation, diminish the motions and powers of the human system. They are of different kinds, as they act more immediately upon the nervous or sanguiferous systems; and Dr. Cullen treats of them accordingly under the titles of Narcotics and Refrigerants. See those articles.

The operation of narcotics is always directly sedative; but Dr. Cullen notices a circumstance that relates to this class of remedies in general. With respect to them, he remarks, that when sedatives thrown into the body do not prove absolutely mortal, their operation is of a certain duration only; and therefore, after a certain time, or at least sooner or later, according to circumstances, it either entirely ceases, or its effects are greatly diminished.

It is in consequence of this, that when, for the purposes of medicine, it is necessary the effects of narcotics be continued, this can only be effected by a repetition, in due time, of the sedative; and upon such occasions, the law of the economy takes place, by which all impressions that do not excite to action by repetition, become weaker; and hence, in the repetition of narcotics, the impression, that is, the dose, must be made stronger than before. This happens very constantly in the repetition of narcotics; and to persons acquainted with the effect of custom, affords an argument, that in most instances those narcotics act by their sedative rather than by their stimulant powers. See the article Sleep.

SEDATI'VA (from *sedo*, to ease or assuage), the same as *Sedantia*. See Sedantia. Those medicines are so termed which have the power of diminishing the animal energy, without destroying life. They are divided into *sedativa soporifica*, as papaver, or hyoscyamus; and *sedativa refrigerantia*, as the neutral salts, acids, &c.

SEDATIVE SALT. Homberg first obtained this salt from borax, and gave it this name, because he imagined it to possess a sedative, antispasmodic, and even a narcotic, quality, and thence also called it the *Narcotic Salt of Vitriol*. This salt is separated from borax by means of the vitriolic acid. See Boracic acid.

SEDGE; a name for the yellow water-flag. See Iris palustris.

SEDIMENT, the heavy part of a turbid liquid, which falls to the bottom.

SEDIMENT, LATIRITIOUS. See Latiritious sediment.

SEDLITZ WATER, or *Seydschutz water;* a simple saline mineral water. From chemical analysis it appears, that it is strongly impregnated with vitriolated magnesia or Epsom salt, and it is to this, along with probably the small quantity of muriat of magnesia, that it owes its bitter and saline taste, and its purgative properties. The diseases in which this water is recommended are, crudities of the stomach, hypochondriasis, amennorrhœa, and the anomalous complaints succeeding the cessation of the catamenia, œdematous tumors of the legs in literary men, hæmorrhoidal habits, and in scorbutic eruptions. See Mineral waters.

SE'DUM (from *sedo*, to assuage; so called because it allays inflammation); the house-leek.

SE'DUM ACRE; the systematic name of the stonecrop. See Illecebra.

SE'DUM MAJUS, *Aizoon*, or *Barba Jovis;* the house-leek or sangreen: *Sempervivum rectorum* Linn. The leaves of this plant, though they have no remarkable smell, discover to the taste a mild subacrid austerity. They are frequently applied, by the vulgar, to bruises and old ulcers, and also, bruised with cream, to tetters, and other eruptions.

SE'DUM MINUS. See Illecebra.

SE'DUM TELEPHIUM; the systematic name of *Orpine*. See Faba crassa.

SEED. See Semen.

SEEING, that sensation by which we perceive bodies around us, and become acquainted with their sensible qualities. See Sight and Vision.

SEIGNETTE'S SALT, *Rochelle Salt*, or *Sal Polychrest;* a neutral salt, which consists of soda united to the tartareous acid. It was prepared and named after Peter Seignette, a Frenchman, towards the end of the last century. It was then employed in preference to many other medicines long known, which had been equally serviceable; and by these means, without much trouble, the inventor was enabled to acquire a fortune. It must, however, be allowed, that he was a skilful chemist; who, by his writings, and the invention of various other medicines, had obtained considerable reputation as a physician and naturalist. He was established as an apothecary at Rochelle; published papers on various natural objects which he had observed in his neighbourhood, in the Memoirs of the Academy of Sciences at Paris, as well as in other works; and died on the 11th of March, 1719.

Seignette discovered this salt whilst engaged in making the tartrite of potash. According to the old opinion, imagining, that both the fixed alkalis were the same, he used soda instead of potash; and by this means procured, not without surprise, a salt different from the common soluble tartar which he wished to prepare, and from the other well-known salt also. By their experiments, other chemists discovered the component parts of this salt; the mode of preparing it was then made public; and by more accurate examination, the difference, before overlooked, between vegetable and mineral alkali was determined; by which new light was thrown upon chemistry, and an important service rendered to a variety of arts.

Among those who contributed to bring this salt into repute, was Nicolas Lemery, to whom Seignette sent a large quantity of it, which he distributed at Paris, though unacquainted with its component parts.

Its composition was discovered, at the same time, about the year 1731, by two French chemists, Baldue and Geoffroy. Neuman, therefore, was not the first who made known the composition of Seignette's salt, in his treatise on salt-petre; for Neuman's sal polychrest is essentially different; and he himself confesses that he was not acquainted with the Rochelle salt.

SELENITES (σεληνιτης; from σεληνη, the *moon*), the name of a white stone, having a figure upon it resembling the moon.

SELENITES, the name of a large class of fossils, the characters of which are these: they are bodies composed of slender and scarcely visible filaments, arranged into fine, even, and thin flakes; and those disposed into irregular figures in the several different genera, approaching to a rhomboid or hexangular column, or a rectangled parallelogram; fissile, like the talcs, but they not only lie in a horizontal, but also in a perpendicular direction. They are flexile in a small degree, but not at all elastic: they do not ferment with acid menstrua, but readily calcine in the fire. Of this class there are seven orders of bodies, and under those ten genera. The selenitæ of the first order are those composed of horizontal plates, and approaching to a rhomboidal form: of the second are those composed of horizontal plates, arranged into a columnar and angular form: of the third are those whose filaments are scarcely visibly arranged into plates, but which, in the whole masses, appear rather of a striated than of a tubulated structure: of the fourth are those which are flat, but of no determinately angular figure: of the fifth are those formed of plates perpendicularly arranged: of the sixth are those formed of congeries of plates arranged into the figure of a star; and of the seventh are those of a complex and indeterminate figure. These substances have not been employed in medicine.

The name of *Selenites*, has also been given to the *gypsum spatosum*, a species of gypsum or plaster-of-Paris. See Gypsum.

SELINE, that disease of the nails, in which white spots are occasionally seen in their substance. It is generally produced by slight bruises.

SELF-HEAL. See Prunella.

SE'LLA TURCICA (*sella*, a saddle, *quasi sedda*, from *sedeo*, to sit, and *Turcica;* from its supposed resemblance to a Turkish saddle), also called *Ephippium;* a cavity in the sphænoid bone, containing the pituitary gland, surrounded by the four clinoid processes.

SELTZER WATER; a mineral water which springs up at Lower Seltzer, a village in the electorate of Triers, about ten miles from Frankfort-on-the-Mayne. It is a very useful medicinal water. It contains, according to some, a very small portion of calcareous earth, of a native mineral alkali, and an acid; but of these the quantity is too small to attribute any medicinal virtues to them: but it contains also near 1-7th of its bulk of fixed air, which is more than is found in any other mineral water, and to this it owes its principal virtues. Others have said that it is of the very same nature with Pyrmont water, and contains a subtile carbonic acid, a volatile iron, and a predominant alkali, all joined together into one brisk spirituous water. The consequence of these different opinions respecting its constituent parts is, that different methods have been recommended for imitating it.

According to the former analysis, artificial Seltzer water may be prepared by adding one scruple of magnesia alba, six scruples of fossil alkali, and four scruples of common salt, to each gallon of water, and saturating the water with fixed air or carbonic acid. According to the latter, it may be imitated by adding to a quart of the purest and lightest water, thirty drops of a strong solution of iron made in marine acid, a drachm of oil of tartar per deliquium, and twenty drops of acid of vitriol, or a little more or less as is found necessary, not to let the alkali in the composition prevail too strongly, though it must prevail a little. If the proportions be carefully observed, and the whole of these ingredients shaken briskly together, the artificial Seltzer or Pyrmont water thus made will strongly resemble the natural, and have the same good effect in medicine.

But as carbonic gas is the only efficacious medicinal part of the composition of Seltzer water, the best method of imitating it, is by impregnating common water with that acid by means of the glass apparatus invented by Dr. Nooth, the manner of using which is well known.

SEMECA'RPUS ANACARDIUM; the systematic name of the tree which is supposed to afford the Molucca bean. See Anacardium orientale.

SEMEIO'SIS (σεμειωσις; from σημειοω, to *notify)*. See Semiotice.

SE'MEN, the seed; a figurative term to denote the prolific liquor which is secreted for the purposes of generation. See Generation. The semen masculinum is first formed in the testicle; then deposited in the seminal vesicles; afterwards ejected from the penis into the uterus, where it renders the female ovum prolific: and therefore this should be the order of our enquiry into these particulars.

The blood, brought by a very slow motion through the spermatic artery to the anterior substance of the testicle, is there distributed and conveyed into the seminiferous vessels; but we are ignorant of the manner by which the arteries communicate with these canals, the bundles of which form the whole substance of the testicle. These seminiferous vessels are exceedingly small, serpentine, firm, solid, and have a very small capacity in proportion to their membranes. They are collected together, as has been described above, and terminate in the vasa deferentia.

The semen is conveyed by the vasa deferentia into the vesiculæ seminales, being propelled forward by the motion of the succeeding juices in the testicle; and perhaps, in some measure, though slowly, by the contraction of the cremaster. This supposition is confirmed by the numerous spires and convolutions formed by the epidydimis, obstructing almost every kind of injection; and, by the length of time that is required to fill the seminal vesicles again, after they have been once exhausted.

The vas deferens, included in the cord with the spermatic vessels, passes through the ring of the abdomen.

Thence it descends into the pelvis, and applying itself to the bladder between the ureters, it soon after meets the subjacent receptacles, called the right and left *vesiculæ seminales.* Here it goes along the inner side of the vesicle, as far as the prostate gland; and, dilating in its passage, forms a serpentine flexure, that begins to put on a cellular appearance. But very near the prostate, being continued from these cellular bendings, with a conical duct coming out from the vesicle, it unites in a very acute angle, which at the same time forms a conical duct; which being continued with the vas deferens, and sinking through the prostate gland, is there wrinkled into a large fold, and going off outward at right angles from its companion on the other side, and afterwards straightened, it opens into the urethra, through a little hollow protuberance, which has a long tail or descent, and is laterally perforated with two very small openings, one on each side. By injecting liquor into the vas deferens of a dead subject, we perceive that it flows both into the urethra and into the seminal vesicle, but more readily into the former: but in a living person the semen never flows out but in the act of venery, and consequently the vas deferens conveys all its semen, without further delay, in a retrograde angle, to the *seminal vesicles.*

The liquor brought from the testicles by the vasa deferentia, is yellowish, thin, and watery; but in the vesiculæ seminales it becomes somewhat thicker and higher coloured. It is white in man when it has been mixed with the liquor of the prostate. It has a peculiar smell in each class of animals; and it is the heaviest humour in the human body. In water a part separates into a kind of cuticle, like a cobweb, that swims in the liquid; the greater part, which is seemingly of a pulpy nature, falls to the bottom. In the semen which is long retained by chaste people, shining globules, mixed with the white liquor, are easily to be seen. It has a very great quantity of mucus.

Without the conveyance of this into the womb, according to the opinion of Haller, no class of animals, of which there are two sexes, can be fecundated so as to propagate their species; but Spallanzani has clearly proved, that in certain kinds of the animals commonly called *oviparous* (excepting birds) fecundation takes place *without* the body of the female. The microscope shews, that in man, as well as in all other male animals, the seminal liquor is full of living animalcula, resembling eels, only with a thicker head; and that these are always present in healthy semen after puberty. It has been much doubted what could be the use of these. Haller considers the nature of the seminal animalcula as the same with that of the eels in vinegar or paste.

The seminal fluid is retained in the vesicles as long as a man neither exercises venery, nor sports in imaginary dreams. It is always a stimulus to venery, as long as it is present in any quantity. Besides this, puberty produces wonderful changes in the system; such as the growth of the beard and of hair on the pubes, a change of the voice and passions, &c. A morbid retention of the semen may proceed from a narrowness of the excretory duct, a scirrhosity of the prostate, and other causes not sufficiently known.

The quantity of semen expelled at one coitus is but small, especially in a man who has not long abstained from venery; and it is natural to conclude, that this liquor can be but slowly produced from so small an artery. Its generation, however, is accelerated by love, by the presence of the beloved woman; so that it distends its vessels with a sense of pain. Nature herself, therefore, enjoins venery, both for preserving the human race, and the health of every individual.

In order that the semen, which is only in a small quantity, should be projected with a considerable force, it is previously mixed with another fluid from the prostate. This gland secretes a thick, white, soft, cream-like liquor, in a large quantity, which is poured out at the same time, and from the same causes, with the semen itself, into a little channel on each side of the openings of the seminal vesicles, where, mixing with the seminal fluid, it imparts the white colour and viscidity which the semen possesses.

It was necessary for the canal of the urethra to be firm and capable of a direct figure, that it might be able to throw the semen with some strength into the distant womb; and therefore a threefold cavernous body surrounds it. Into the cavernous body of the urethra, the blood is poured out from the arteries, which come from deep branches sent off from the external hæmorrhoidal vessels; the truth of which is demonstrated by the easy injection of any kind of fluid, through the arteries, into the cellular spaces surrounding the urethra. These cells are not naturally turgid with blood, because there are veins open, and numerous enough in proportion, to receive and return what is poured in by the arteries; but if the return is impeded by compressing those veins, the blood is then retained within the cellular spaces, while the arteries continue to carry it more swiftly and strongly than the veins return it. Thus the stagnant blood distends the bulb of the urethra, together with its cavernous body, and the glands itself. This distention is generally performed at the same time, when the other cavernous bodies of the penis, with which this of the urethra has no communication, are likewise rigidly distended. The causes of this erection are lewdness; friction of the glands; various irritations of the bladder, testicles, seminal vessels, and urethra, from the urine, from the venereal poison, from cantharides, or from an external stimulus applied to the parts. The proximate cause of this distention cannot be explained.

In order to distend the penis, there must be either a compressure of the vein, bringing back the blood from the cavernous bodies of the penis or urethra; or at least it is necessary that there should be a constriction of the lesser veins that every-where open within the cavernous bodies, to hinder them from absorbing and returning the blood from the arteries. The first, however, may be effected by the levator, drawing up the prostate and bladder: but it is very probable, that, as we see in the nipples of the breasts, in the loose pendulous gills of the turkey cock, and in the blushing or redness of the face from the passions of the mind, erection may be produced without the immediate interposition of any peculiar muscle. This supposition is confirmed by brute animals, which all couple without the use of any erector muscle; by the erections which take place in animals totally different from man, and especially those which take place in birds very quickly; and by the inactivity of the erector muscles themselves in the libidinous erection of the penis, and from their unfitness for compressing the veins. It is also probable, that an erection may be produced by the numerous ramifications of the nerves exciting a convulsive constriction of the veins; while, at the same time, the arteries, by an increased velocity of the blood, bring more blood to the parts than the veins can carry off. The cause of this convulsion is perhaps inherent in these nervous sphincters themselves, and depends either on a mechanical irritation of the nervous fibres, or on the force of the imagination.

A long continued and violent erection is at last accompanied with an expulsion of the semen; and this requires much greater force than is requisite for the erection only. For the semen is expelled when the irritation of the nerves is arrived at its greatest height: and in natural venery, when, at length, the cellular spaces of the urethra and its continuous glands, which are at last filled, become so far distended with a large quantity of warm blood, that the nervous papillæ, stretched out in the latter, become violently affected from the irritating or exciting cause. The seminal vesicles are emptied by the levator muscles of the anus, which press them against the resisting bladder with a convulsive motion, excited either by a voluptuous imagination, or by the exquisite sensibility of the nerves of the glands, principally in its lower part, which is in the neighbourhood of the frenum. Hence the semen is never discharged with any of the urine, in an healthy man; because the expulsion of it requires the bladder to be closed or drawn up firmly together; for, while lax, it affords little or no resistance to the seminal vesicles. The transverse muscles seem to dilate the canal of the urethra for the reception of the semen expressed from the vesicles.

Soon afterwards the powers constringing the urethra are, from the irritation of the very sensible fabric of that canal, put into action. To this constriction conduces principally the accelerator, which makes a powerful concussion of the bulb and adjacent part of the urethra, so as to propel its contents more swiftly. But that this may act firmly, the sphincter of the anus, together with that of the bladder, must be well shut. The accelerator muscle seems also principally concerned in the erection, by compressing the veins of the corpus cavernosum of the urethra. At the same time the *erectores penis*, as they are called, arising from the tubercles of the ischium, become tense, and are inserted into the cavernous bodies, sustaining the penis as a sort of medium between the transverse and perpendicular direction. Thus the semen is driven into the vagina, and into the uterus itself, in a prolific coition, the whole action of which is very impetuous, and comes near to a convulsion; whence it wonderfully weakens the habit, and greatly injures the whole nervous system, as the maladies arising from thence, in consequence of the affection of the nerves, without which the semen cannot be expelled, seem to indicate.

SE'MEN, in botany, the seed of a plant. With respect to *number*, plants are either furnished with one seed, as sea-pink and bistort; two, as wood-roof and the umbelliferous plants; three, as spurge; four, as the lip-flowers of Tournefort and rough-leaved plants of Ray; or many, as ranunculus, anemone, and poppy. The *form* of seeds is likewise extremely various, being either large or small, round, oval, heart-shaped, kidney-shaped, angular, prickly, rough, hairy, wrinkled, sleek or shining, black, white, or brown. Most seeds have only one cell or internal cavity; those of lesser burdock, valerian, lamb's lettuce, cornelian cherry, and sebesten, have two. With respect to *substance*, seeds are either soft, membranaceous, or of a hard bony substance; as in gromwell, tamarind, and all the nuciferous plants. In point of *magnitude*, seeds are either very large, as in the cocoa-nut; or very small, as in campanula, rampions, and throat-wort.

With respect to situation, they are either dispersed promiscuously through the pulp *(semina nidulantia)*, as in water-lily; affixed to a suture or joining of the valves of the seed-vessel, as in the cross-shaped and pea-bloom flowers; or placed upon a *placenta* or receptacle within the seed-vessel, as in tobacco and thorn-apple. Seeds are said to be naked *(semina nuda)* which are not contained in a cover or vessel: such are those of the lip and compound flowers, the umbelliferous and rough-leaved plants; covered seeds *(semina tecta)* are contained in some vessel, whether of the capsule, pod, berry, apple, or cherry kind. A *simple* seed is such as bears neither crown, wing, nor downy *pappus;* the varieties in seeds, arising from these circumstances, are particularly enumerated under their respective heads.

In assimilating the animal and vegetable kingdoms, Linnæus denominates seeds the eggs of plants. The fecundity of plants is frequently marvellous: from a single plant or stalk of Indian Turkey wheat, are produced, in one summer, 2000 seeds; of elecampane, 3000; of sun-flower, 4000; of poppy, 32,000; of a spike of cat's-tail, 10,000 and upwards: a single fruit, or seed-vessel, of tobacco, contains 1000 seeds; that of white poppy, 8000. Mr. Ray relates, from experiments made by himself, that 1012 tobacco seeds are equal in weight to one grain; and that the weight of the whole quantum of seeds in a single tobacco-plant is such as must, according the above proportion, determine their number to be 360,000. The same author estimates the annual produce of a single stalk of spleenwort to be upwards of one million of seeds.

The dissemination of plants respects the different methods or vehicles by which nature has contrived to disperse their seeds for the purpose of increase. These by naturalists are generally reckoned four: viz. rivers and running waters; the wind; animals; and lastly, an elastic spring, peculiar to the seeds themselves, or rather to the pods containing them.

1. The seeds which are carried along by rivers and torrents are frequently conveyed many hundreds of leagues from their native soil, and cast upon a very dif-

ferent climate, to which, however, by degrees they render themselves familiar.

2. Those which are carried by the wind, are either *winged*, as in fir-tree, trumpet-flower, tulip-tree, birch, arbor-vitæ, meadow-rue, and jessamine, and some umbelliferous plants; furnished with a *pappus*, or downy crown, as in valerian, poplar, reed, succulent swallow-wort, cotton-tree, and many of the compound flowers; placed within a winged *calyx* or seed-vessel, as in scabious, sea-pink, dock, dioscorea, ash, maple, and elm trees, logwood and woad; or, lastly, contained within a swelled *calyx* or seed-vessel, as in winter-cherry, cucubalus, melilot, bladder-nut, fumitory, bladder-senna, heart-seed, and chick-pea.

3. Many birds swallow the seeds of vanelloe, juniper, misletoe, oats, millet, and other grasses, and void them entire. Squirrels, rats, parrots, and other animals, suffer many of the seeds which they devour to escape, and thus in effect disseminate them. Moles, ants, earthworms, and other insects, by ploughing up the earth, admit a free passage to those seeds which have been scattered upon its surface. Again, some seeds attach themselves to animals, by means of hooks, crotchets, or hairs, which are either affixed to the seeds themselves, as in hound's-tongue, mouse-ear, vervain, carrot, bastard-parsley, sanicle, water hemp-agrimony, *arctopus* and *verbesina;* to their calyx, as in burdock, agrimony, *rhexia,* small wild bugloss, dock, nettle, pellitory, and lead-wort; or to their fruit or seed-vessel, as in liquorice, enchanter's nightshade, cross-wort, clivers, French honey-suckle, and arrow-headed grass.

4. The seeds which disperse themselves by an elastic force, have that force resident either in their *calyx*, as in oats and the greater number of ferns; in their *pappus*, as in centaurea crupina; or in their *capsule*, as in geranium, herb-bennet, African spiræa, fraxinella, horse-tail, balsam, Malabar nut, cucumber, elaterium, and male balsam apple.

SE'MEN ADJOWÆN, a kind of seed imported from the East, of a pleasant smell, and grateful aromatic taste, somewhat like savory. It possesses exciting, stimulating, and carminative virtues, and is given in cases of nervous weakness, dyspepsia, flatulency, and heart-burn.

SE'MEN AGAVE; an East-Indian seed, exhibited there in the atonic gout.

SE'MEN CONTRA. See SANTONICUM.

SE'MEN SANCTUM. See SANTONICUM.

SEMI (*semi*, from ημισυ). *Semis* in composition universally signifies half, as *semicupium*, a half-bath, or bath up to the navel; *semilunaris*, in the shape of a half-moon.

SEMICIRCULAR CANALS; three canals of the ear that take their name from their figure. They belong to the organ of hearing, and are situated in the petrous portion of the temporal bone, opening into the vestibulum.

SEMIFLOSCULUS, in botany, a term used to express the flowers of the syngenesia class. These semiflosculi are petals, hollow in their lower part, but in their upper flat, and continued in the shape of a tongue.

SEMIO'TICE (*σημιοτικη*; from *σημειον*, a *sign*), or *Semeiosis;* that part of pathology which treats on the signs of diseases.

SEMILUNAR VALVES. The three valves at the beginning of the pulmonary artery and aorta are so termed, from their half-moon shape.

SEMINATION, in botany, denotes the manner or act of shedding and dispersing the seeds of plants. See SEMEN.

SEMI-MEMBRANOSUS, a muscle which arises from the outer surface of the tuberosity of the ischium, by a broad flat tendon which is three inches in length. From this tendon it has got the name of semi-membranosus. It then begins to grow fleshy, and runs at first under the long head of the biceps, and afterwards between that muscle and the semi-tendinosus. At the lower part of the thigh it becomes narrower again, and terminates in a short tendon, which is inserted chiefly into the upper and back part of the head of the tibia, but some of its fibres are spread over the posterior surface of the capsular ligament of the knee. Between this capsular ligament and the tendon of the muscle, there is a small bursa mucosa. The tendons of this and the last-described muscle form the inner ham-string. This muscle bends the leg, and probably also prevents the capsular ligament from being pinched.

SEMI-ORBICULARIS ORIS. See ORBICULARIS ORIS.

SEMI-SPINALIS COLLI, the *Semi-spinalis* sive *transverso-spinalis colli* of Winslow, *Spinalis cervicis* of Albinus, and *Spinalis* of Douglas. This muscle is situated on the posterior part of the neck, and draws the neck obliquely backwards, and a little to one side. It arises from the transverse processes of the uppermost six vertebræ of the back by as many distinct tendons, ascending obliquely under the complexus, and is inserted into the spinous processes of all the vertebræ of the neck, except the first and last.

SEMI-SPINALIS DORSI, the *Semi-spinalis externus*, seu *transverso-spinalis dorsi*, of Winslow; a muscle that is situated on the back, and extends the spine obliquely backwards. It arises from the transverse processes of the seventh, eighth, ninth, and tenth vertebræ of the back, by as many distinct tendons, which soon grow fleshy, and then become tendinous again, and are inserted into the spinous processes of all the vertebræ of the back above the eighth, and into the lowermost of the neck, by as many tendons.

SEMI-SPINALIS EXTERNUS. See SEMI-SPINALIS DORSI.

SEMINIS EJACULATOR. See ACCELERATOR URINÆ.

SEMI-NERVOSUS. See SEMI-TENDINOSUS.

SEMI-TENDINOSUS, the *semi-nervosus* of Douglas and Winslow; a muscle situated obliquely along the back part of the thigh. It arises tendinous and fleshy from the inferior, posterior, and outer part of the tuberosity of the ischium, in common with the long head of the biceps cruris, to the posterior edge of which it continues to adhere, by a great number of oblique fibres, for the space of two or three inches. Towards the lower part of the os femoris it terminates in a round tendon, which passes behind the inner condyle of the thigh-bone, and becoming flat, is inserted into the upper and inner part of the ridge of the tibia, a little below its tuberosity. This tendon sends off an aponeurosis, which helps to form the tendinous fascia that covers the muscles of the leg. The office of this muscle is to assist in bending the leg, which at the same time it draws a little inwards.

SEMI-TERTIA'NA; a species of fever called by the Greeks *hemitritæus*. Dr. Cullen arranges it under his section of intermittents, 2d variety, and defines it "a quotidian returning every day, with a remission interposed more remarkably between the irregular and regular day, than between the regular and irregular day." It is a kind of fever, compounded of an intermitting tertian and a continual quotidian. Some call it a continual tertian; but it is one of those tertians which return every day. Some rank it as a remittent fever. There is nothing peculiar in the management of this disorder which the practitioner will not naturally suggest from his acquaintance with the nature and general methods of relief in fevers. See TERTIANA.

SEMPER-VIVUM (from *semper*, always, and *vivo*, to live; so called because it is always green), a popular name for house-leek, or sengreen. See SEDUM MAJUS.

SEMPER-VIVUM ACRE. The stone-crop is occasionally so termed. See ILLECEBRA.

SEMPER-VIVUM TECTORUM. The systematic name for house-leek. See SEDUM MAJUS.

SENE'CIO (from *senesco*, to grow old; so called because it has a greyish down upon it like the beard of old men); the groundsel. See ERIGERUM.

SENE'CIO VULGARIS; the systematic name of groundsel. See ERIGERUM.

SENE'CIO JACOBÆA; the systematic name of rag-wort. See JACOBÆA.

SE'NEGA. See SENEKA.

SENEGAL GUM. See GUMMI SENEGALENSE.

SENEGAW MILK-WORT. See SENEKA.

SENEKA (so called because the Senecca or Senegaw Indians use it against the bite of the rattle-snake), the rattle-snake-root milk-wort; *Polygala senega* Linn. *Polygala floribus imberbibus spicatis, caule erecto herbaceo simplicissimo, foliis lato lanceolatis.* Class, *Diadelphia.* Order, *Octandria.* The root of this plant was formerly much esteemed as a specific against the poison of the rattle-snake, and as an antiphlogistic in pleurisy, pneumonia, &c. but it is almost entirely laid aside.

SENGREEN. See SEDUM MAJUS.

SE'NNA (from SENNA, an Arabian word signifying *acute*; so called from its sharp-pointed leaves), *Senna Alexandrina*, *Senna Italica*, or *Folium orientale*; the Senna tree, or Egyptian cassia. *Cassia senna foliis sejugis subovatis, petiolis eglandulatis*, Linn. Class, *Decandria.* Order, *Monogynia.* The leaves of senna which are imported here from Alexandria for medicinal use, have a rather disagreeable smell, and a subacrid, bitterish, nauseous taste. Senna appears to have been cultivated in England in the time of Parkinson (1640); and Miller tells us, that by keeping these plants in a hot-bed all the summer, he frequently had them in flower; but adds, it is very rarely that they perfect their seeds in England. There can be little doubt, however, but that some of the British possessions may be found well enough adapted to the growth of this vegetable, and that the patriotic views of the Society for encouraging Arts, &c. which has offered a reward to those who succeed in the attempt, will be ultimately accomplished.

The Senna in common use as a purgative, was first known to the Arabian physicians Serapion and Mesue: the first among the Greeks who takes any notice of it is Auctarius, but he only speaks of the fruit, and not of the leaves. To remove the disagreeable taste of this medicine, Dr. Cullen recommends coriander seeds; and, for preventing the gripings with which it is sometimes attended, he thinks the warmer aromatics, as cardamoms or ginger, would be most effectual.

The *Senna Italica*, or blunt-leaved senna, according to some, is a variety of the Alexandrian species; which, by its cultivation in the south of France (Provence), has been found to assume this change. It is less purgative than the pointed-leaved senna, and is therefore to be given in larger doses. It was employed as a cathartic by Dr. Wright at Jamaica, where it grows on the sand-banks near the sea.

SE'NNA ALEXANDRINA. See SENNA.

SE'NNA ITALICA. See SENNA.

SENNERTUS (Daniel), an eminent physician, was born in 1572 at Breslaw; and in 1593 he was sent to Wittemberg, where he made great progress in philosophy and physic. He visited the universities of Leipsic, Jena, Franctort-upon-the-Order, and Berlin; but soon returned to Wittemberg, where he was promoted to the degree of doctor of physic, and soon after to a professorship in the same faculty. He was the first who introduced the study of chemistry into that university: he gained a great reputation by his works and practice, and was very generous to the poor. He died of the plague at Wittemberg, in 1637. He raised himself enemies by contradicting the ancients. He thought the seed of all living creatures animated, and that the soul of this seed produces organisation. He was accused of impiety for asserting that the souls of beasts are not material; for this was affirmed to be the same thing with asserting that they are immortal; but he rejected this conclusion, as he well might do.

SENSATION, or feeling; the consciousness of a change taking place in any part, in consequence of the contact of a foreign body with the extremities of the nerves. The seat of sensation is in the substance of the nerves themselves.

Our sensations may be considered as of two kinds: first, Those which arise from the impression of external bodies, which we therefore name *Sensations of impression.* Secondly, Those which arise from the mind's being conscious of its own action, and of the motions it excites. These last are named *Sensations of consciousness.*

1. *Sensations of impression.*—These sensations are very various, but they are generally referred to five species, commonly called the five senses; viz. sight, hearing, smell, taste, and touch. The first four are,

each of them, to be considered, as forming one genus of sensations: (1.) As the particular sensations comprehended under each head, though very various, are, however, perceived to have somewhat common to all of them. (2.) As those of the same genus all arise from impressions made upon one part of the body only, and that of a peculiar organisation. (3.) As those of the same genus all arise from the action of external bodies of one kind only, or of one and the same quality, by means of which they act upon our organs. No such characters concur in establishing one genus of the sensations referred to the fifth head of touch, which are various in all those respects; and physiologists seem to have referred to this head of touch every sensation that does not manifestly belong to the other four, and, among the rest, many of the sensations of consciousness. It might perhaps be useful to distinguish into genera, the several sensations referred to touch; but it is not necessary to be done here. From certain sensations referred to touch, it appears, that not only the extremities, but also every part of the nervous system is sentient with respect to certain impressions.

2. *Sensations of consciousness.*—This class of sensations may be referred to the following heads: (1.) Those of perception, by which we are in general conscious of thinking, of perceiving, judging, and willing, and thereby of our existence and identity. (2.) The sensations arising from the particular state of thinking, as perception, memory, and judgment, are more or less clear, ready, or exact. (3.) The sensations arising from the particular state of volition, and its various modes. (4.) The sensations arising from the general state of action, as vigorous or weak, easy or difficult. (5.) The sensations arising from the particular actions, or a consciousness of the actions excited, and of the motion of the different parts of the body. (6.) The sensations arising from the diminution or absence of impressions.

Under each of these heads a great number of particular sensations are comprehended, but it is not necessary to our purpose that they should be further specified.

3. *General laws of Sensation.*—Dr. Hooper observes, that of the first four genera, the sensations arising give no indication of the nature of the bodies acting on our organs, or of the mode of their action; and when we otherwise learn these circumstances, we can perceive no necessary connection between them and the sensations which they produce. But from certain sensations of touch and consciousness, we acquire the notions of solid figure, of motion, impulse, impenetrability, and the communication of motion, and consider the sensations as exactly correspondent to the circumstances of external bodies. At the same time, as we know of no other action of bodies on each other but that of impulse; and as, in the case of the sensations of the first four genera, we learn that an impulse takes place; we have comprehended the whole under the title of Sensations of Impression, and consider all of them as perceptions of impulse. To produce any sensation of impression, a certain force of impression is necessary; and from a lesser force, no sensation arises. The degree of force is likewise so limited on the other hand, that, in a high degree, it destroys the organ; and, in degrees approaching to this, a general sensation of pain, rather than the sensation of any particular object, is produced. Within these limits, however, our sensations are not exactly correspondent to the force of impression, nor do they make any exact estimate of that force.

Usually, sensation is relative to the change that is produced in the nervous system; and a sensation proves strong or weak, only as it is stronger or weaker than that which had immediately preceded it, or than that degree of force to which the nerves had been immediately before accustomed. For this reason, too, the limits are very variable. Different sensations do not always imply a different kind of action in the bodies producing them; for sometimes different sensations arise merely from a different degree of force in the same kind of action, as is manifest in the case of heat and cold. To sensation from impression, a certain duration of impression is necessary. The mind's resting for some time upon one sensation, is called *attention*. This, like the duration, is necessary to give an impression its full effect. The mind seems to be determined to attention by the force of impression; by the pleasure or pain arising from it; by the degree of emotion or passion produced by these; and, lastly, by the emotions being more or less related to the person feeling. If the force and duration of impression, and the attention of mind, are all in the due degree, the sensation often remains for some time after the impression or action of the external body has ceased. The mind admits of, or can attend to, one sensation only at one time. Though the mind admits but of one sensation at one time, several impressions may act at the same time, if they be such as can unite in producing a single sensation; and such is the case of many of the impressions which produce the particular sensations of the same genus, as in those especially of colour, sound, smell, and taste. In each of these genera, many impressions, which separately produce particular species, can unite in producing a single sensation, which is always a neutral, or one different from either of the separate sensations. This union of impressions may take place, either when the impressions are exactly synchronous, or when the one succeeds the other before the sensation of the first has ceased. Though the motion excited in the sentient extremities, by impression, remains some time, it must be supposed to become continually weaker, till at length it ceases altogether, and with it the sensation also ceases.

The same impression, soon repeated, does not produce the same strength of sensation as before. Hence all new impressions are, *cæteris paribus*, strongest; and moderate impressions, frequently repeated, produce no sensation, unless their force is considerably increased. Actions which at first produced a sensation of consciousness, as accompanied with volition, come, by repetition, to be performed without any sensation; or they produce it only when they are performed with uneasiness, pain, or unusual force.

Impressions being given, their effects, in producing sensation, are different in different persons, and in the same person at different times. This must arise from some difference in the state of the bodies acted upon, which may perhaps be referred to the following heads: (1.) The state of the common teguments, or other parts interposed between the impressing body and the medullary substance of the sentient extremity. (2.) The different state of the medullary substance of the sentient extremities, as given to it in the original stamina. (3.) The different state of tension in the medullary substance of the sentient extremities, as given to it by the state of the blood-vessels constantly connected with it. (4.) The state of the medullary substance, as affected by heat or cold. (5.) The state of it as produced by former impressions. (6.) The state of the nerves along which the motion is propagated. (7.) The state of the brain or sensorium. (8.) The state of attention. Different parts of the body are sensible, and sensible only by means of nerves present in them; but anatomy does always determine certainly with regard to the presence or absence of nerves; and, therefore, the sensibility of several parts can be determined by experiment only; which, however, is at best fallacious.

Particular sensations arise from impressions of certain parts only: (1.) Because the sentient extremities in these parts are so situated as to be exposed to the action of certain external bodies only. (2.) Because the sentient extremities are connected with an organ that increases the force of the external agent, or modifies its action in the manner necessary to a determined impression. (3.) Because the fibres of certain sentient extremities are, by their size or tension, fitted to be acted upon by certain external bodies only. (4.) Because certain sentient extremities are so constantly preserved in a certain state, as to render them more sensible to a change. These circumstances determine the mode of impulse, but do not account for the sensation arising from it.

Different sensations are accompanied with different judgments concerning the bodies making impression, and the part of the human body upon which it is made. Some sensations are referred to bodies at a distance; others to external bodies in contact; and others to the feeling body itself. When sensations are referred to our own bodies, it is in three several ways: (1.) They are most commonly referred to the part on which immediately the impression is made; and this, with regard to the external parts, very accurately; but with regard to the internal, much less so: and commonly, the sensations arising from internal parts, are referred to the incumbent external part, with some obscure distinction between superficial and more deep, (2.) Sensations are sometimes referred, not to the part upon which the impression is immediately made, but to a distant more sensible part, to which a motion is propagated from the part impressed. (3.) As sensations usually arise from impressions made upon the extremities of the nerves, and are referred to these; so impressions made on the nerves in their course, are sometimes referred to the extremities from whence they had commonly arisen. The sensations of consciousness are referred to the *encephalon*. So are those of impressions, if they are moderate; but, if more vehement, they are often referred to those parts in which their effects are exerted, as the heart and organs of respiration. The sensations of consciousness are seldom, with accuracy, referred to particular parts, but indistinctly to a whole member. We are not conscious of the action of particular muscles, except when their contraction is spasmodic. We are disposed to combine our sensations as united in one object; and thus form what is called *complex ideas*. We compare our several sensations, and from thence acquire new sensations of *relation*.

When sensations formerly received are again renewed by the same objects, it is, for the most part, with a consciousness of their having been formerly received; and this faculty we call *reminiscence*. Perceptions formerly received can be renewed without the presence or action of the object which formerly gave occasion to them: and if this is attended with a consciousness of a difference between the vividity of the two perceptions, and particularly of the absence of the original objects, such a renewed perception is called an *idea;* and the faculty by which this renewal is made, is called *memory*. Perceptions formerly received can, without the presence of the original object, be renewed also in such a manner, that the mind does not perceive any difference between the original and the renewed perception; and therefore, such renewal is always attended with the persuasion of the presence of the object. The faculty by which such renewal is made, we call *imagination*, more strictly. Reminiscence depends upon the force or frequent repetition of the former sensation. Memory depends upon an association of perceptions, which is formed by their being frequently repeated immediately after each other; by their being parts of the same complex idea; and by their having relations marked. Memory is generally faithful to such associations; but it is more or less so in different persons, according to the number and importance of the relations marked; according to the frequency of the repetition of the sensations, and the marking of their relations; and according to the different states of the brain, very little known. Imagination seems always to depend upon internal causes, that is, upon causes acting in the brain. Memory and imagination renew distinctly the ideas of seeing and hearing only. All others are renewed imperfectly, or not at all, but all others may be associated with the sensations or ideas of seeing and hearing, so that these become signs of the others. The memory, in renewing these signs, so far renews the idea belonging to them, as to renew their several associations and relations; to renew, in some degree, the pleasure or pain which formerly attended the sensations themselves; and particularly to renew the emotions of mind, or motions of the body, which the sensations formerly occasioned.

Most of our sensations, perhaps all of them, are either pleasant or painful. The words *pleasant* and *painful* are commonly generic terms, each of them comprehending a great many species, which seem to require being assorted under several different genera. Thus, in the first place, our sensations may be divided into those we desire, and those we are averse from. Of those we desire, we may distinguish those which arise from qualities we refer to other bodies, from those we refer entirely to our own. The first may be named more strictly the *agreeable*, the last the *pleasant*. In like manner, of the sensations we dislike, we may distinguish the *disagreeable* and the *painful*. But, further, the last must be distinguished from the sense of aversion, which accompanies certain sensations of consciousness, as the sense of debility, lassitude, difficulty, &c. and particularly from that which is referred obscurely to internal parts, and this we name *anxiety*. These sensations may be called the *uneasy;* and every one distinguishes this kind from that of the *painful*, more strictly so called. These last seem to be always sensations of impression, referred pretty accurately to a particular part. There is thus a foundation for establishing different genera of the sensations we desire, and of those we object to; as also, for greater precision in the employment of terms: but the fixing the limits of these genera, assorting the several species, may be still difficult; so that we cannot be certain of applying the terms every-where with strict propriety. The enumeration of the agreeable or disagreeable, and even of pleasureable sensations, would be of little use in a work of this nature; and the enumeration of the uneasy and painful, though properly belonging to the pathology of the human body, would be too extensive.

SENSES. These are commonly distinguished into external and internal senses. The external are five, viz. smelling, seeing, hearing, tasting, and touching. See these articles respectively. It is common to all of these uses, that the medulla of the tender and pulpy nerve, on being affected by an external object, transmits some change or motion to that part of the brain where the fibres of the nerve affected first arise from the arteries of the brain. On this part of the subject we know nothing more, than that new thoughts are excited in the mind, as often as a change of this kind, originating in any organ of sense, is thus transmitted. This perception, however, is not an actual representation of the object, by which the sentient nerve is affected. The idea of redness, for instance, has nothing in common with rays little refrangible, and separated from the seven portions of the total ray; and much less is it consistent with optical principles, for an image painted by rays upon a soft white nerve, to be conveyed for a long way, in perfect darkness, through a completely opaque body, to the origin of the optic nerves. There is nothing in the pain of burning that can represent to the mind the violent motion of a swift and subtile matter by which the particles of the nerves are removed from mutual contact. There is nothing in the idea of a sharp sound from a cord of a certain length that can inform the mind that the said cord vibrates 5000 times in the space of a second. Neither does the taste teach us that the crystals of sea-salt are of a cubical figure. Lastly, motion imparted by a body perceived by the senses, is indeed propagated to the brain, but the mind neither perceives this motion, nor the tremors of sound, nor the percussion of the rays of light, but something perfectly distinct from motion. It is established as a reciprocal law by the almighty Creator, that with certain changes, produced first in the nerve, and then in the common sensorium, new and definite thoughts shall arise in the mind, invariably connected: and that our perceptions of external objects are arbitrary, yet that they are not false, appears plainly from the perpetual agreement of similar ideas with similar affections of the sentient nerves, in all persons at the same time, and in the same person on different occasions. Therefore, when we feel, five very different existences are conjoined: the thing which we perceive; the affection of the organ of sense by that body; the affection of the brain, arising from the percussion of that sensory; the change produced in the mind; and, lastly, the consciousness of the mind, and perception of the sensation.

It has been shewn by certain experiments, that the first origin of every sentient nerve is always distinct from all the others; and that the change which is first excited by external objects in that nerve, continues long in its origin; and that those changes are generally so arranged in the said part of the brain, that, being disposed according to the order of time, those are nearest together which were either cotemporary, or occurred in immediate succession; or, lastly, those which have a relation to the same subject, or were excited by similar objects; insomuch that it is certain that new ideas are conveyed to the same part of the brain where others of the like kind are reserved: for otherwise, neither would the arbitrary signs of words and letters recal to the memory past ideas; or disagreeable ideas, returning into the mind, without the assistance of external objects, reproduce the same effects as objects themselves; nor, otherwise, could there be so constant and manifest a connection of analogous ideas, which supervene most remarkably in dreaming, to the corporeal impressions acting at that time most powerfully. Imagination and memory depend on this conservation of ideas. Those changes conserved in the sensorium, which many term ideas, are, for the sake of distinction, by us called the impressions of things, as they do not exist in the mind, but are impressed in the body itself, and indeed in the medulla of the brain, in an incomprehensible manner, by certain characters, incredible in their minuteness, and infinite in their number. Amongst these the impressions received by the sight are the most remarkable, and most distinctly preserved, and next, those of hearing; those of the other organs are more confused, and less revocable by the will. Both the impressions and their signs are preserved; the latter more easily; the former, however, so far, that a painter can express with his pencil upon canvas, a face similar to the image of a familiar face, impressed upon his mind.

A person is said to *imagine*, when, by means of any image preserved in the sensorial part of the brain, the same ideas are excited in his mind, as would arise if the sentient nerve that first produced the said image itself suffered that change. This metaphysicians have termed *recalling an image*. This definition, Dr. Hooper thinks, is confirmed by the example of the great strength of fancy in some rational persons, in those who are delirious, and in every person, in the instance of dreams, in which thoughts arise in the mind, occasioned by the images preserved in the brain, not at all weaker than those which are primarily produced by the change in the sentient nerve, from the external objects, and in which the perfect resemblances of persons and things with which we are occupied, are represented to the mind. Attention, quiet, and the absence of other objects, even obtain a stronger assent of the mind to these traces impressed on the brain than to those perceptions which are excited in the mind by external objects; for the will is much more powerfully determined in those who dream, than in those who are awake; and some voluntary muscles perform, during sleep, functions, which while awake they never could perform, even when their nerves were most strongly affected by the same object. From hence we may understand how it is possible, that a very vivid internal impression in delirium may so impose upon the mind, as to be mistaken for the perception of an external object. This is evident in the sparks which are excited by rubbing the optic nerve; in the redness seen by the eye when shut; in the vertigo that arises from a motion of the retina, which we ascribe to the external objects themselves; in cases where double vision has taken place, &c.

We are said to exercise *memory*, when any idea, or image of an external object preserved in the sentient part of the brain, excites a perception in the mind. This is commonly weaker than in imagination, and almost confined to certain arbitrary signs, which the mind conjoined with that idea at its first perception. For memory hardly represents the images and pictures of things to the mind, but almost only words, and certain attributes, and abstract ideas; for which reason it excites volition less powerfully. But it appears from the observation of the phenomena of memory, that those changes which arise from the external senses, remain long in the brain; and sometimes, if they made a strong impression, are represented to the mind for a long period, almost for ever; but that they are gradually weakened and impaired; unless they be renewed, either by the object being represented again to the mind, or by the mind itself recalling the same change again into memory; and that at last the change will be in a manner erased, and entirely lost, and the idea which was connected with that change by the law of nature, will never again recur to the mind. This annihilation is gradually effected by new and different impressions made on the sensorium, and not from time only, or the circulation of blood, as in cataleptic patients, who sometimes after a considerable interval of time, return to the same train of thought which the disease had interrupted. But sometimes all of them will be suddenly destroyed by some disease, in which the brain is in some way compressed, either by the blood or any other cause. Such a cause, acting on part of the common sensory, blots out a part of the impressions from the memory, such as certain words, or all of them, the characters by which we express words, or our friends, and even the necessaries of life; yet all these impressions may often be renewed by removing the compressing cause. But the strength and duration of an idea depend upon its being unusual, excessive, or greatly conducing either to increase or lessen our felicity; and lastly, upon our attention to it, and repetition; which last renders the impressions so vivid, that their perception is at length mistaken by the mind for the perception of external objects, of which the cases of maniacs furnish many examples.

On a review of the history of human life, it further appears, that in early infancy memory scarcely exists, for we have only simple perceptions, that soon vanish. These, nevertheless, excite strong ideas in the mind, as is evinced by the crying of infants. Memory becomes perfect by degrees, and the ideas received from favourite objects, and familiar persons, remain impressed on the mind of the infant; while at the same time, the imagination likewise increases, which is often very powerful in young children; as for example, in terror, which in no age produces more violent or deplorable effects. Afterwards, as the number of our ideas increases, the facility of preserving past ideas is impaired, and at the same time, the power of the imagination becomes torpid; till at last the former almost perishes, and the ideas which are received escape from the brain in a short time; while at the same time, the imagination, which is a kind of memory, languishes in an equal degree.

Since these perceptions are known to produce certain changes in the mind, which are perfectly distinct from any corporeal faculty, something should be said concerning them, so far as may suffice for the purposes of medicine. Thought resides in the soul. It attends to the sensations which are either brought by the senses, or recalled by the imagination; frequently also to the mere signs which recur into the mind. Attention is when one idea occupies the mind principally or solely for any length of time. The comparison of two ideas, instituted by the mind, is called judgment or genius, when the mind, by comparing them, discovers them to be alike or dissimilar. Genius consists in a vivid sensation conjoined with rapidity of thought, so as instantly to abstract from notions their points of similitude and dissimilitude. The principal source of judgment, invention, and wisdom, consists in the slow examination of ideas, by which they are considered by the mind in every point of view, and in the attention of the mind being confined to one object, to the exclusion of all other ideas. Hence the efficacy of darkness in making difficult calculations; the exquisite attention of blind people to the nature of sounds, and of those who are deaf, to colours. The sources of error are negligence in contemplating the whole idea, the estimating it from a partial view, and the connection of ideas with others that are distinct, and only related by external causes or accidental connection.

The soundness of the judgment has been supposed materially to depend upon a healthy constitution of the brain. For when that is compressed, irritated, exhausted of blood, or changed in its fabric, the use of reason is totally disturbed; the strong internal impressions on the brain are represented to the mind as external or real objects; the chain of ideas is broken, so that the mind does not compare them, or perceive their resemblance or diversity, but passes abruptly from one idea to another totally different; or lastly, the actions of the senses being impaired or interrupted, and all impressions being in a manner erased from the brain, man is reduced to a state of imbecility or vegetation. But external causes also have considerable influence in changing the relation of the mind to the impressions of the senses; the atmosphere, customary way of life, food, and general habits, all affect the soundness of the judgment, the force of the imagination, and the strength of the memory, in a greater or less degree.

Lastly, as these ideas are either indifferent, or have some relation to human happiness, they produce different determinations in the will. Some of the causes by which the felicity of our mind is either increased or diminished, proceed entirely from the body, and are purely mechanical; amongst these are pain, disagreeable sensations, which seem to be produced by every sensation in a nerve that is too strong, and pleasure, in which the nerve is irritated beyond what is usual, but in a moderate degree. Itching is akin to pleasure, and in both the flow of blood is increased into the part in which either pleasure or titillation is perceived; but, when further increased, it degenerates into pain, or excessive sensation in the nerve. Anxiety occasions the blood to be retarded in its passage through the lungs. Other ideas which affect the mind are either entirely unconnected with the properties of matter, or certainly less simple, understood, or mechanical, than the foregoing. The presence of good constitutes joy; the desire of good, love; the expectation of good, hope; the presence of evil, sorrow, terror, or despair; the dislike of evil, hatred; and the expectation of evil, fear. Hope, curiosity, and the love of glory, are affections of the human mind, which neither belong to the body, nor exist in the brute creation.

From these affections of the mind, undoubtedly arise affections in the body itself, although neither willing nor being capable of opposing them. Accordingly, various changes happen in the pulse, respiration, appetite, strength, and other functions of the heart, nerves, stomach, and other parts, which both immediately follow and indicate the passions of the mind. Thus anger violently excites the motion of the spirits, increases the motion of the heart, the frequency of the pulse, and the strength of the muscles; forces the blood into the ultimate and pellucid vessels, and even out of the vessels; accelerates the excretion of bile, terminates chronic diseases, and removes obstructions. Grief weakens the strength of the nerves, and action of the heart; retards the pulse; destroys the appetite; and produces paleness, cachexy, diarrhœa, jaundice, scirrhosities, and diseases arising from a stagnation of the humours. Fear diminishes the force of the heart, so as to occasion polypuses and paleness, weakens the muscular motions, relaxes the sphincters, increases inhalation, and diminishes exhalation. Excessive terror increases the strength even to convulsion; excites the pulse; removes obstructions, palsies; interrupts the course of the blood, and produces sudden death. Love, hope, and joy, promote perspiration, quicken the pulse, accelerate the circulation, increase the appetite, and facilitate the cure of diseases. Excessive and sudden joy often kills, by increasing the motion of the blood, and exciting a true apoplexy. Shame in a peculiar manner retains the blood in the face, as if the veins were tied; and also suppresses the menses, and has even proved fatal in some instances.

How are we to account for these changes produced by the respective passions of the mind? Do nervous sphincters regulate the vessels, and at one time compress them subsultorily, and increase the motion of the blood, and at another relax them and destroy their tone? That something like this obtains in the smaller vessels, appears evidently from the very similar effects produced by fear and cold upon the nerves of the skin. In the genital parts we manifestly see the veins, under particular circumstances, constricted, and a consequent accumulation of blood; and it seemed probable, that in the larger vessels, the nervous nooses surrounding many of them produced the same effects: for, in various parts, they surround and include the meningeal, temporal, vertebral, carotid, subclavian, cœliac, mesenteric, renal, and other arteries. But after it was shewn by some experiments, that the nerves are at rest during the action of the muscles, and cannot be rendered shorter by any irritation, we were obliged to desert this elegant theory. Nor would it seem far from the truth, that the arteries are rendered more or less irritable from the various sensibility of the nerves, and thus may be contracted more vehemently or languidly by the same quantity of blood, and that thus the motion of the blood is either quickened or retarded, if it were at all certain that the smaller arteries have the same irritable nature with the large ones. Thus the appetite and peristaltic motion of the stomach and intestines, are manifestly interrupted by the affections of the mind.

Whence proceeds the *sympathy* of parts, so often adverted to in the practice of medicine? In some of them it appears to depend upon vascular connection; by which the blood, repelled from one part, presses more heavily upon another, which has its vessels from the same common trunk. This comprehends the idea of revulsions made by blood-letting; head-ach, from cold feet, &c. In other parts, the sympathy arises from a similitude in their fabric, by which they suffer like effects from the same causes arising in the body, such as the sympathy betwixt the womb and the breasts. Another cause is, the continuity of membranes; from hence the itching in the glands of the penis from calculus, the cure of deafness by diarrhœa. Another cause exists in the nerves themselves, and their anastomoses, as satisfactorily appears from the teeth being set on edge by certain sounds, a disagreeable sensation being produced in the maxillary nerve, on account of its various communications with the portio dura. Thus the sympathy of the eyes, which is not observable in like manner in the ears, proceeds from the decussation of the optic nerves; and vomiting is excited by nephritis. Lastly, another cause is referred to the common sensory, and beginnings of the nerves, which is demonstrated from general convulsions being produced by the irritation of a single nerve, and universal epilepsy by a local disorder, &c. Some sympathies in diseases arise from a translation of the matter to other parts through the cellular membrane, or by the action of the muscles, or arteries, or by the force of gravity. See SYMPATHY.

But that important sympathy remains to be explained, which subsists betwixt the body and the mind. On this subject, however, we must refer to the writings of metaphysicians and moral philosophers; particularly to the luminous treatises of Dr. Reid. It is a question more immediately belonging to us to enquire—Does the mind govern the body? Do all the motions and actions in the body arise from the mind, as the immediate source and origin of motion? Do the motions of the heart, arteries, and respiration, arise from the mind, willing them and solicitous for the common good of the whole system? Is this power of the mind demonstrated by the structure of polypi formed in wounds, by the passions of the mind, and by the nævi materni? Is the absence of consciousness accounted for by the well-known example of the obscure perceptions we have in respiration, winking, and muscular motion, all of which are effected by the will, although we do not know the organs, or perceive that we will, when we breathe, wink, or walk, when occupied in thought? Is it therefore certain, that all motions arise from the mind, because there is no otherevident cause perpetually connected with the body, to which they can be referred?

With a late writer on this subject, we think there are many reasons which do not yet permit us to adopt this opinion. And, first, the construction and government of the body itself appear greatly to exceed the wisdom of the mind. Our mind sees one point distinctly, and thinks one thought distinctly; but if it endeavours to see two objects at the same time, to contemplate two ideas at the same time, or to read two letters at once, it always becomes confused, commits mistakes, and comprehends neither of them rightly; and conscious of its own powers, whenever it applies seriously and diligently to any object, it withdraws itself as it were from the impressions of sense, and neither sees, nor hears, nor smells, nor performs muscular actions. But the mind ought to be capable of infinite and distinct thoughts, in order to be able to govern such an infinite variety of muscles, vessels, and fibres, in a manner accommodated to the most exact geometry; and to resolve and construct occasional problems in the direction of the muscles, scarcely soluble by the highest geometry; and yet we must conclude the mind ignorant of this immense task, and at the same time, over and above all those works, capable of contemplating the most difficult and abstract ideas; so that neither the care of the body disturbs its meditations, nor its meditations interfere with the corporeal actions.

And further, if, without being conscious of volition, we can will to respire, or wink, and with effect; we nevertheless retain our control, and can suspend respiration, and keep the eye-lids firm, and alternately excite their actions, and therefore we never lose either the consciousness of our control, or the use of it. But we are not able to do this with the heart or intestines; we cannot restrain their motion when too quick, or excite it when languid. Amongst all mankind, why does every one govern his respiration? Why, in all ages, no one his heart? If custom only is the cause of our inconsciousness of this power, why is not the mind sensible of its action, in moving the heart, or in exercising the peristaltic motion, after being suspended for hours, or even whole days, in swoons, in convulsive affections, and in asphyxia?

We see then the evident falsehood of the assertion, that all motions arise from the mind, and that without it matter would be an immoveable inert mass: for the contractility excitable by every stimulus, to which the motion of the heart, intestines, and perhaps all the other motions in the human body, belong, does not require the presence of the mind; it continues in the dead body; it is excited by mechanical causes, heat, and inflation; and it does not desert the fibres, until they become stiff and cold, although the mind, which perceives and wills, may have been a long time expelled by the destruction of the brain and heart, and even although the muscle, by being taken out of the body, has been separated from every imaginable connection with the mind.

Scarcely any reliance is to be placed in the NÆVI MATERNI, as is noticed under that article. That the direction of the vital motions, in diseases, is not regulated by prudence, but almost entirely by the power of stimulus; we are explicitly taught by the most ancient and only certain practice, which restrains the excessive motions in acute and intermitting febrile diseases, by the use of blood-letting, opium, nitre, Peruvian bark, &c. The sage has no prerogative in the government of his body, over the merest ideot: and that the fœtus, which even at birth is ignorant of the motions of its muscles, and learns by experience to walk, to swallow, and to see, constructs its body, fabricated with such incredible art, is an assertion so absurd, and improbable, that of itself alone it is sufficient to destroy the hypothesis altogether.

The state of aptitude for exercising the senses and voluntary motion, in healthy organs, is called wakefulness; whilst an indisposition to such exercise is called sleep. See SLEEP.

SENSIBILITY, a term which denotes the capability that a nerve possesses of conveying the sensation produced by the contact of another body along with it. All parts possessed of a power producing a change so as to excite a sensation, are called *sensible;* those which are not possessed of this property are named *insensible.* To the insensible parts belong all the fluids of the body; the blood, bile, saliva, &c. and much of the solids, as the hair, epidermis, nails, &c.; but the sensible parts are the skin, eyes, tongue, ear, nose, muscles, stomach, intestines, &c.

Dr. Fordyce observes, that the sensibility depends on a part's being connected with the brain by the nerves; for, if the nerves going to any part be cut through, the sensibility is lost. If the nerves going to any part be moderately compressed, the sensibility is diminished; and if the nerves be compressed strongly, the sensibility is lost. If the pressure be soon removed, the sensibility recurs. If the pressure be continued for a long time before it is removed, the sensibility returns more slowly, or not at all.

Pressure on the brain may diminish the sensibility of the whole body. If a small branch of a nerve be cut through, so as to take off the sensibility of a part of the skin, it may be restored in time. The sensibility may be impaired, or lost, without any sensible pressure on the nerve, or alteration of its structure. When there is no wound in the body, the sensations generally appear to be in the place where the application exciting them is made. But to this law there are many exceptions. If an extremity be cut off, an application made to the stump may produce sensations, which appear to be in the part amputated.

A sensation may be excited apparently in a part by an affection of the nerve going to it, the body being whole. An application made to one part, may excite a sensation in another, when there is no apparent communication between the nerves going to them.

Every part of the body is capable of sensation in a sound or morbid state. The bones and cartilages do not appear to be sensible in a sound state, whatever application be made to them; but in a morbid one they may become sensible. All the other parts of the body appear to be sensible in a sound state; for the distension of a part considerably beyond its present disposition to contract, either by its muscular power or elasticity, is capable of exciting sensations in every other part of the body. There are applications which are capable of exciting sensations in one part, that produce no such effect in another.

Some of the sensible parts are only capable of sensation from distension in a sound state, such as the membranes. One part may be sensible to an application to which another is not, and the second part may be sensible to another application to which the first is not; as the effluvia of musk do not affect the eyes, although they affect the nostrils; and the rays of light affect the eyes but not the nostrils. Some parts of the body are only capable of the sensation of pain; others are capable of various sensations, of which pain is always one. Some applications are capable of exciting pain only; others may excite various sensations. Every sensation, excited in a very great degree, is painful, and several are also painful from being very weak.

Those parts of the body which are capable of a variety of sensations are generally called the organs of the senses. These are, the skin, the mouth, the nostrils, the eyes, the ears: the stomach is capable of several sensations besides pain, but not of so great a variety as the organs of the senses. Some other parts of the body are also capable of some sensations not painful. All the sensible parts may have their sensibility increased or diminished.

SENSIBILITY, a mental affection, in which there exists a nice and delicate perception of pleasure or pain, beauty or deformity. It is very nearly allied to taste; and, as far as it is natural, seems to depend upon the organisation of the nervous system. It is capable, however, of cultivation, and is experienced in a much higher degree in civilised than in savage nations, and among persons liberally educated than among boors and illiterate mechanics. It is a matter of some moment to distinguish real sensibilities from ridiculous affections; those which tend to increase the sum of human happiness from such as have a contrary tendency. This can be done only by watching over them as over other associations, for excessive sensibility, as it is not the gift of nature, is the bane of health and of human happiness. "Too much tenderness (as Rousseau well observes) proves the bitterest curse, instead of the most fruitful blessing; vexation and disappointment are its certain consequences. The temperature of the air, the change of the seasons, the brilliancy of the sun, or thickness of the fogs, are so many moving springs to the unhappy possessor, and he becomes the wanton sport of their arbitration." That an excess of sensibility is the cause of serious and lasting morbid affections, every experienced practitioner will readily allow, as well as the difficulty of treating those injuries to which the nervous system is exposed from the operations of the mind.

SENSITIVE, an epithet applied to such plants as possess a kind of motion, by which the leaves and stalks are contracted and fall down upon being slightly touched, or shaken with some degree of violence. Of this description are the *Mimosa*, *Dionæa*, and *Hedysarum*. The contraction of the leaves and branches of sensitive plants when touched, is a very singular phenomenon. Different hypotheses have been formed by botanists in order to explain it; but we are disposed to believe, that these have generally been deduced rather from analogical reasoning than from observation. From the various experiments made by Du Hamel, and other vegetable physiologists, the following conclusions may be fairly drawn: 1. The contraction of the parts of the sensitive plant is occasioned by an external force, and the contraction is in proportion to the force. 2. All bodies which can exert any force affect the sensitive plant; some by the touch or by agitation, as the wind, rain, &c.; some by chemical influence, as heat and cold. 3. Touching or agitating the plant produces a greater effect than an incision or cutting off a part, or by applying heat or cold.

Attempts have been made to explain these curious phenomena. Dr. Darwin, in the notes to the "*Botanic Garden*," lays it down as a principle, that "the sleep of animals consists in a suspension of voluntary motion; and as vegetables are subject to sleep as well as animals, there is reason to conclude," says he, "that the various action of closing their petals and foliage may be justly ascribed to a voluntary power; for without the faculty of volition sleep would not have been necessary to them." Whether this definition of sleep when applied to animals be just, we shall not enquire; but it is evident the supposed analogy between the sleep of animals and the sleep of plants has led Dr. Darwin to admit this astonishing conclusion, that plants have volition. As volition presupposes a mind or soul, it were to be wished that he had given us some information concerning the nature of a vegetable soul, which can think and will. We suspect, however, that this vegetable soul will turn out to be a mere mechanical or chemical one; for it is affected by external forces uniformly in the same way, its volition is merely passive, and never makes any successful resistance against those causes by which it is influenced. All this is a mere abuse of words. We look upon all attempts to explain the motions of plants as absurd, and all reasoning from supposed analogy between animals and vegetables as the source of wild conjecture, and not of sound philosophy. We view the contraction and expansion of the sensitive plant in the same light as we do gravitation, chemical attraction, electricity, and magnetism, as a singular fact, the circumstances of which we may be fully acquainted with, but must despair of understanding its cause. It is proper to add, that what has been said chiefly refers to the *mimosa sensitiva* and *pudica*.

SENSO'RIUM. *Sensorium commune*. See Cerebrum.

SENSO'RIUM COMMU'NE. See Cerebrum.

SENTICO'SÆ (from *sentis*, a briar or bramble), in Linnæus's natural method of botany, the 35th order; consisting of the rose, bramble, and other plants which resemble them in port and external structure. The genera are, Agrimonia, *Agrimony;* Alchimilla, *Ladies-mantle;* Aphanes, *Percepier;* Comarum, *Marsh Cinquefoil;* Dryas; Fragaria, *Strawberry;* Geum, *Avens*, or *Herb-bennet;* Potentilla, *Cinquefoil;* Rosa, *Rose;* Rubus, *Raspberry, Bramble;* Sibbaldia; and Tormentilla, *Tormentil.*

SENTIENT EXTREMITIES. The extremities of the nerves are called sentient, being the immediate organs of touch. See Sensation.

SE'PIA OFFICINA'LIS; the systematic name of the cuttle-fish, whose shell possesses qualities which have occasioned it to be often mixed into tooth powders; but its action on the enamel renders it injurious.

SE'PIÆ OS. See Sepia officinalis.

SEPIA'RIÆ (from *sepes*, a hedge), the name of the 44th order of Linnæus's Fragments of a Natural Method, consisting of a beautiful collection of woody plants, some of which, from their size and elegance, are very proper furniture for hedges.

SEPTA'RIÆ, a large class of fossils, commonly known by the names of *ludus Helmontii* and *waxen veins*. They are defined to be fossils not inflammable, nor soluble in water; of a moderately firm texture and dusky hue, divided by several septa or thin partitinos, and composed of a sparry matter greatly debased by earth; not giving fire with steel; fermenting with acids, and in great part dissolved by them; and calcining in a moderate fire. Of this class there are two distinct orders of bodies, and under those six genera. The septariæ of the first order are those which are usually found in large masses, of a simple uniform construction, but divided by large septa either into larger and more irregular portions, or into smaller and more equal ones, called *talc*. The genera of this order are four: 1. Those divided by septa of spar, called *secomiæ:* 2. Those divided by septa of earthy matter, called *gaiophragmia:* 3. Those divided by septa of the matter of the pyrites, called *pyriterica:* And, 4. Those divided by septa of spar, with an admixture of crystal, called *diaugophragmia*. Those of the second order are such as are usually found in smaller masses, of a crustated structure, formed by various incrustations round a central nucleus, and divided by very thin septa. Of this order are only two genera: 1. Those with a short roundish nucleus, inclosed within the body of the mass; and, 2. Those with a long nucleus, standing out beyond the ends of the mass.

SEPTFOIL. See Tormentilla.

SEPTICS (*septica*, from σηπω, to *putrefy);* those substances which promote putrefaction, chiefly the calcareous earths. From the many curious experiments made by Sir John Pringle to ascertain the *septic* and *antiseptic* virtues of natural bodies, it appears that there are very few substances of a truly septic nature. Those commonly reputed such by authors, as the alkaline and volatile salts, he found to be nowise septic. However, he discovered some, where it seemed least likely to find any such quality; these were, chalk, common salt, and testaceous powders. Nothing could be more unexpected, than to find sea-salt a hastener of putrefaction; but the fact is thus; one drachm of salt preserves two drachms of fresh beef in two ounces of water, above thirty hours uncorrupted, in a heat equal to that of the human body; or, which is the same thing, this quantity of salt keeps flesh sweet twenty hours longer than pure water; but then half a drachm of salt does not preserve it above two hours longer. Twenty-five grains have little or no antiseptic virtue, and ten, fifteen, or even twenty, grains, manifestly both hasten and heighten the corruption. The quantity which had the most putrefying quality, was found to be about ten grains to the above proportion of flesh and water. Many inferences might be drawn from this experiment: one is, that since salt is never taken in aliment beyond the proportion of the corrupting quantities, it would appear that it is subservient to digestion chiefly by its *septic* virtue, that is, by softening and resolving meats; an action very different from what is commonly believed. It is to be observed, that the above experiments were made with the salt kept for domestic uses. See Pringle's Observ. on the Diseases of the Army, p. 348, et seq.

SE'PTUM, in anatomy, an inclosure or partition. This term is applied to several parts of the body, which serve to separate one part or cavity from another; as, *septum narium*, the partition between the nostrils, *septum scroti*, &c.

SE'PTUM CEREBE'LLI; a process of the dura mater, which divides the cerebellum perpendicularly into two principal parts.

SE'PTUM CERE'BRI; a name for the falciform process of the dura mater. See Falciform process.

SE'PTUM CORDIS; the partition between the two ventricles of the heart. See Heart.

SE'PTUM LU'CIDUM, or Septum pellucidum; the thin and tender portion of the brain that divides the lateral ventricles from each other.

SE'PTUM NA'RIUM, the partition which divides the nostrils.

SE'PTUM PELLU'CIDUM. See Septum lucidum.

SE'PTUM THORA'CIS. See Mediastinum.

SE'PTUM TRANSVE'RSUM. See Diaphragm.

SERAPI'NUM, a name for the gum-resin sagapenum. See Sagapenum.

SERAPION, a physician of Alexandria. He and Philinus of the isle of Cos, were both scholars of Herophilus, and were founders of the empiric sect; which took place about 287 before Christ. See Empirics.

SERMOUNTAIN. See Seseli.

SEROUS APOPLEXY. See Apoplexia.

SERPENTA'RIA GALLO'RUM; a name for the arum dracunculus. See Dracunculus.

SERPENTA'RIA HISPA'NICA; the common viper-grass. See Scorzonera.

SERPENTA'RIA VIRGINIA'NA (called *Serpentaria*, from the resemblance of its roots to the tail of the rattle-snake); otherwise named *Colubrina Virginiana*, or *Viperina Virginiana:* Virginian snake-root. The plant which affords this root is the *Aristolochia serpentaria; foliis cordato-oblongis planis, caulibus infirmis flexuosis teretibus, floribus solitariis; caulis geniculata valde nodosa; flores ad radicem*, Linn. Class, *Gynandria*. Order, *Hexandria*. Snake-root has an aromatic smell, approaching to that of valerian, but more agreeable; and a warm, bitterish, pungent taste. It was first recommended as a medicine of extraordinary power in counteracting the poisonous effects of the bites of serpents; this, however, is now wholly disregarded: but as it possesses tonic and antiseptic virtues, and is generally admitted to be a powerful stimulant and diaphoretic, it is employed, in the present day, in some fevers where these effects are required. A *tinctura serpentariæ* is directed both by the London and Edinburgh Pharmacopœias.

SERPE'NTUM LI'GNUM; snake-wood. The nature of this does not appear to have been as yet well ascertained. It is the produce of the *Ophioxylum serpentum* of Linnæus, by whom it is said to be very bitter. In the cure of the bite of venomous serpents and malignant diseases it is said to be of use.

SERPE'NTUM RADIX. See Mungos radix.

SERPI'GO (from *serpo*, to creep; because it creeps on the surface of the skin by degrees); a tetter or ringworm. See Herpes.

SERPY'LLUM (ερπυλλον; from ερπω, to *creep; or à serpendo*, by reason of its creeping nature), or *Serpillum;* the wild thyme, or mother-of-thyme. *Thymus serpillum* Linn. *Thymus erectus, foliis revolutis ovatis, floribus verticillato-spicatis*. Class, *Didynamia*. Order, *Gymnospermia*. This plant has the same sensible qualities as those of the garden thyme (see Thymus), but it has a milder and rather more grateful flavour. It is seldom used in medicine.

SERPY'LLUM CITRA'TUM, lemon-thyme; a variety of the *Thymus serpillum* Linn. This plant is very pungent; and has a particularly grateful odour, approaching to that of lemons.

SERRATED, in botany, indented or notched like a saw; a term much used in the description of the leaves of plants. See Botany.

SERRA'TULA AMA'RA; the systematic name of a species of saw-wort which is said to cure agues, but scarcely ever resorted to for that purpose.

SERRA'TUS ANTI'CUS. See Pectoralis minor.

SERRA'TUS MAGNUS (*serratus*, from *serra*, a saw; so called from its saw-like appearance). This muscle is named by Douglas *serratus major anticus*, but Dr. Hooper thinks improperly, as it is seated at the side, and not at the anterior part of the thorax. It is a broad fleshy muscle, of a very irregular shape, and is in part covered by the subscapularis, pectoralis, and latissimus dorsi muscles. It arises, by fleshy digitations, from the eight superior ribs, and is inserted fleshy into the whole basis of the scapula internally, between the insertion of the rhomboides, and the origin of the subscapularis, being folded, as it were, about the two angles of the scapula. The serratus magnus muscle may be divided into two and even three portions. The latter division has been adopted by Winslow. The first of these portions is the thick and short part of the muscle that arises from the first and second ribs, and is inserted into the upper angle of the scapula, its fibres ascending obliquely backwards. The second portion arises from the second rib, behind the origin of the first portion, and likewise from the third and fourth ribs: this portion is thin and short, and its fibres run nearly in a horizontal direction, to be inserted into the basis of the scapula. The third and most considerable portion is that which arises from the fifth, sixth, seventh, and eighth ribs, and is inserted into the lower angle of the scapula. The use of the serratus magnus is to move the scapula forwards. It is chiefly by the contraction of this muscle, that the shoulder is supported, when loaded with any heavy weight. The ancients, and even many of the moderns, particularly Douglas and Cowper, supposed its chief use to be to dilate the thorax, by elevating the ribs; but it can only do this when the scapula is forcibly elevated.

SERRA'TUS MA'JOR ANTI'CUS. See Serratus magnus.

SERRA'TUS MI'NOR ANTI'CUS. See Pectoralis minor.

SERRA'TUS POSTI'CUS INFE'RIOR; a thin muscle, but of considerable breadth, situated at the bottom of the back, under the middle part of the latissimus dorsi. It arises by a broad thin tendon, in common with that of the serratus minor anticus from the spinous processes of the two, and sometimes of the three, inferior dorsal vertebræ, and from three, and sometimes four, of those of the lumbar vertebræ. It then becomes fleshy, and, ascending a little obliquely outwards and forwards, divides into three, and sometimes four, fleshy slips, which are inserted into the lower edges of the three or four inferior ribs, at a little distance from their cartilages. This muscle seems to be designed to pull the ribs downwards, backwards, and outwards.

SERRA'TUS SUPE'RIOR POSTI'CUS; a small, flat, and thin muscle, which is situated at the upper part of the back, immediately under the rhomboideus. It arises, by a broad thin tendon, from the lower part of the ligamentum colli, from the spinous process of the last vertebra of the neck, and the two or three uppermost of the back, and is inserted into the second, third, fourth, and sometimes fifth, ribs, by as many distinct slips. This muscle expands the thorax, by pulling the ribs upwards and outwards.

SE'RUM (from *serus*, late, because it is the remainder of the milk after its better parts have been taken from it). The serum of the blood is that thin, yellow, and somewhat greenish, fluid, which separates from the blood when cold and at rest. The serum is fluid in any degree of heat between 30 and 160 of Fahrenheit's thermometer. In a less heat it freezes, in a greater it coagulates.

Coagulation is a separation of an animal or vegetable matter from the water in which it was dissolved; and is at the same time a change of the properties of that matter, rendering it insoluble in water again by commixture alone. The serum consists chemically of a coagulable matter, and water in which muriate of ammonia, and phosphoric ammonia, and generally common salt, and frequently selenites, and fixed ammonia, are dissolved; but it is a question whether the water chemically combined in the serum be also united with those neutral salts, or whether the serum, and the solution of these, are only diffused through one another.

It is probably in itself colourless and inodorous; but it receives a yellowish or brownish hue from the putrescent mucilage of the blood, and acquires a smell from the essential oil. If it contained no neutral salts, it would be insipid, and incapable of stimulating.

The superfluous water may be separated from it by filtration in the body, but that which is chemically combined with the other parts cannot. All the water may be evaporated from it by less heat than 140 degrees of Fahrenheit's thermometer, if it be exposed to the air. The other parts remain after this operation solid, and soluble again in water by commixture alone. The separation or addition of superfluous water does not affect its viscidity, so far as that is of any consequence in the circulation; but the separation of that water which is in chemical combination may render it more viscid. The water in chemical combination is never separated while the serum is contained in the blood-vessels; and of consequence this part of the blood is always equally viscid, so far as its viscidity can affect the circulation or secretions.

It may be coagulated by acids, oils, alcohol, &c. but no substance can get in the blood-vessels in a sufficient degree of concentration to coagulate it, excepting by injection. It may be coagulated by a juice, secreted in the stomach. It has seldom, if ever, been found coagulated in the body. The only perceptible difference which has appeared in the coagulable part of the serum, from any observation hitherto made public, is, that sometimes, in coagulating, its parts adhere more or less firmly. See Blood.

SESAMOID BONES (*ossa sesamoidea;* so called from σησαμη, an *Indian grain*, and ειδος, *likeness*); the little bones which are found at the articulations of the great toes, and sometimes at the joints of the thumbs. Now and then they are met with upon the condyles of the os femoris, at the lower extremity of the fibula, under the os cuboides of the tarsus, &c. These bones do not exist in the fœtus, but as we advance in life, begin first to appear in a cartilaginous state, and, at length, in adult subjects, are completely ossified. Age and hard labour seem to add to the number and size of these bones, and being most commonly found wherever the tendons and ligaments are most exposed to pressure from the action of the muscles, they are now generally considered by anatomists as the ossified parts of tendons and ligaments. The sesamoid bones are usually smooth and flat on the side of the bone on which they are placed; their upper surface is convex, and, in general, adheres to the tendon that covers it, and of which it may, in some measure, be considered as a part. Although their formation seems to be owing to accidental circumstances, yet as the two at the first joint of the great toe are much larger than the rest, and are seldom wanting in an adult, it would seem as if these bones were of some utility; perhaps by removing the tendons farther from the centre of motion, and thus increasing the power of the muscles. The sesamoid bones of the great toe and thumb seem likewise to be of use, in forming a groove for lodging the flexor tendons so as to secure them from compression.

SESAMOIDAL BONES. See Sesamoid bones.

SE'SAMUM (*Sesamum*, an Egyptian word); the oily-grain: *Sesamum Orientale* of Linnæus. The seed and leaves of this plant are used medicinally in some countries on account of the bland oil which the former contains, and for the mucilaginous nature of the latter. The *sesamum Orientale* is cultivated in all the eastern countries, and also in Africa, as a pulse; and the seeds have also been introduced into Carolina, where they succeed extremely well. The inhabitants of that country make an oil from the seed, which will keep good many years, without having any rancid smell or taste. In two years it becomes quite mild; so that when the warm taste of the seed, which is in the oil when first drawn, is worn off, they use it as a sallad-oil, and for all the purposes of sweet-oil. The seeds of this plant are also used by the negroes for food; which seeds they parch over the fire, and then mix them with water, and stew other ingredients with them, which makes a palatable food. Sometimes a sort of pudding is made of these seeds, in the same manner as with millet or rice. From nine pounds of this seed brought from Carolina, there were upwards of two quarts of oil drawn, which is as great a quantity as has been obtained from any vegetable whatever. This occasions its being called the *oily grain.*

SE'SAMUM ORIENTA'LE; the systematic name of the sesamum of the pharmacopœias. See Sesamum.

SE'SELI (σεσιλι; παρα το σαωσαι ελλον, because it is salutary for young fawns), also called *Siler montanum;* hart-wort, or sermountain: the *Laserpitium siler* Linn. The seeds and roots of this plant, which grows in the southern parts of Europe, are directed as officinal remedies. They have an agreeable smell, and a warm, glowing, aromatic taste. Though neglected in this country, they do not appear to deserve it.

SE'SELI CRE'TICUM. There is great confusion amongst the species of seseli; botanists having varied in their accounts of this plant in an extraordinary manner. The plant which bears this epithet in some pharmacopœias, is the *Tordylium officinale* of Linnæus. The seeds are said to be diuretic, but they are seldom used.

SE'SELI MASSILIE'NSE, hart-wort of Marseilles; the *Seseli tortuosum* Linn. The seeds of this plant are directed for medicinal use, and have a warm biting taste, and a greater degree of pungency than those of the *Laserpitium.*

SE'SELI TORTUO'SUM; the systematic name of the hart-wort of Marseilles. See SESELI MASSILIENSE.

SE'SQUI, a Latin word, which joined with any number, weight, measure, &c. signifies one integer and a half; as *sesqui granum*, a grain and a half.

SETA'CEUM (from *seta*, a bristle; because horse-hairs were first used to keep open the wound); a seton. See SETON.

SETON (*setaceum;* so called from *setæ equinæ*, horses' hairs, because these were first used as a means of keeping the wound open); an artificial ulcer made in the skin. This operation is performed by elevating the skin with the finger and thumb, an assistant doing the same at about an inch from where the operator holds it. Then, having armed a large broad cutting needle with as many threads as the operator thinks needful, he is to pass the needle through the stretched skin, bring the threads a little way through, and there leave them. It is common to rub a little of the thread, as much at least as will pass into the wound, at each time of dressing, with the ung. resinæ flav. moving the threads forward every day, by which the discharge will be promoted, and may be continued at pleasure.

Mr. Bell recommends this operation particularly when tumors in some situations are very large. It empties them, he observes, of whatever size they may be, not suddenly, but very gradually; and effectually prevents a free admission of air. A seton is not commonly attended with nearly so much pain and inflammation, nor is the cicatrix occasioned by it ever inconvenient, or unseemly, as it frequently is after a large incision. When the patients are otherwise in good health, they very commonly do well; and with this additional advantage, that a cure is frequently obtained in little more than half the time usually found necessary after a large incision has been employed. A seton is one of the modes of curing the hydrocele. See HYDROCELE. They also are recommended in complaints of the head and eyes; and in all disorders where issues are thought advisable. They may be put in places where issues could not so conveniently be fixed; otherwise issues, or perpetual blisters, are more agreeable, and almost equally useful methods. See the article ISSUE.

SETTERWORT. The bear's-foot is sometimes so termed. See HELLEBORASTER.

SE'VUM, or SEBUM, suet; the hard fat of animals. It is used in forming unguents, pomatum, &c.

SE'VUM MINERALE, mineral tallow; a substance somewhat resembling tallow, found on the sea-coasts of Finland in the year 1736. It burns with a blue flame, and smell of grease, leaving a black viscid matter which cannot easily be consumed. It is extremely light; being only of the specific gravity of 0.770; whereas tallow is not less than 0.969. It is partly soluble in highly-rectified spirit of wine; but entirely so in expressed oils when boiling. It is met with in some of the rocky parts of Persia, but there it appears to be mostly mixed with petroleum. Dr. Herman of Strasburg mentions a spring in the neighbourhood of that city which contains a substance of this sort diffused through it, separating, and capable of being collected on ebullition. A fat mineral matter resembling butter or tallow has been extracted from peat in Lancashire.

SEX; the property by which every animal is male or female.

SEXUAL SYSTEM, in botany, that system of classification which was invented by the immortal Linnæus, professor of physic and botany, at Upsal, in Sweden. It is founded on the parts of fructification, viz. the stamens and pistils; these having been observed with more accuracy since the discovery of the uses for which nature has assigned them, a new set of principles have been derived from them, by means of which the distribution of plants has been brought to a greater precision, and rendered more comformable to true philosophy, in this system, than in any one of those which preceded it. The author does not pretend to call it a natural system, he gives it as artificial only, and modestly owns his inability to detect the order pursued by Nature in her vegetable productions; but of this he seems confident, that no natural order can ever be framed without taking in the materials out of which he has raised his own; and urges the necessity of admitting artificial systems for convenience, till one truly natural shall appear. Linnæus has given us his *Fragmenti Methodi Naturalis*, in which he has made a distribution of plants under various orders, putting together in each such as appear to have a natural affinity to each other; this, after a long and fruitless search after the natural method, he gives as the result of his own speculation, for the assistance of such as may engage in the same pursuit hereafter.

Not finding it practicable to form a system after the natural method, Linnæus was more fully convinced of the absolute necessity of adopting an artificial one, of which a detailed account is given under the article BOTANY.

SEXUALI'STÆ, an epithet applied to those botanical writers, who have established the classes of plants upon the differences of the sexes, and parts of fructification, in plants. Of these, Linnæus is the principal.

SEYDSCHUTZ WATER. See SEDLITZ WATER.

SHALE, a species of schistus. See SCHIST. It is a black slaty substance, or a clay hardened into a stony consistence, and so much impregnated with bitumen that it becomes somewhat like a coal. The acid emitted from shale, during its calcination, uniting itself to the argillaceous earth of the shale, forms alum. About 120 tons of calcined shale will make one ton of alum. The shale, after being calcined, is steeped in water, by which means the alum, which is formed during the calcination of the shale, is dissolved: this dissolved alum undergoes various operations before it is formed into the alum of the shops. This kind of slate forms large strata in Derbyshire; and is also found in large strata, generally above the coal, in most coal counties of this kingdom.

SHANKER, or Chancre, a malignant ulcer, occasioned by venereal irritation. See Chancre.

SHARP-POINTED DOCK. See Oxylapathum.

SHELL-FISH, a numerous class of animals employed as aliment in various parts of the world; and noticed by Dr. Cullen with others of the *Testacea.* The *Oyster*, *Mussel*, and *Cockle* (see those articles), are the kinds seen most frequently at our tables. With respect to these, Dr. Cullen is of opinion, that they hardly differ in any quality from one another; and that it is only a matter of taste, the more frequent appearance of the former at our tables. The substance of most kinds of shell-fish gives out, in decoction, a considerable quantity of matter: but this does not determine the quantity of nutritious matter to be greater than what may be extracted by the gastric fluid from other substances which do not give out so much in decoction; and the smaller proportion of volatile alkali that is obtained from their entire substance or from their extract, leads to the supposition that they contain less of animal substance than the flesh of quadrupeds, birds, or even of the amphibia. Upon the whole, considered as aliments, we may conclude shell-fish to be much of the nature of fishes in general. They particularly approach to the nature of many of the latter, in being without oil, or in having it in very small proportion; and therefore, in Dr. Cullen's opinion, affording less nourishment. Shell-fish appear to be of more difficult digestion than the most part of lean fishes, and in some, particularly the mussel, when eaten immoderately, there is a quality offensive to the stomach. See Mussel. Dr. Cullen says he has also known several instances of persons who could not take even a very small quantity of lobster or crab without being affected, soon after, with a violent colic, and sometimes with that same efflorescence on the skin which often happens from eating salmon or herrings. In these latter cases, however, it happens chiefly from the idiosyncrasy of particular persons.

SHERBET, a compound drink, first brought into England from Turkey and Persia. It then consisted of water, lemon-juice, and sugar, in which were dissolved perfumed cakes made of Damascus fruit, and some drops of rose-water. Another kind of it was made of violets, honey, juice of raisins, &c. Sherbet, with us, is the liquor prepared for punch before the spirit is added; in which state it is the most wholesome.

SHINGLES, called also *Zona*, *Zoster*, *Cinguli*, &c. an erysipelatous herpetic eruption, extending sometimes quite round the body. It appears in small distinct vesicles, which itch intolerably at first, but are afterwards sore, and induce a high degree of fever. See Herpes.

SHIRL, or Schorl. See the latter.

SHIVER. See Schist.

SHOCK, in electricity, the effect of the explosion of a charged body; that is, the discharge of the whole of its electricity on any other body, when it is called the *electric shock.* This is one means of rendering electricity subservient to the cure of diseases. See Electricity.

SHORL. See Schorl.

SHRUB (*frutex*, Lat.), in botany, a low, dwarf tree, or woody vegetable of a size less than a tree; and which, instead of one single stem, frequently from the same root puts forth several sets of stems. Such are privet, phillyrea, holly, box, honey-suckle, &c. Shrubs and trees put forth in autumn a kind of bud or germ, in the axis of the leaves: these are as so many little ova, which, coming to expand by the warmth of the following spring, open into leaves.

SIALAGO'GA (*σιαλαγωγα*, from *σιαλος*, *saliva*, and *αγω*, to *expel)*; sialagogues. Those medicines are so called, which excite an uncommon flow of saliva. Such are mercurial preparations, pyrethrum, &c. They are divided into *sialagoga topica*, as scilla, nicotiana, piper, &c. and *sialagoga interna*, as the various preparations of mercury. This class of remedies operates in a manner very analogous to that of the errhines. See Errhines. By emptying the salivary glands and mucous follicles, they produce an afflux of fluids from all the neighbouring vessels; and this is occasionally extended (as is the case with the evacuation caused by errhines) to the whole branches of the external carotid. By this Dr. Cullen thinks it may be readily supposed that our masticatories may relieve rheumatic congestions, not only in the neighbouring parts, as in the case of tooth-ach, but also congestions or inflammatory disposition in any part of the system of the external carotid. The means that may be employed for this purpose are many; and we may rank among the sialagoga every remedy that proves acrid or heating to the tongue or internal surface of the mouth. Dr. Cullen gives a list of these substances, marking the *angelica* as mild and agreeable; the *imperatoria*, as one more acrid; or, as more acrid still, the *pyrethrum*, which indeed is most commonly employed. But Dr. Cullen found none more effectual, though not marked in his list, than a bit of fresh horse-radish root held in the mouth, and chewed a little. These last, however, are the *external* sialagogues; the only *internal* one is mercury.

SI'BBENS, a term that has obtained in some parts of Britain, as expressive of a disease which resembles, but is said not to be, the venereal. Unhappily, the disease is yet venereal, notwithstanding this change of its name. The term *sibbens* is most common in Scotland.

SIDE'RIA, the name of a genus of crystals, used to express those altered in their figure by particles of iron. These are of a rhomboidal figure, and composed only of six planes. Of this genus there are four known species: 1. A colourless, pellucid, and thin one; found in considerable quantities among the iron ores of the forest of Dean in Gloucestershire, and in several other places. 2. A dull, thick, and brown one; not uncommon in the same places with the former. And, 3. A black and very glossy kind, a fossil of great beauty; found in the same place with the others, as also in Leicestershire and Sussex.

SIDERITE, a substance discovered by Mr. Meyer, and by him supposed to be a new metal; but Messrs. Bergman and Kirwan have discovered that it is nothing else than a natural combination of the phosphoric acid with iron. Mr. Klaproth of Berlin also came to the same conclusion, without any communication with Mr. Meyer. It is extremely difficult to separate this acid from the metal; however, he found the artificial compound of phosphoric acid and iron to agree in its properties with the calx sideri alba obtained, by Bergman and Meyer, from the cold-short iron extracted from the swampy or marshy ores. The discovery of this substance, however, may prove important to chemistry, as we are thus furnished with an immense quantity of phosphoric acid, which might be applied to useful purposes if it could be separated from the metal.

SIGESBE'CKIA ORIENTA'LIS; the systematic name of a plant which is said to be useful in removing strangury, and in calculous diseases, gout, and fluor albus. It is, however, little known in practice.

SIGHT; the perception of the vibrations of light by the eye. See Eye and the articles Vision and Crystalline. Concerning the nature of the sense of sight, the reader should consult the best treatises on *Optics*. Of this sense some slight disorders, or rather varieties, are often observed.

Those persons are called *short-sighted* who cannot see distinctly unless the object be very near them. This disorder arises from too great a refraction of the rays, by reason of their being too soon collected into a focus by the crystalline lens, and diverging again before they fall upon the retina, by which means they make an indistinct picture upon it. The most usual cause is too great a convexity of the eye or some of its humours, as too prominent a cornea. It is a disorder common to young people, which is sometimes removed when they grow older. As soon as the first approaches of short-sightedness are observed, it is supposed it may be obviated by the person's accustoming himself to view remote objects, and keeping his eyes off very small and near ones; as, on the contrary, it may be brought on by the opposite custom, because the eye accommodates itself somewhat to the distances of those objects which it is accustomed to view. But a concave glass, which causes the rays of light to diverge more than naturally they would before falling upon the cornea, is the most simple and certain remedy.

Long-sighted people are those who cannot see an object distinctly unlesss it be at a considerable distance from them. This arises from causes contrary to the former; namely, the eye being too flat, so that there is no room for refracting the rays and bringing them into a focus. Hence this defect is common in old people, and remedied by the use of convex glasses.

Those are called *nyctalopes* who see better with a very weak than with a strong light. It is a defect very seldom to be met with in the human race, though every person is sensible of it who has been long kept in the dark and is then suddenly brought into the light. The disease arises from too great a sensibility of the retina, and the pupil being too open.

The sight is liable to many and serious disorders. It is sharpened beyond measure, so that the person either perceives nothing distinctly, or with great pain, from the same causes that induced a similar disorder in the other senses; namely, excessive sensibility in the general habit of body, or a particular state of the brain common in phrenitis, or even in those afflicted with fevers arising from inflammation or too great excitement; though more frequently from the condition of the eye itself, one becomes unable to bear the light. The inflammation of the tunica adnata, and the forepart of the sclerotica (see Ophthalmia), is communicated to the back parts of it, and from thence to the choroides and retina itself. Hence the light becomes intolerable, and vision is attended with pain and great irritation, sometimes inducing or augmenting a delirium.

The sense of seeing is made *dull*, or even *totally abolished*, by age; the aqueous humour not being supplied in sufficient quantity, and the cornea and lens, or the vitreous humour, becoming shrivelled or decayed. It may likewise happen from the cornea becoming dry and opaque; which is to be imputed to the languid motion of the blood, and to great numbers of the small vessels being obstructed, or having their sides concreted; or from the crystalline lens becoming yellow like amber, and the retina itself less sensible, for old age diminishes every sensation. It is totally abolished by injuries of the brain, the optic nerve, or the retina, even though the structure of the organ should remain sound. This disease is called *gutta serena*, or *amaurosis* (see the former); and it is easily known by the dilatation and immobility of the pupil, the humours of the eye remaining clear. It is commonly owing to congestion of blood; and sometimes, where no congestion of blood can be shewn, to mere torpor of the nerves. If it be only a torpor of part of the retina, we see black spots in those things at which we look; or flies seem to pass before our eyes, a very bad sign in fevers, and almost always mortal. The sight is abolished also by the obscurity or opacity of any of the parts through which the rays ought to pass and be refracted; as if the cornea lose its transparency by being covered with spots; or the aqueous humour become corrupted with blood, serum, or pus; or the lens (which often happens, and which is called a *cataract)* become of a grey or brown colour (see Cataract), or the virtreous humour be in like manner corrupted; or, lastly, when all the humours being dissolved, confused, and mixed together, by inflammation and suppuration, either do not suffer the light to pass at all, or to pass imperfectly and unequally; whence either no image is formed on the retina, or it appears obscure, distorted, imperfect, and discoloured.

The sight is also depraved, when things appear to it of a colour different from their own, or even in another situation, and of another shape than they ought to have. This happens from the humours being tinctured with an unusual colour, as is said to happen in some instances of jaundice; or from an extravasation and mixture of the blood with the aqueous humour. A surprising depravation also, or constant and perpetual defect of vision, is not unfrequently observed in men otherwise very healthy, and who see quite clearly; namely, that they cannot distinguish certain colours, green for example, from red. Another depravation is, when, without any light being admitted to the eyes, sparks, small drops of a flame or gold colour, and various other colours, are observed to float before us. This is generally a very slight and transient disorder, common to those whose constitutions are very irritable; and arises from the slight impulse, as it would seem, on the retina, by the vessels beating more vehemently than usual. A fiery circle is observed by pressing the eye with the finger after the eye-lids are shut. The same reason, perhaps, may be giving for those sparks which are seen by persons labouring under fits of the epilepsy, and increasing to the size of an immense and luminous beam before they fall down in convulsions. A similar beam those who have recovered from hanging or drowning testify that they have observed; for, in consequence of the respiration being suppressed, the vessels of the head swell and compress the whole brain and nervous parts of the head. Sparks of the same kind, and these too of no good omen, are observed in patients labouring under a fever, where a phrenitis or fierce delirium is at hand: and likewise in those who are threatened with palsy, apoplexy, or epilepsy. A distinct but false perception, namely, of visible things which do not exist, is to be imputed to some injury of the brain, to madness or a delirium, not to any disease of the eye.

A very frequent defect of vision remains to be mentioned; namely, *squinting*. For an account of this see the article Strabismus. Physicians have referred to the sense of vision that most troublesome sensation which we call a *vertigo:* though it seems rather to belong to that of feeling, or of consciousness; for in many instances the disorder is not removed either in the dark or by shutting the eye-lids. See Vertigo.

SIGI'LLUM SALOMO'NIS (so called, because it has upon its root the resemblance of an impression made by a seal), Solomon's seal; the *Convolvulus polygonatum; foliis alternis amplexicaulibus, caule ancipiti, pedunculis axillaribus subunifloris,* Linn. The roots of this plant have been applied externally as an astringent, and administered internally as corroborants, but they are now disused.

SIGMOI'DES (*σιγμοειδες*; from the Greek letter Σ, and *ειδος, likeness);* resembling the Greek letter sigma. This term is applied to the valves of the heart, and sometimes to the cartilages of the aspera arteria, or the semilunar apophysis of the bones.

SI'LER MONTA'NUM. See Seseli.

SI'LEX, or *Siliceous Earth,* is the principal constituent part of a very great number of the compound earths and stones forming the immense mass of the solid nucleus of the globe. It is the basis of almost all the scintillating stones, such as *flint, rock crystal, quartz, agate, calcedony, jasper, &c.* The sand of rivers and of the sea-shore chiefly consists of it. It is deposited in vegetable substances, forming petrefied wood, &c. It is likewise precipitated from certain springs in a stalactitical form. It has been discovered in several waters in a state of solution, and is found in many plants, particularly grasses and equisetums. Mr. Davy, professor of chemistry at the Royal Institution, has proved, that it forms a part of the epidermis of these vegetables. Silex is never met with absolutely pure in nature.

Silex when perfectly pure exists in the form of a white powder that is insipid and inodorous. It is rough to the touch, cuts glass, and scratches or wears away metals. Its specific gravity is about 2.66. It is unalterable by the simple combustible bodies. When mixed with water it does not form a cohesive mass. Its moleculæ when diffused in water are precipitated with the utmost facility. It is not acted on by any acid, except the fluoric. When in a state of extreme division it is soluble in alkalies; fused with them it forms glass. It melts with the phosphoric and boracic acids. It is unchangeable in the air, and unalterable by oxigen and the rest of the gaseous fluids. It has been considered as insoluble in water, but it appears when in a state of extreme division to be soluble in a minute quantity.

Silex may be obtained, tolerably pure, from flints, by the following process: expose some common gunflints in a crucible to a red heat, and then plunge them into cold water; by which treatment they will become brittle, and easily reducible to powder. Mix them, when pulverised, with three or four times their weight of carbonate of potash, and let the mixture be fused, in a dull red heat, in a silver crucible. We thus obtain a compound of alkali and silex, called siliceous potash. Dissolve this compound in water, filter the solution, and add to it diluted sulphuric or muriatic acid. An immediate precipitation now ensues; and as long as this continues, add fresh portions of acid. Let the precipitate subside; pour off the fluid that floats above it; and wash the precipitate with hot water till it comes off tasteless. This powder when dry is silex.

In the foregoing process the acid added to the solution of flint unites to the potash, and forms sulphate or muriate of potash; the siliceous earth is therefore precipitated. It is necessary to add excess of acid, in order that all the foreign earths which are present may be separated. If the solution of flints be diluted with a great quantity of water, as for instance, in the proportion of 24 parts to 1, and in this state an acid be poured upon it, no perceptible precipitation will ensue; the silex continues suspended in the fluid, and is invisible on account of its transparency; but it may be made to appear by evaporating part of the water. The solution of flint, on account of its affinity with the carbonic acid, is also in course of time decomposed by mere contact with air.

Another method of obtaining silex exceedingly pure is, to separate it from fluoric acid. See Fluor Spar.

SILK-WORM, ACID OF. See Bombic acid.

SI'LIQUA, in botany, is the seed-vessel, husk, or pod, of such plants as are of the leguminous kind. By Linnæus, it is defined a pericarpium of two valves, wherein the seeds are fastened along both the sutures or joinings of the valves.

SI'LIQUA DULCIS (*Siliqua*, a pod or receptacle for seed, applied to plants which bear pods), sweet-pods; a fruit which is the produce of the *Ceratonia siliqua* Linn. These pods are about four inches in length, and as thick as one's finger, compressed and unequal, and mostly bent. They contain a sweet brown pulp, which is given in form of decoction, as a pectoral in asthmatic complaints and coughs.

SI'LIQUA HIRSU'TA, an occasional name for the cowhage. See Dolichos.

SILIQUA'STRUM (from *siliqua*, a pod; named from its pods), the Judas-tree. The capsicum or Guinea-pepper was so termed by Pliny. See Capsicum.

SILVER. See Argentum.

SILVER-WEED. See Potentilla.

SIMAROU'BA (a patronymic name of America), or *Simarouba quassia;* the *Quassia simarouba* of the younger Linnæus. *Quassia floribus monoicis, foliis abrupte pinnatis, foliolis alternis subpetiolatis petiolo nudo, floribus paniculatis.* Supp. Plant. Class, *Decandria.* Order, *Monogynia.* This tree grows in Guiana and in Jamaica. Dr. A. Duncan observes, that the simarouba of the shops is the bark of the root of this tree, and not of the *quassia amara*, as stated by the Dublin college. It is brought to us in pieces some feet long, and some inches broad, folded lengthwise. It is light, fibrous, very tough; of a pale yellow on the inside; darker coloured, rough, scaly, and warted, on the outside; has little smell, and a bitter, not disagreeable, taste. It gives out its bitterness both to alkohol and to water. This bark has been much celebrated in obstinate diarrhœa, dysentery, anorexia, indigestion, lienteria, and intermittent fevers; but it is doubtful whether it is better than some other bitters. It is given in powder, in doses of half a drachm, to a whole drachm; but it is too bulky, and very difficultly pulverisable; therefore best exhibited in decoction. Two drachms of the bark may be boiled in two pounds of water to one, and the decoction drunk in cupfuls in the course of the day.

SI'MIÆ LAPIS. See Bezoar simiæ.

SI'NAPE; mustard. See Sinapi.

SI'NAPI (of the Gr. *σιναπι οτι σινει τȣς ωπας*, because it hurts the eyes), or *Sinapi nigrum*, the common black mustard; *Sinapis nigra* Linn. *Sinapis siliquis glabris racemo appressis.* Class, *Tetrudynamia.* Order, *Siliquosa.* The seeds of this species of mustard, which are directed by the London College, and those of the *Sinapis alba,* which are preferred by that of Edinburgh, manifest no remarkable difference to the taste, nor in their effects, and therefore answer equally well for medicinal and culinary purposes.

Both impart their taste and smell in perfection to aqueous liquors, whilst rectified spirit extracts extremely little of either: the whole of the pungency arises with water in distillation. Committed to the press, they yield a considerable quantity of a soft insipid oil, perfectly void of acrimony: the cake left after the expression, is more pungent than the mustard itself.

Mustard-seed is swallowed entire, to the quantity of a tablespoonful or more, to stimulate the stomach in some cases of dyspepsia, and to excite the peristaltic motions of the intestines, especially when they are torpid, as in paralysis. It may, however, be questioned whether, in this state, the digestive functions are exercised upon them. The powder made into a paste with water, is commonly used as a condiment with animal food. Infused in water, it proves emetic when taken in considerable doses, and in smaller ones, it acts as a diuretic and aperient; but it is more frequently applied externally as a topical stimulus, made into a paste or sinapism with vinegar and bread-crum.

Of this remedy the following are the officinal preparations: —*Oleum sinap.* Lond. Dubl. *Cataplasma sem. sinap.* Lond. Dubl. *Emp. mel. vesic. comp.* Edin.

SI'NAPI NIGRUM. See Sinapi.

SI'NAPIS ALBA; the systematic name of the white mustard plant, which is directed for medicinal use in the Edinburgh Pharmacopœia. It is somewhat less pungent than the black species, and therefore rather less active as a medicine. See Sinapi.

SI'NAPIS NIGRA; the systematic name of the common black mustard. See Sinapi.

SINAPI'SMUM or *Cataplasma sinapios;* a term given to a mixture of mustard and vinegar in the form of a poultice or sinapism. See Sinapi.

SI'NCIPUT; the fore part of the head. See Caput.

SI'NE PA'RI, without a compeer. Several muscles, veins, arteries, &c. are so called which are without any fellows. See Azygos.

SINGU'LTUS, the hiccough; a convulsive motion of the diaphragm and parts adjacent. The immediate cause is generally allowed to be an irritation in the stomach. When attending acute disorders, it is called the *acute;* and when a companion of chronical disorders, it is called the *chronic hiccough.* The occasional causes are, errors in diet, some injury done to the stomach, an inflammation there, acrid poison, inflammation of the diaphragm, or of some of the abdominal viscera, sourness, flatulence in the stomach, &c. The symptomatic kinds are attended with the latter symptom, and are usually relieved by the Tinct. vol. fœtid. to which a small quantity of the Tinct. opii may be added. When this disorder is serious, musk should be given in doses from ten to twenty grains. Sp. ætheris nitros. may be repeatedly given in small doses, in common cases; or a little grated nutmeg and sugar, or a drop of oil of cinnamon on sugar. Sudden fright, or agitation, removes the hiccough.

SI'NUS; a cavity or depression.

SI'NUS GENÆ PITUITA'RIUS. See Antrum Highmorianum.

SI'NUS, LONGITUDINAL. See Longitudinal sinus.

SINUSES. The veins of the dura mater are so termed. These are several in number, the principal of which are: 1. The *longitudinal sinus*, which arises anteriorly from the crista galli, ascends and passes between the laminæ of the falciform process to the part where this process ends. It then opens into, 2. Two *lateral sinuses*, which are distinguished into right and left. These lie in the crucial spine of the os occipitis. 3. The *inferior longitudinal*, which is a small sinus situated at the acute inferior margin of the salix.

SINUSES, LATERAL. See Lateral sinuses.

SI'PHILIS. See Syphilis.

SIPHO'NIA ELA'STICA; the systematic name of the elastic resin-tree. See Caoutchouc.

SI'RIUM MYRTIFO'LIUM; the systematic name of the tree which is supposed to afford the yellow saunders. See Santalum album.

SIRO'CCO, a periodical wind which generally blows in Italy and Dalmatia every year about Easter. It blows from the south-east by south: it is attended with heat, but not rain; its ordinary period is twenty days, and it usually ceases at sun-set. When the sirocco does not blow in this manner, the summer is almost free from westerly winds, whirlwinds, and storms. This wind is prejudicial to plants, drying and burning up their buds; though it hurts not men any otherwise than by causing an extraordinary weakness and lassitude; inconveniences that are fully compensated by a plentiful fishing, and a good crop of corn on the mountains. In the summer time, when the westerly wind ceases for a day, it is a sign that the sirocco will blow the day following, which usually begins with a sort of whirlwind.

SI'SON A'MMI; the systematic name of the plant which affords the amomum verum of the shops. See Amomum.

SISY'MBRIUM (σισυμβριον; from σισυβος, *fringe;* so named from its fringed roots); the water-cress.

SISY'MBRIUM; a name by which the water-mint is sometimes called. See Mentha aquatica.

SISY'MBRIUM NASTU'RTIUM; the systematic name of the water-cress. See Nasturtium aquaticum.

SISY'MBRIUM NASTURTIUM AQUATICUM; an occasional name for the common water-cress. See Nasturtium aquaticum.

SISY'MBRIUM SOPHIA; the systematic name of the herb sophia. See Sophia chirurgorum.

SITIOLO'GIA (from σιτος, *aliment*, and λογος, a *discourse* or *treatise);* the science or doctrine of aliment.

SI'UM (from σειω, to *move*, from its agitation in water); the creeping water-parsnep: *Sium nodiflorum* Linn. This plant is admitted into the London Pharmacopœia in the character of an antiscorbutic. It is not nauseous, and children take it readily if mixed with milk.

SI'UM AROMA'TICUM; an occasional name for the amomum verum. See Amomum.

SI'UM NA'NSI; the systematic name of the plant whose root is called *radix nansi* in some of the pharmacopœias.

SI'UM NODIFLO'RUM; the systematic name of the creeping water-parsnep. See Sium. This plant, which is perennial, and grows wild in rivers and ditches, was formerly alleged to be not only a diuretic, but also an emmenagogue and lithontriptic. With these intentions, however, it is not now employed. Dr. Withering mentions, that a young lady of six years old was cured of an obstinate cutaneous disease by taking three large spoonfuls of the juice twice a-day; and he adds, that he has given repeatedly to adults, three or four ounces every morning, in similar complaints. In such doses it neither affects the head, stomach, nor bowels; and may be continued for a length of time.

SKELETON *(sceletus*, from σκελεω, to *dry);* the bones of the body, preserved in their natural situation, and deprived of the flesh which formerly covered them. See Bones.

SKELETON, ARTIFICIAL; an assemblage of all the bones of an animal, when hung in their respective situations by means of wires or other artificial bonds of connection. See Bones.

SKELETON, NATURAL. This is so termed in opposition to an artificial skeleton, when the bones are retained in their proper places by their natural ligaments, which are dried upon the articulations. Natural skeletons of frogs, mice, birds, and other small animals, are easily made by putting them into a box, perforated with holes, and burying them in, or near, a large ant-hill. The larger the species of ant, the more quickly will the work be performed. These animals will completely remove the muscular parts, and leave the skeleton in the posture in which it was originally placed.

SKIN. The true skin was called, by the Greeks, δερμις, and the scarf-skin, in their usual way, επιδερμις. It is said to have been called δερμις παρα το δερειν, *quia exuitur quibusdam animalibus*, because it is cast by many animals once a-year; for the epidermis certainly is. Hippocrates uses the words δερμις and επιδερμις sometimes in the same sense, as if both meant equally the skin. The skin, properly so called, is a substance of very large extent, made up of several kinds of fibres, closely connected together, and running in various directions, being composed of the extremities of numerous vessels and nerves. This texture is not easily torn; may be elongated in all directions, and afterwards recover itself, as we see in fat persons, in women with child, and in swellings; and it is thicker and more compact in some places than in others. Its thickness and compactness are not, however, always proportionable: for on the posterior parts of the body it is thicker and more lax than on the fore-parts; and on the palms of the hands, and soles of the feet, it is both very thick and very solid. It is generally more difficult to be pierced by pointed instruments in the belly than in the back. Dr. Hunter says, that when the *skin* is once destroyed, it is never regenerated, but the edges stretch considerably to form a covering; after that, a cicatrix, which is hardened flesh, completes the healing.

The outer surface of the skin is furnished with small eminences or *papillæ*, which appear through its whole surface like small granulations; and seem to be calculated to receive the impressions of touch, being the most easily observed where the sense of feeling is the most delicate, as in the points of the fingers and palms of the hands. They also are supposed to be the capillary filaments of the cutaneous nerves, which terminate by small radiated pencils: yet they must be allowed to be formed like the other parts of the cutis; only the nervous fibrillæ will be found to be more numerous in them than in other parts.

These papillæ differ very much in figure and disposition in the different parts of the body, and they may be distinguished into several kinds. The greatest part of them is flat, of different breadths, and separated by sulci, which form a kind of irregular lozenges. The pyramidal figure ascribed to them is not natural; and appears only when they are contracted by cold, by diseases, by boiling, or by some other artificial preparation which alters their ordinary structure. The papillæ of the palm of the hand, of the sole of the foot, and of the fingers and toes, are higher than on the other parts of the body; but they are likewise smaller, closely united together, and placed as it were endwise with respect to each other, in particular rows, which represent on the skin all kinds of lines, straight, crooked, waving, spiral, &c. These several lines are often distinctly visible in those parts of the palm of the hand which are next the first phalanges of the fingers. The red part of the lips is made up of papillæ, representing very fine hairs, or villi, closely united together. There is another particular kind under the nails; the papillæ being there more pointed, or in a manner conical, and turned obliquely toward the ends of the fingers. Those which are found in the hairy scalp, scrotum, &c. are still of other kinds.

In inflammations, we observe a reticular texture of capillary vessels, more or less extended on the surface of the skin; and we demonstrate these by fine injections, which may be looked upon as artificial inflammations. Something similar to this has been injected, it seems, by Mr. Baynham of London, who thought it *rete mucosum;* and afterwards by Mr. Cruikshank, who calls it *cuticula quarta*, in his letter to the late Mr. Clare. But neither of these methods prove, that, in the natural state, these vessels are blood-vessels; that is, that they contain the red portion of the blood. It is more probable that this vascular texture is only a continuation or production of the very small capillaries of the arteries and veins; which, in the natural state, transmit only the serous part of the blood, while the red part continues its course through wider ramifications, which more properly retain the name of *blood-vessels*. This vascular texture is of various forms and figures in the different parts of the body. It is not the same in the face with what it is elsewhere; neither is it alike on all the parts of the face, as may be discovered by the most ordinary microscopes: and from hence we might perhaps be enabled to give a reason, why one part of the body turns red more easily than another.

The skin is perforated by an infinite number of *pores*, which are of two kinds; some more or less perceivable by the naked eye; such as the orifices of the milky ducts of the mammæ, the orifices of the excretory canals of the cutaneous glands, and the passage of the hairs. The other pores are imperceptible to the naked eye, but visible through a microscope; and their existence is likewise proved by the cutaneous transpiration, and by the effects of topical applications; and from these two phenomena, they have been divided into pores of different descriptions.

The skin is every-where united to the corpus adiposum; but it adheres to it much more closely in some parts than in others, as in the palm of the hand, sole of the foot, elbow, and knee.

Some *plicæ or folds in the skin* depend on the structure of the membrana adiposa or cellularis, as those in the neck and buttocks: others do not depend on that membrane, such as the rugæ in the forehead, palpebræ, &c. which are formed by cutaneous muscles, and disposed more or less in a contrary direction to these muscles. These folds increase with age. There is besides a particular kind of folds in the skin of the elbow, knee, and condyles of the fingers and toes; which are owing neither to the conformation of the membrana adiposa, nor to any muscle. Lastly, there is a kind of plicæ, or rather lines, which cross the palm of the hand, sole of the foot, and corresponding sides of the fingers and toes, in different directions.

Under the cuticle, we meet with a substance of a greyish colour, which has been thought to represent a net-work; hence it has got the name of *corpus reticulare*, or *rete mucosum*. It is of a soft, mucilaginous, and viscid nature; and fills up the interstices of the fibres running between the cutis vera and cuticula. After raising the cuticle in a negro, where it is thickest and most distinct, this substance appears of a black colour, and is composed of two layers. It is this that chiefly gives the colour to the skin; for it is black in the African; white, brown, or yellowish, in the European.

The origin of this mucous substance has not hitherto been sufficiently explained; nor has it been conceived what purposes it serves in the human body, except it be designed to mark the varieties in our species. Haller thinks it probable, that it is composed of a humour transuding from the surface of the cutis vera. The reason why it is black in the negro has been supposed to be for serving as a defence against the external heat, by preventing the rays of the sun from penetrating his body; but this is doubtful. See Negroe.

We shall now speak of the *glands of the skin*. In different parts of the body, we meet with small follicles of an oval form, and seated chiefly under the skin in the corpus adiposum. These are composed of convoluted vessels; but in some parts of the body they appear to be formed of small cylindrical tubes or simple follicles, continued from the ends of the arteries, and discharging, by small excretory ducts, a fat and oily matter, that serves to lubricate and moisten the surface of the skin. When the fluid they secrete has acquired a certain degree of thickness, it approaches to the colour and consistence of suet; and from this appearance they have derived the name of *sebaceous glands*. They are found chiefly on the nose, ears, axillæ, likewise round the nipple, and about the external parts of generation, in both sexes.

Besides the sebaceous glands, anatomists describe other small spherical bodies placed over the surface of the body, in much greater abundance, and named *miliary*. These are said to have excretory ducts that open on the surface of the cuticle, and emit the sweat and matter of insensible perspiration; but after all that has been said by different authors about them, it is certain there are no distinct glands that can be traced by the knife.

The *uses of the skin* are manifest to every one. It is the filamentary substance, called the *body of the skin*, which is the universal integument of the body, and the basis of all the other cutaneous parts; each of which has its particular uses. The skin is able to resist external injuries to a certain degree, and such impressions, frictions, strokes, &c. to which the body is often liable, as would hurt and disorder the parts of which it is composed, if they were not thus defended.

The papillæ are the organ of feeling (see Touch), and contribute to an universal evacuation, called *insensible perspiration*. See Perspiration. They likewise serve to transmit from without, inwards, the subtile particles or impressions of some things applied to the skin. The first of these three uses depends on the extremities of the nerves; the second, on the arterial productions; and the third, on the origin of the absorbent system.

The cutaneous glands secrete an oily humour of different consistences. But without the epidermis, both papillæ and glands would be disturbed in their functions; on which great disorders must ensue.

The epidermis serves to keep the pencils or nervous filaments of the papillæ in an even situation, and without confusion; and it likewise moderates the impressions of external objects. Particular, as well as general, feeling, is more or less perfect, in proportion to the thinness of the epidermis; callosities in which, weaken, and sometimes destroy, both. Another use of the epidermis is to regulate the cutaneous evacuations already mentioned; the most considerable of which is insensible perspiration. See Epidermis.

The last universal integument of the human body, is the membrana cellularis or adiposa, or corpus adiposum as it has otherwise been called. This, however, has been described under the article Cellular membrane.

The *diseases of the skin*, though exceedingly numerous, are, unfortunately, neither well ascertained nor understood. The recent efforts of Dr. Willan to class them are highly to the honour of that industrious and acute observer of this difficult branch of human pathology; and we have endeavoured to avail ourselves of his observations under the particular heads to which they belong. See Lichen, Papulæ, Lepra, &c. &c. Dr. Willan divides the class of cutaneous diseases into eight orders, characterised by the different appearances of pimples, scales, rashes, &c. as follow:

Ord. I. Papulæ.
Strophulus (*red-gum, tooth eruption, &c.*)
Lichen (*spring eruption, scorbutic pimples, &c.*)
Prurigo (*gratelle, or universal itching of the skin*).

Ord. II. Squamæ.
Lepra (*leprosy of the Greeks*).
Psoriasis (*dry or scaly tetter*).
Pityriasis (*dandriff*).
Icthyosis (*fish-skin*).

Ord. III. Exanthemata.
Rubeola (*measles*).
Scarlatina (*scarlet-fever*).
Urticaria (*nettle-rash*).
Roseola (*rose-rash*).
Iris (*rainbow-rash*).
Purpura (*purple or scorbutic-rash*).
Erythema (*red-rash*).

Ord. IV. Bullæ.
Erysipelas (*St. Anthony's fire*).
Pemphigus (*vesicular fever*).
Pompholyx (*water-blebs*).

Ord. V. Vesiculæ.
Herpes (*ring-worm, shingles, wild-fire, &c.*)
Varicella (*chicken-pox and swine-pox*).
Miliaria (*miliary eruptions*).
Eczema (*heat eruptions*).
Aphthæ (*thrush*).

Ord. VI. Pustulæ.
Impetigo (*running tetter*).
Ecthyma (*large inflamed pustules*).
Variola (*small-pox and cow-pox*).
Scabies (*itch*).
Porrigo (*scald-head, honey-comb scab, &c.*)

Ord. VII. Tuberculæ.
Phyma (*boils, carbuncles, &c.*)
Verruca (*warts*).
Molluscum (*small, soft wens*).
Vitiligo (*white smooth tubercles*).
Acne (*stone-pock; red, tuberculated face, &c.*)
Lupus (*noli me tangere*).
Elephantiasis (*Arabian leprosy*).
Frambœsia (*yaws*).

Ord. VIII. Maculæ.
Ephelis (*sun-spots*).
Nævus.
Spilus (*moles, and other original marks*).

The parts as yet published by Dr. Willan, contain an account only of the genera belonging to the first and second orders, and the first two genera of the third order. We strongly recommend these to the student's attention. In thus forming his arrangement wholly upon external appearances, the doctor is necessarily led to separate some *genera* which would be arranged together in a system of "natural orders," and to connect others which, in such a system, would be separated. Although greater and essential analogies are thus, in many instances, overlooked, yet a practical facility of distinction is obtained with greater certainty than by the other method, as is well illustrated in the science of natural history by the artificial system of Linnæus.

SKIN, SCARF. See Cuticle and Skin.

SKINK. See Scincus.

SKULL, or Cranium. See Head, Bones, and Cranium. The accidents which the head is exposed to, are treated under the articles Fissure, Concussion, Depression, Cerebrum, &c.

SLATERS, a name by which the millepedes are sometimes called.

SLEEP (*somnus*, Lat.); that state of the body in which the internal and external senses and voluntary motions are not exercised. The end and design of sleep is both to renew, during the silence and darkness of the night, the vital energy which has been exhausted through the day, and to assist nutrition.

Among the exhausting powers may be reckoned, heat, light, motion, sound, and thought, with the exercise of reason, imagination, desire, and volition; and to these we may add sensations accompanied by pain or pleasure. When, therefore, in some measure exhausted by these powers, we have recourse to sleep; in that situation, all the muscles, except the sphincters, are relaxed, and voluntary motion ceases; but not the vital and involuntary, for these, far from exhausting, serve only to recruit our strength. Such is the peristaltic motion of the alimentary canal, on which depends nutrition; such, respiration, which supplies the pabulum of life; and such, the motion of the heart, which distributes the energetic principle to every part of the body.

When all stimulating powers, excepting those which immediately excite the vital functions, are removed, sleep first blunts sensation; then impairs the recollection and reasoning powers, precludes volition, and, at length, if profound, puts a total stop to all the operations of the mind. Such are the phenomena of sleep. But how is it produced? What is the proximate, what the remote, cause of sleep? A late writer, Mr. Townsend, is inclined to think that there are absorbents in the cavities of the brain, as in all other cavities of the body, to take up and carry off what the exhalents have deposited; and he imagines that, during our waking hours, their activity is greater in proportion to the intensity of thought, of volition, and of muscular exertion. Should this be granted, it will follow, from the laws of the animated fibre, that these absorbents, exhausted by incessant action, will become torpid in a degree, while the exhalants continue to pour forth into the ventricles of the brain their viscid lymph, as happens even after death, according to Sauvages. Hence may arise that degree of pressure on the vessels of the brain which blunts the faculties, produces a cessation of voluntary motion, and terminates in total absence of sensation.

For the occasional causes of somnolency, we may look to such as diminish the vital energy and action of the absorbents, by excess of stimulus; which may be heat, animal food, spices, spirits, opium, and either violent or long-continued exertions, whether mental or muscular. Among these we find the same causes which occasion drunkenness, in its several degrees of intensity, with deep sleep and death. Or the occasional causes, diminishing the vital energy, may be directly sedative, such as excess of cold, which is attended by insuperable desire to sleep; fear, when extreme; profuse evacuations; exhausting diseases; and whatever either diminishes the supply of blood to the vessels of the brain, such as ligatures on the carotids, and pressure on the cortical substance of the brain by plethora, or impedes the return of blood by the veins, as happens to decrepit age, and to such as are oppressed with fat.

The celebrated Hoffman, when treating of sleep and wakefulness, remarks, that the tone and vigour of the brain being much diminished, partly by vigilance through the day, and partly by languid circulation of the blood by night, this gives occasion to a more copious exhalation of lymph, which stagnates in the vessels of the brain, and impedes the secretion of the nervous fluid. He observes, that whatever retards the circulation of the blood produces sleep, and that sleep itself retards the circulation of the blood; for, during sleep, the pulse is slow, and the respiration is both deeper and slower than when we are awake.

We know that during sleep the whole system is relaxed, because every part of the body becomes turgid; and that some of the exhalants act more freely than the absorbents, with which they are connected, is manifested by the pearly drops of sweat standing like dew upon the faces of children, or flowing from every pore of hectic patients, before they awake in the morning. Besides, children, and people of lax habits, sleep more than old people, or such as are distinguished for rigidity of fibre. That there is some accumulation in the vessels of the brain, is rendered probable by observing, that when any one is suddenly awakened from profound sleep, he is convulsed; weight and torpor in the head are felt for some considerable time; the senses are slow in their return, and the muscles do not readily obey the will. These symptoms are frequently rendered more remarkable when weakly subjects sleep after a full meal before the fire.

In sleep, the absorbents, having accumulated vital energy, act with renovated vigour, and a disposition to wakefulness ensues. Thus, Mr. Townsend supposes the human machine, by its alternate accumulation and exhaustion of energetic power, to resemble an engine kept in motion by the alternate collection and condensation of steam; and in support of this theory he adduces the phenomena attendant on apoplexy. One degree of pressure produces, he imagines, drowsiness, and a greater brings on sleep in its several stages of intensity, from that which is lightest, to lethargy, apoplexy, and death. Dr. Cullen's ideas on this subject, however, differ very essentially. He says, sleep is a state of the animal economy which spontaneously occurs in man, and perhaps in all other animals, in their natural and healthy state, once in the course of every diurnal revolution of the sun. In man, it is variously modified; but in its most natural and complete state, it consists in a total cessation of the exercise of all sensation and thought, and consequently of all intellectual operation; and at the same time, therefore, of all exercise of volition, and of the motions of the system depending upon this. Taking it for granted, that *all exercise of sense and voluntary motion depend upon the motion of the nervous fluid to and from the brain*, Dr. Cullen concludes, that *sleep consists in a suspension of these motions.* The causes of this suspension have been variously assigned; but it depends upon the nature of the nervous fluid itself, disposed to the alternate states of torpor and mobility.

What is the physical or mechanical condition of the nervous fluid in these different states, Dr. Cullen does not pretend to explain; but alluding to the circumstance of opium producing the same state that occurs in natural sleep, he says, "As in this, the motions from the extremities of the nerves to the sensorium cease, we can readily understand how opium, producing this state, can produce a cessation of all sense of pain or other irritation arising from any part of the system. See OPIUM. At the same time, as in sleep the exercise of will and every motion from the brain to the other parts of the system, entirely cease; so opium can suspend every motion from the brain into the voluntary organs, whether the motions in these appear in the form of convulsion or spasm. But not only do these powers of opium appear in the animal functions; but in so far as the other motions of the system depend, as I presume they do, on the constant energy of the brain, opium certainly diminishes the force of this, and thereby diminishes, and to a certain degree suspends, all the vital and natural functions."

In prosecuting the analogy of natural sleep with that induced by opium, Dr. Cullen observes, "that natural sleep occurs more or less readily as the causes producing it have been greater or less; and chiefly therefore according to the labours of the preceding day: but more certainly if those irritations commonly arising from the exercise of the functions, or from external impressions, are more completely absent; and particularly those of the former kind, arising from interrupted digestion, from the earnestness of mental occupations, and from the increased action of the sanguiferous system. Making allowances for these circumstances, the occurrence of sleep is very much under the government of a periodical revolution which the system is subjected to: and under the influence of this, it may occur at its usual period, though the labours of the preceding day may have been much less than usual; and it will only be prevented by some of the irritations just now mentioned, or others prevailing in the system.

"When sleep occurs in spite of the circumstances that have a tendency to prevent it, it will be broken by those irritations, that is, by the causes of watching frequently intervening; or if these do not proceed so far as to excite watching, they may render the sleep incomplete, by producing only a partial interruption of thought: and as this exercise of thought, when it is partial only, must be irregular, so it must produce that incoherent and inconsistent thinking which we call *dreaming*. According to the degree of the causes, dreams may be mild, and perhaps agreeable; or, according to the violence of their causes, they may be more turbulent, and with more emotion produced. It appears that, even from moderate causes, they are different, and prove either cheerful or gloomy according to the tone of mind prevailing in the person affected; but why, from violent causes, they are generally of the frightful kind, we cannot explain.

"Such are the different states of natural sleep: and when it is over, the effects of it are also different, while there is either a sense of ease from all the irritations which the system was affected with before, and when the sleep is said to be refreshing, or there remains some of those irritations that had disturbed their sleep, and therefore give a desire of its continuance."

Whether, without any such irritations, the state of sleep does not give a disposition to its continuance, Dr. Cullen leaves his speculating readers to consider: but, however this may be determined, it does not affect the proposition, that the state of sleep induces the state fit for watching; since it is evident, that a state of sleep, subsisting for some time, induces a state of the system more ready to be affected by stimuli.

"Analogous to these different states of natural sleep, and of its consequences, are the states induced by opium. If the system is tolerably free from irritation, opium induces a sleep which would not have spontaneously occurred. Even though some irritations should prevail, if these be moderate, opium, by diminishing sensibility, may induce sleep, and will do it more or less according to the dose employed. In some cases, though the power of the dose employed may not be sufficient to induce sleep, it may be able to take off, or at least to diminish, the causes of restlessness which had prevailed, and thereby give a tranquillity that, subsisting for some time, is often found equal to the refreshment of sleep.

"There are, however, cases in which the irritations of the system are too strong to be overcome by the force of any moderate dose of opium; and in such cases no sleep is produced, and at the same time the conflict arising between the stimulant irritations and the sedative power of opium, gives a further irritation to the system, which is often very hurtful to it. Such, however, is the force of the sedative power of opium in inducing sleep, that if the dose be large it will overcome very strong irritations; and it is to be remarked, that the conflict just now mentioned often arises from the dose of opium being too small, and when a larger would have prevailed over the irritations more entirely.

"The management of this, which is often a difficult matter in practice, must be directed by the nature of the irritations prevailing. It appears, that when the irritations are primarily and especially applied to the brain, and not at all to the sanguiferous system, the force of opium may be employed very freely, and to any extent, and in a large dose will always either take off the irritation entirely, or at least for some time suspend its operation; and from thence it appears, that in purely nervous cases, opium may be employed in very large doses with great safety."

Somnolency, too much indulged, brings on fatuity. Boerhaave relates the case of a physician, who took such delight in sleeping, that he retired to a quiet and sequestered chamber, where, in perfect darkness, he slumbered almost incessantly, till he lost his intellects, and perished in an hospital. The duration of sleep, with the alternate periods of repose and vigilance, depend much on habit, and this, once acquired, is with difficulty changed.

SLICH, a name given to the ore of any metal, particularly of gold, when it has been pounded, and prepared for further working.

SLOANE (Sir Hans), baronet, an eminent physician and naturalist, was born at Killileagh in the north of Ireland, in 1660, of Scottish extraction. The very first bent of his genius discovered itself towards the knowledge of nature, and this was encouraged by a proper education. He chose physic for his profession; and, in order to attain a perfect knowledge of the several branches of it, repaired to London. Here he attended all the public lectures of anatomy, botany, and chemistry. Having spent four years in London, he went to Paris; and there attended the hospitals, heard the lectures of Tournefort the botanist, of Du

Verney the anatomist, and other eminent masters. Having obtained letters of recommendation from Tournefort, he went to Montpelier. He spent a whole year in collecting plants in this place, and travelled through Languedoc with the same view. In 1684, he returned to London, with an intent to settle, and follow his profession. During this time he was chosen a fellow of the Royal Society, and of the College of Physicians. But a prospect of making new discoveries in natural productions induced him to take a voyage to Jamaica, in quality of physician to Christopher, duke of Albemarle, then governor of that island. His whole stay at Jamaica was scarcely fifteen months; in which time he collected a variety of plants. He now applied himself closely to his profession, became eminent, and was chosen physician to Christ's Hospital on the first vacancy. He was chosen secretary to the Royal Society in 1693, and immediately revived the publication of the "Philosophical Transactions," which had been omitted for some time: he continued to be editor of them till 1712; and the volumes which were published in this period contain many pieces written by himself. He was created a baronet by George I. chosen a foreign member of the Royal Academy at Paris, president of the College of Physicians, and president of the Royal Society on the death of Sir Isaac Newton. He retired, at the age of eighty, to Chelsea, where he died January 11, 1752. He published the "History of Jamaica," in two vols. folio; which elaborate work is in high estimation.

SLOE. See PRUNUS SYLVESTRIS.

SMALLAGE. See APIUM.

SMALL-POX. See VARIOLA.

SMELLING; that sense by which we are enabled to distinguish bodies by their particular odours. As this is effected by the medium of the nerves, it may be proper first to speak of their distribution. The principal nerves belonging to the nose are filaments of the *nervi olfactorii*, which run down through the holes of the transverse laminæ of the os ethmoides, and are distributed to the common membrane of the internal nares, especially to the villous portions of it. The inner ramus of the orbitary or ophthalmic sends a filament through the internal anterior orbitary hole into the cranium, which comes out again in company with one of the filaments of the olfactory nerve through the ethmoidal laminæ.

This internal ramus advances afterwards toward the os unguis; and is distributed partly to the sacculus lachrymalis, partly to the upper portion of the musculus levator alæ nasi, and of the integuments of the nose. The suborbitary nerve, which is a branch of the maxillaris superior, having passed through the inferior orbitary hole, sends filaments to the lateral external parts of the nose. Another branch of the superior maxillary nerve goes to the posterior opening of the nares, being spent on the conchæ and other internal parts of the nose.

In animals which smell acutely, the parts of the nose are remarkably large; but the formation of the human head into that of a roundish figure, has in man given to the organ of smelling but a small extent of surface; but to enlarge this the more, nature has made the internal parts of the nose variously hollow and complicated in an extraordinary manner.

The sense of smelling conduces to the distinguishing prejudicial from salutary food. By it we both discover and are admonished to avoid, before it comes to our taste, what might be otherwise dangerous; and we are especially enabled to avoid any thing of a putrid tendency in our victuals, which to us is highly repugnant, and likewise to discern what are grateful and wholesome aliments, although custom has rendered this more remarkable among brute animals than among men: for men who have been brought up wild by themselves, without debauching the scent by a variety of smells, have been observed to possess that distinguishing faculty in a very infallible degree. Finally, the powers and virtues of medicinal plants are hardly to be better known than by the simple testimony of tasting and smelling. Hence it is, that in all animals these organs are placed together; and from hence the smelling is stronger, and the organs larger, in those animals which are to seek their prey at a considerable distance, or to reject malignant plants from among those that are fit for food.

The sense of smelling is performed by means of a soft pulpy membrane, full of pores and small vessels, which lines the whole internal cavity of the nostrils, being thicker upon the septum and principal convolutions, but thinner in the sinuses. Within this membrane are distributed the vessels and nerves necessary for the due performance of its functions.

The nerves of the nose, being almost naked, require a defence from the air, which is continually drawn through the nostrils, and blown out again by the use of respiration. Nature has therefore supplied this part, which is the organ of smelling, with a thick insipid mucus, very fluid in its first separation, and not at all saline, but, condensing by the air into a thick dry crust, more consistent here than in other parts of the body. By this mucus the nerves are defended from drying and from pain. It is poured out from many small arteries of the nostrils; and deposited partly into numerous cylindrical ducts, and partly into round visible cryptæ or cells scattered all over the nostrils. The same flows out all over the surface of the olfactory membrane, which is therewith anointed on all sides. This mucus is accumulated in the night-time; but in the day expelled by blowing the nose, or sometimes more powerfully by sneezing; and may offend by its excess or tenuity, or irritate by too great thickness the very sensible nerves, from whence a sneezing is excited for its removal. But the sinuses of this part, which abound with mucus, are in this way variously evacuated, agreeably to the different postures of the body; by which always some of them are at liberty to free themselves, whether the head be erect, or inclined forward, or laterally; yet so, that generally the maxillary and sphenoidal sinuses are more difficultly emptied than the rest. Moreover, the tears descend, by a channel proper to themselves, into the cavity of the nose, by which they moisten and dilute the mucus.

The cartilages render the nose moveable by its proper muscles, so as to be raised and dilated by a muscle common to the upper lip, and to be contracted together into a narrow compass by the proper depressor and compressor muscle pulling down the septum. The nose projects like an engine in the air, for the reception of smells, and may be dilated in proportion to the quantity of inhaled air, and again contracted, when it is expelled in the same abundance.

The air, therefore, filled with the subtile effluvia of bodies, is, in respiration, urged through the nose, so as to be applied to the olfactory nerves, in which that kind of feeling is excited, that we call *smelling*. By this sense we distinguish the several kinds of oils, salts, and other matters, difficultly reducible to classes: but we are ignorant of the reason why some smells please, and others displease; perhaps custom may have some effect in this case.

Smells have a very strong action, though of short continuance; because they are applied immediately, by the most minute particles, to nerves which are very near to the brain itself, and almost naked. From thence too proceeds the danger of poisonous vapours, and the refreshment from agreeable odours, by which some persons are effectually recalled out of syncope, or even recovered after drowning. From hence also the violent sneezing which arises from acrid particles; and a looseness or purging of the bowels, from the smell of some medicines, with the power of particular antipathies. From hence too is derived the pernicious effects of excessive sneezing, from the near consent of the nerves. But amongst the various parts of the nose, the septum, and more especially the os turbinatum, have a considerable share in the organ of smelling: since these are parts multiplied in quick-scented animals.

SMI'LAX (*σμιλαξ*, from *σμιλευω*, to *cut*; so called from the roughness of its leaves and stalk); the rough bind-weed.

SMI'LAX, CHINA; the systematic name of the china-root tree. See CHINA.

SMI'LAX, CHINESE. See CHINA.

SMI'LAX SARSAPARILLA; the systematic name of the plant which affords the sarsaparilla. See SARSAPARILLA.

SMY'RNION HORTENSE. The herb master-wort has been so termed. See IMPERATORIA.

SMY'RNIUM OLUSATRUM; the systematic name of the plant called Alexanders. See HIPPOSELINUM.

SNAIL. See LIMACES.

SNAIL-SEEDED GLASS-WORT. See SALSOLA KALI.

SNAKE-ROOT, VIRGINIAN. See SERPENTARIA VIRGINIANA.

SNAKE-WEED. See BISTORTA.

SNAKE-WOOD. See LIGNUM COLUBRINUM.

SNEEZING, a convulsive motion of the muscles of the breast, whereby the air is expelled from the nose with much vehemence and noise. It is caused by the irritation of the upper membrane of the nose, occasioned by acrid substances floating in the air, or by medicines called *sternutatory*. The secretions expelled in sneezing come primarily from the nose and throat, the pituitary membrane continually exuding a mucus within the former; and, secondarily, from the trachea, and the bronchia, of the lungs.

SNEEZE-WORT. See PTARMICA.

SNUFF, a powder chiefly made of tobacco, though other matters are added to give it a more agreeable scent, &c. "Every professed, inveterate, and incurable snuff-taker," says Lord Stanhope, "at a moderate computation, takes one pinch in ten minutes. Every pinch, with the agreeable ceremony of blowing and wiping the nose and other incidental circumstances, consumes a minute and half. One minute and a half out of every ten, allowing sixteen hours to a snuff-taking day, amounts to two hours and twenty-four minutes out of every natural day, or one day out of every ten. One day out of every ten amounts to thirty-six days and a half in a year. Hence, if we suppose the practice to be persisted in forty years, two entire years of the snuff-taker's life will be dedicated to tickling his nose, and two more to blowing it." The waste of constitution attendant on this nauseous practice is shewn under the article NICOTIANA.

SOAP. See SAPO.

SOAP-BERRY. See SAPONARIÆ NUCULÆ.

SOAPWORT. See SAPONARIA.

SO'DA (*soda*, an Arabian word). See NATRON.

SO'DA ACETA'TA; a neutral salt formed by a combination of acetous acid with the mineral alkali. It has been called *terra foliata tartari crystallizabilis*, *natron acetatum*, & *sal diureticum vegetabile crystallizatum*. This salt possesses similar virtues to the kali acetatum, and may be more easily kept dry.

SO'DA BORAXA'TA. See BORAX.

SO'DA HISPA'NICA, a name for the impure soda. See NATRON.

SO'DA HISPA'NICA PURIFICATA; purified soda. See NATRON PREPARATUM.

SO'DA MURIA'TA. See MURIAS SODÆ.

SO'DA MURIA'TICA, the common culinary salt. See MURIAS SODÆ.

SO'DA PHOSPHORA'TA, the *Alkali minerale phosphoratum* of Bergman; phosphorated soda. This preparation is properly called *phosphas sodæ* in the new chemical nomenclature. It is cathartic in the dose of half an ounce to an ounce. When dissolved in gruel it is no way unpleasant, and it is reckoned useful, in scrofula, bronchocele, rachitis, and gout, given in small doses.

SOL, the sun; a name for gold by the old chemists.

SOLA'NUM (from *solor*, to comfort, because it gives ease by its stupefying qualities), the garden night-shade. The plant so called in the pharmacopœias, is the *Solanum nigrum* Linn. Its virtues are very nearly allied to those of the *belladonna*, which see.

SOLA'NUM DULCAMA'RA; the systematic name of the bitter-sweet. See DULCAMARA.

SOLA'NUM FŒ'TIDUM; the thorn-apple plant. See STRAMONIUM.

SOLA'NUM LIGNO'SUM; a name for the herb bitter-sweet. See DULCAMARA.

SOLA'NUM MELO'NGENA; the systematic name of the mad-apple plant. See MAD-APPLE.

SOLA'NUM NIGRUM; the systematic name of the garden night-shade. See SOLANUM.

SOLA'NUM SANCTUM; the systematic name of the Palestine night-shade. The fruit of this plant is globular, and in Egypt much eaten by the inhabitants, as a luxury.

SOLA'NUM TUBERO'SUM; the potatoe: *Solanum caule inermi herbaceo, foliis pinnatis integerrimis, pedunculis subdivisis,* Linn. Class, *Pentandria.* Order, *Monogynia.* This farinaceous root is too well known to need any particular description.

SOLA'NUM VESICA'RIUM. The winter-cherry plant is so called by Caspar Bauhin. See ALKEKENGI.

SOLDANE'LLA (*à solidando*, from its uses in healing fresh wounds); the sea-convolvulus. See BRASSICA MARINA.

SOLE'US. See GASTROCNEMIUS INTERNUS.

SOLID, in physics, a body whose parts are so firmly connected together, as not easily to give way or slip from each other; in which sense *solid* stands opposite to *fluid.* Geometricians define a solid to be the third species of magnitude, or that which has three dimensions, viz. length, breadth, and thickness or depth. Solids are commonly divided into regular and irregular. The regular solids are those terminated by regular and equal planes, and are only five in number, viz. the tetrahedron, which consists of four equal triangles; the cube or hexahedron, of six equal squares; the octahedron, of eight equal triangles; the dodecahedron, of twelve, and the icosahedron, of twenty, equal triangles. The irregular solids are almost infinite, comprehending all such as do not come under the definition of regular solids; as the sphere, cylinder, cone, parallelogram, prism, parallelopiped, &c.

SOLIDS, in anatomy, are the bones, ligaments, membranes, muscles, nerves and vessels, &c. The solid parts of the body, though equally composed of vessels, are different with regard to their consistence; some being hard, and others soft. The hard, as the bones and cartilages, give firmness and attitude to the body, and sustain the other parts: the soft parts, either alone or together with the hard, serve to execute the animal functions. See ANATOMY.

SOLIDA'GO (from *solido*, to make firm; so called from its uses in consolidating wounds); the herb comfrey.

SOLIDA'GO VIRGAU'REA; the systematic name of the golden-rod. See VIRGA AUREA.

SOLIPU'GA, or SOLIFUGA, a name given by the Romans to a small venomous insect of the spider kind, called by the Greeks *heliocentros;* both words signifying an animal which stings most in the country and seasons where the sun is most hot. It is common in Africa and some parts of Europe; but it is also known in almost all hot countries. It lies under the sand to seize other insects as they go by; and, if it meet with any uncovered part of a man, produces a wound which proves very painful.

SOLUTION, in chemistry, the division and disappearance of a solid in a liquid, but without any alteration in the nature of the body so dissolved. The liquid in which the solid disappears, is called the *solvent* or *menstruum.* The agent of solution appears to follow certain constant laws. It does not appear to differ from that of affinity; at least in all cases the solution is more or less abundant, the greater the affinity of the integrant parts of the solvent is to those of the body to be dissolved. From this principle it follows, that, to facilitate solution, it is necessary that bodies should be triturated and divided, as by this means a greater number of surfaces are presented, and the affinity of the integrant parts is diminished. It sometimes happens that the affinity between the solvent and the body presented to it has so little energy, that it does not become perceptible till after a considerable interval of time. These slow operations, of which we have some examples in our laboratories, are common in the works of nature; and it is probably to similar causes that we ought to refer most of those results whose causes or agents escape our observation and perception.

The operation of solution is more speedy in proportion as the body to be dissolved presents a greater surface: on this principle is founded the practice of pounding, triturating, and dividing bodies intended to be dissolved.

The solution of a body constantly produces cold; and advantage has been taken of this phenomenon to procure artificial cold, much superior to the most rigorous temperature ever observed in our climates. The principal solvents employed in our operations are water, alcohol, and fire. Bodies submitted to one or the other of these solvents present similar phenomena; they are divided, rarefied, and at last disappear: the most refractory metal melts, is dissipated in vapour, and passes to the state of gas, if a very strong heat be applied to it. This last state, therefore, forms a complete solution of the metallic substance in the caloric. The effect of caloric is often united with one of the other solvents, to accomplish a more speedy and abundant solution.

But the three solvents above mentioned do not exercise an equal action on all bodies indiscriminately. Of the dissolving power of these menstrua, tables have been formed, the most accurate of which we have given below from Dr. A. Duncan. The generality of authors who have treated of solution have considered it in too mechanical a point of view. Some of them have supposed sheaths in the solvent and points in the body dissolved, and by this means have endeavoured to account for the want of increase in the bulk of water, in proportion to the quantity of salt it takes up. But the Bishop of Landaff, who has attended to the phenomena of solution with the greatest care, has concluded, from his numerous experiments, that the water rises in the vessel at the moment of the immersion of the salt; that it falls during the solution; and that after the solution it rises above the original level. The last two effects appear to Mr. Chaptal to depend upon the change of temperature which the liquor undergoes. The refrigeration arising from the solution must diminish the volume of the solvent; but it ought to return to its first state as soon as the dissolution is finished.

The peculiar affinities of bodies to each other are various, therefore the constituent principles may be easily disengaged by other substances; and it is upon this consideration that the action of all the re-agents employed by chemistry in its analysis is founded. Sometimes the chemist displaces certain principles, which he can in that state examine more accurately, because insulated, and disengaged from all their combinations; and it frequently happens that the re-agent made use of combines with some principle of the body analysed; and a compound arises, whose characters indicate the nature of the principle which has thus entered into combination, as the combinations of the principal re-agents with various bases which are well known. It sometimes also happens that the re-agent made use of is itself decomposed, which circumstance renders the phenomena and the products more complicated; but from the nature of these products, a judgment of the component parts of the body analysed may generally be formed.

A TABLE *shewing the Solubility of Saline and other Substances, in* 100 *parts of Water.*

Acids.	At 60°	At 212°
Sulphuric,	unlim.	unlim.
Nitric,	do.	do.
Acetic,	do.	do.
Prussic,	do.	do.
Phosphoric, Acetic, Tartaric, Malic, Lactic, Laccic,	very soluble; prop. not determined.	
Arsenic,	150	
Arsenious acid,	1.25	6.6
Citric,	133	200
Oxalic,	50	100
Gallic,	8.3	66
Boracic,		2
Mucic,	0.84	1.25
Succinic,	4 1.04	50
Suberic,	0.69	50
Camphoric,	1.04	8.3
Benzoic,	0.208	4.17
Molybdic,		0.1
Chromic, unknown.		
Tungstic, insoluble.		
Salifiable Bases.		
Potass,	50	
Soda, very soluble; prop. not known.		
Baryta,	5	50
———, crystallised,	57	any qu.
Strontia,	0.6	
———, crystallised,	1.9	50
Lime,	0.2	
Salts.		
Sulphate of potass,	6.25	20
Super-sulphate of potass,	50	100+
Sulphate of soda,	37.4	125
——— ammonia,	50	100
——— magnesia,	100	133
——— alumina, very soluble; proportion unknown.		
Super-sulph. of alumina & potass, Do of - - - ammonia	alum, 5	133
Nitrate of baryta,	8	25
——— potass,	14.25	100
——— soda,	33	100+
——— strontia,	100	200
——— lime,	400	any qu.
——— ammonia,	50	200
——— magnesia,	100	100+
Muriate of baryta,	20	
——— potass,	33	
——— soda,	35.42	36.16
——— strontia,	150	any qu.
——— lime,	200	
——— ammonia,	33	100
——— magnesia,	100	
Oxy-muriate of potass,	6	40
Phosphate of potass, very soluble.		
——— soda,	25	50
——— ammonia,	25	25+
——— magnesia,	6.6	
Sub-borate of soda,	8.4	16.8
Carbonate of potass,	25	83.3
——— soda,	50	100+
——— magnesia,	2	
——— ammonia,	50+	100
Acetate of potass,	100	
——— soda,	35	
——— ammonia, very soluble.		
——— magnesia, do.		
——— strontia,		40.8
Super-tartrate of potass,	1.67	3.3
Tartrate of potass,	25	
——— potass and soda,	25	
Super-oxalate of potass,		10
Citrate of potass, very soluble.		
Prussiate of potass and iron.		
Nitrate of silver, very soluble.		
Muriate of mercury,	5	50
Sulphate of copper,	25	50
Acetate of copper, very soluble.		
Sulphate of iron,	50	133
Muriate of iron, very soluble.		
Tartrate of iron and potass.		
Acetates of lead and of mercury.		
Sulphate of zinc,	44	44+
Acetate of zinc, very soluble.		
Tartrate of antimony and potass,	1.25	2.5
——— by Dr. Duncan's experiments,	6.6	33
Alkaline soaps, very soluble.		
Sugar,	100	any qu.
Gum, very soluble.		
Starch,	0	very sol.
Jelly,	sparingly.	abundant.
Gelatin,	soluble.	more so.
Urea, very soluble.		
Cinchonin.		

The following salts are *not soluble in* 100 *times their weight of water*, viz.

1. The Sulphates of baryta, strontia, and lime, and sub-sulphate of mercury. 2. Phosphates of baryta, strontia, lime, magnesia, and mercury. 3. The fluta of lime. 4. Carbonates of baryta, strontia, and lime. 5. Muriates of lead and silver, and the sub-muriate of mercury, or calomel. 6. The sub-acetate of copper.

Tables of the Solubility of *saline and other substances in* 100 *parts of alcohol, at the temperature of* 176°; *of substances insoluble in alcohol*; and of the *weight of the different gasses*, absorbed by 100 parts of water at 60° of Fahrenheit; may be seen in the Edin. New Disp. by Dr. A. Duncan.

SOLUTION OF CONTINUITY; a term given by surgeons to any deficiency or space occasioned by a wound, ulcer, &c.

SOLVENT. See MENSTRUUM.

SOMNA'MBULI (from *somnus*, sleep, and *ambulo*, to walk), sleep-walkers, or persons who walk in their sleep. Many instances have been related of persons who were addicted to this practice. A remarkable one was published from a report made to the Physical Society of Lausanne, by a committee of gentlemen appointed to examine a young man who was accustomed to walk in his sleep. The disposition to sleep-walking seems to depend on a particular affection of the nerves, which both seizes and quits the patient during sleep. Under the influence of this affection, the imagination represents to him the objects that struck him while awake, with as much force as if they really affected his senses; but does not make him perceive any of those that are actually presented to his senses, except in so far as they are connected with the dreams which engross him at the time. If, during this state, the imagination has no determined purpose, he receives the impression of objects as if he were awake; only, however, when the imagination is excited to bend its attention towards them. The perceptions obtained in this state are very accurate, and, when once received, the imagination renews them occasionally with as much force as if they were again acquired by means of the senses. Lastly, these academicians suppose, that the impressions received during this state of the senses disappear entirely when the person awakes, and do not return till the return of the same disposition in the nervous system. Their remarks were made on a lad thirteen years and a half old, who lived in the town of Vevay. The particulars, however, are unworthy of being detailed; as many of the facts are disputable, and the reasoning of the committee on those that are admissible is by no means conclusive. Dr. Goldsmith, in his "History of the Earth and Animated Nature," has collected some remarkable cases of somnambulism.

SOMNIFEROUS (from *somnus*, sleep, and *fero*, to bring); the same as narcotic, opiate, &c. See NARCOTICA. Hence also, *Somnolency*; which is any propensity to sleep, or drowsiness.

SO'NCHUS (σογχος, παρα το σωον χεειν, from its wholesome juice); the sow-thistle. All the species of sonchus abound with a milky juice, which is very bitter and possesses diuretic virtues, though not in a material degree. The *sonchus oleraceus* of Linnæus is sometimes employed with this intention. When boiled, it may be eaten as a substitute for cabbage.

SO'NCHUS OLERA'CEUS; the systematic name of the sow-thistle. See SONCHUS.

SOOINS; a preparation in common use amongst the North Britons, and thus made: Some oatmeal is put into a wooden vessel, hot water is poured upon it, and the infusion continues until the liquor begins to taste sourish, that is, until a fermentation comes on, which, in a place moderately warm, may be in the space of two days. The water is then poured off from the grounds, and boiled down to the consistence of a jelly. This is rendered palatable by the addition of sugar, wine, or such other mixtures as the palate, &c. may direct to. It is also called by the name of *Flummery*.

SOOT (*Fuligo*, Lat.); a volatile matter arising from coals, wood, and other fuel, along with the smoke; or rather, it is the smoke itself condensed and gathered to the sides of the chimney. Though once volatile, however, soot cannot be again resolved into vapour; but, if distilled by a strong fire, yields a volatile alkali and empyreumatic oil, a considerable quantity of fixed matter remaining at the bottom of the distilling vessel. If burnt in an open fire, it flames with a thick smoke, whence other soot is produced. It is used as a material for making muriate of ammonia. At no very remote period, our dispensatories contained directions for a tincture of soot; the most material ingredient of which, however, was asafœtida.

SOPHIA (σοφια, from σοφος, *wise*; so named from its supposed virtue in stopping fluxes); the flix-weed or flux-weed.

SOPHIA CHIRURGORUM, the *Sisymbrium sophia* Linn. This plant is now banished from practice; but it was formerly in high estimation in the cure of wounds. It has been given internally in hysterical affections and uterine hæmorrhages, and the seeds are said to be efficacious in destroying intestinal worms.

SOPHISTICATION, in pharmacy, the counterfeiting or adulteration of any medicine. This practice unhappily obtains with most dealers in drugs, &c. and even with the importers of simple substances used in medicine. The cheat is sometimes carried on so artificially by many as to prevent a discovery even by persons of the most discerning faculties. See ADULTERATION.

SOPHO'RA HEPTAPHYLLA; the systematic name of a shrub whose root and seeds are sometimes called *anticholerica*. To the taste both are intensely bitter, and said to be useful in cholera, colic, and dysury.

SO'POR; profound sleep.

SOPORIFEROUS (from *sopor*, sleep, and *fero*, to bring), an epithet given to those medicines which induce sleep. See NARCOTICA.

SORANUS, an ancient physician. He was the most skilful of the methodic sect, and put the last hand to its improvement. He lived under the emperors Trajan and Adrian.

SO'RBUS (from *sorbeo*, to suck up; because its fruit is said to stop fluxes); the service-tree.

SO'RBUS AUCUPA'RIA; the wild service-tree. The berries of this are astringent, and said to have been serviceable in allaying the pain of calculous affections in the kidneys.

SO'RDES; a name given to the matter discharged from ulcers, when it is rather viscid or glutinous. Sordes is frequently of a brownish red colour, somewhat resembling the grounds of coffee, or grumous blood mixed with water. *Sordes*, *Sanies*, and *Ichor*, are all of them much more fetid than purulent matter, and none of them altogether free from acrimony; but that which is generally termed *Ichor* is reckoned the most acrid, being frequently so corrosive as to destroy large quantities of the neighbouring soft parts.

SORE, BAY; a disease which Dr. Moseley considers as a "*true cancer*," commencing with an ulcer. It is endemic at the Bay of Honduras. It is frequently seen on the Musquitoe shore also, and along that part of the continent. The doctor says, this disease is fatal, if neglected; but yet it is within the reach of surgery to remedy. Every part of the face, body, and limbs, is subject to be the seat of this disease. The cause of it is so little to be ascertained by any reference to the state of the habit of the body, that it is generally supposed to arise from some external agent. The Indians say, that it is produced by a large fly depositing its eggs in the flesh. The method of curing the bay-sore is very simple, though painful. Dr. Moseley says the method is this: "Spread a plaster of diachylon with gum, upon thin leather, the size of the cancer. Suppose the plaster to be as large as a crown-piece, or a Spanish dollar, sprinkle on it a scruple of muriated mercury finely powdered; and so in proportion to a larger or smaller plaster. This plaster must be applied to the cancer, and remain on it forty-eight hours; but if there be any apprehension that it has not done its office in that time, it must remain longer. Then take it off, and apply a poultice of bread and milk, with a little olive-oil, which must be renewed frequently, until the cancer comes entirely out, by the roots as it were. The part is then to be dressed, digested, and cured as a common ulcer. A purge or two with calomel, must precede the application. No other preparation is necessary, in habits otherwise healthy. But when the patient is gross, or in a bad state of body, as in all other cases, he must be properly prepared for the operation. Bark is sometimes necessary, to forward the digestion and cure."

Dr. Moseley says this method was practised, to his knowledge, by a person who lived many years, and was in extensive practice, and in great reputation, of course, for curing cancers, at the *Bay of Honduras*. "It never failed him," says the doctor, "*in many hundreds of cases*. He there extracted one, which weighed eleven ounces, from the inside of a man's thigh; and completed the cure in four weeks."

SORE-THROAT. See CYNANCHE.

SORREL, COMMON. See ACETOSA.

SORREL, FRENCH. See RUMEX SCUTATUS.

SORREL, ROUND-LEAVED. See RUMEX SCUTATUS.

SORREL, WOOD. See LUJULA.

SOUND, a term of which it is difficult to give any better definition, than that it is the primary information which we get of external things by means of the sense of hearing. The sense of hearing depends on a percussion of the auditory nerve, communicated chiefly by the medium of the surrounding atmosphere. Sir Isaac Newton endeavoured to ascertain with mathematical precision the mechanism of this particular class of undulations, and gave us the fundamental theorems concerning the undulations of elastic fluids, which make the 47th and following propositions of Book II. of his Principles of Natural Philosophy. These, which have been considered as giving the fundamental doctrines concerning the propagation of sound, may be consulted in the Encycl. Britan. under the article ACOUSTICS. A variety of facts shew that such undulations actually obtain, and are accompanied by a set of phenomena of sound which correspond to all the mechanical circumstances of these undulations. In the mean time, anatomists and physiologists have carefully examined the structure of the organs of hearing. Impressed with the validity of this doctrine of aërial undulations being the causes of sound, their researches were always directed with a view to discover those circumstances in the structure of the ear which rendered it an organ susceptible of agitations from this cause; and they discovered many which appeared as contrivances for making it a drum, on which the aërial undulations from without must make very forcible impulses, so as to produce very sonorous undulations in the air contained in it. These, therefore, they considered as the immediate objects of sensation, or the *immediate causes of sound*.

But some saw that this would not be a full account of the matter: for after a drum is agitated it has done all that it can do; it has produced a noise. But a further process goes on in our ear: there is behind the membrane, which is the head of this drum, a curious mechanism, which communicates the agitations of the membrane (the only thing acted on by the undulating air) to another chamber of most singular construction, where the auditory nerve is greatly expanded. They conceive, therefore, that the organ called the *drum* does not act as a drum, but in some other way. Indeed it seems bad logic to suppose that it acts as a drum merely by producing a noise. This is in no respect different from the noise produced out of the ear; and if it is to be heard as a noise, we must have another ear by which it may be heard, and this ear must be another *such* drum; and this must have another, and so on for ever. It is like the inaccurate notion that vision is the contemplation of the picture on the retina. These anatomists attended therefore to the structure. Here they observed a prodigious unfolding of the auditory nerve of the ear, which is curiously distributed through every part of this cavity, lining its sides, hung across it like a curtain, and sending off fibres in every direction, so as to leave hardly a point of it unoccupied. They thought

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the machinery contained in the drum peculiarly fitted for producing undulations of the air contained in this labyrinth, and that by these agitations of the air the contiguous fibres of the auditory nerve are impelled, and that thus we get the sensation of sound.

The cavity intervening between the external air and this inner chamber appeared to these anatomists to have no other use than to allow a very free motion to the *stapes* or little piston that is employed to agitate the air in the labyrinth. This piston condenses on a very small surface the impulse which it receives from a much larger surface, strained by the malleus on the entry of the tympanum, on purpose to receive the gentle agitations of the external air and the outer canal. This membranous surface could not be agitated, unless completely detached from every thing round it; therefore all animals which have this mechanism have it in a cavity containing only air. But they held, that nature had even taken precautions to prevent this cavity from acting as a drum, by making it of such an irregular rambling form; for it is by no means a cavity of a symmetrical shape, like a vessel, but rather resembles the rambling holes and blebs which are often seen in a piece of bread, scattered through the substance of the cranium, and communicating with each other by small passages. The whole of these cavernulæ are lined with a softish membrane, which still further unfits this cavity for producing sound. This reasoning is specious, but not very conclusive. We might even assert, that this anfractuous form, with narrow passages, is well fitted for producing noise. If we place the ear close to the small hole in the side of a military drum, we shall hear the smallest tap of the drumstick like a violent blow. The lining of the cavernulæ is nervous, and may therefore be strongly affected in the numerous narrow passages between the cells.

While these speculations were going on with respect to the ear of the breathing animals, observations were occasionally made on other animals, such as reptiles, serpents, and fishes, which give undoubted indications of hearing; and many very familiar facts were observed or recollected, where sounds are communicated through or by means of solid bodies, or by water; therefore, without enquiring how or by what kind of mechanism it is brought about, it became a very general belief among physiologists, that all fishes, and perhaps all animals, hear, and that water in particular is a vehicle of sound. In 1767 or 1768 the writer of this article, at the suggestion of the late professor of astronomy in the university of Glasgow, made an experiment in a lake in that neighbourhood by striking a large hand-bell under water, and heard it very distinctly and strongly when his head was plunged in the water at the distance of more than 1200 feet. Many experiments are mentioned by Kircher and others on the communication of sound through solid bodies, such as masts, yards, and other long beams of dry fir, with similar results. Dr. Monro has published a particular account of very curious experiments on the propagation of sound through water in his Dissertation on the Physiology of Fishes; so that it now appears that air is by no means the only vehicle of sound.

In 1760 Cotunni published his important discovery, that the labyrinth or inmost cavity of the ear in animals is completely filled with water. This, after some contest, has been completely demonstrated (see in particular Meckel Junior *de Labyrinthi Auris Contentis*, Argentor. 1777), and it seems now to be admitted universally. This being the case, our notions of the immediate cause of sound must undergo a great revolution, and a new research must be made into the way in which the nerve is affected: for it is not enough that we substitute the undulations of water for those of air in the labyrinth. The well-informed mechanician will see at once, that the vivacity of the agitations of the nerve will be greatly increased by this substitution; for, if water be perfectly elastic through the whole extent of the undulatory agitation which it receives, its effect will be greater in proportion to its specific gravity: and this is confirmed by an experiment very easily made. Immerse a table-bell in water contained in a large thin glass vessel. Strike it with a hammer. The sound will be heard as if the bell had been immediately struck on the sides of the vessel. The filling of the labyrinth of the ear with water is therefore an additional mark of the wisdom of the Great Artist. But this is not enough for informing us concerning the ultimate mechanical event in the process of hearing. The manner in which the nerve is exposed to these undulations must be totally different from what was formerly imagined. The filaments and membranes, which have been described by former anatomists, must have been found by them in a state quite unlike to their situation and condition in the living animal. Accordingly the most eminent anatomists of Europe seem at present in great uncertainty as to the state of the nerve, and are keenly occupied in observations to this purpose. The descriptions given by Monro, Scarpa, Camper, Comparetti, and others, are full of most curious discoveries, which make almost a total change in our notions of this subject, and will, we hope, be productive of most valuable information.

Scarpa has discovered that the solid cavity called the *labyrinth* contains a threefold expansion of the auditory nerve. One part of it, the cochlea, contains it in a fibrillous state, ramified in a most symmetrical manner through the whole of the *zona mollis* of the *lamina spiralis*, where it anastomoses with another production of it diffused over the general lining of that cavity. Another department of the nerve, also in a fibrous state, is spread over the external surface of a membranaceous bag, which nearly fills that part of the vestibule into which the semicircular canals open, and also that orifice which receives the impressions of the stapes. This bag sends off tubular membranaceous ducts, which, in like manner, nearly fill these semicircular canals. A third department of the nerve is spread over the external surface of another membranaceous bag, which lies between the one just now mentioned and the cochlea, but having no communication with either, almost completely filling the remainder of the vestibule. Thus the vestibule and canals seem only a case for protecting this sensitive membranaceous vessel, which is almost, but not altogether, in contact with the osseous case, being separated by a delicate and almost fluid cellular substance. The fibrillous expansion of the nerve is not indiscriminately diffused over the surface of these sacculi, but evidently directed to certain foci, where the fibres are constipated. And this is the last appearance of the fibrous state of the nerve; for, when the inside of these sacculi is inspected, no fibres appear, but a pulp (judged to be nervous from its similarity to other pulpy productions of the brain) adhering to the membranaceous coat, and not separable from it by gently washing it. It is more abundant, that is, of greater thickness, opposite to the external fibrous foci. No organical structure could be discovered in this pulp, but it probably is organised; for, besides this adhering pulp, the water in the sacculi was observed to be clammy or mucous; so that in all probability the vascular or fibrous state of the nerve is succeeded by an uninterrupted production (perhaps columnar like basalt, though not cohering); and this at last ends in simple dissemination, symmetrical, however, where water and nerve are alternate in every direction.

To these observations of Scarpa, Comparetti adds the curious circumstances of another and regular tympanum in the foramen rotundum, the cylindric cavity of which is inclosed at both ends by a fine membrane. The membrane which separates it from the cochlea appears to be in a state of variable tension, being drawn up to an umbo by a cartilaginous speck in its middle, which he thinks adheres to the lamina spiralis, and thus serves to strain the drumhead, as the malleus strains the great membrane known to all.

These important observations promise to give us the greatest step yet made in physiology, viz. to shew us the last mechanical fact which occurs in the long train interposed between the external body and the incitement of our sensitive system. But there is, as yet, great and essential difference in the description given by those celebrated men. It cannot be otherwise. The containing labyrinth can be laid open to our view in no other way than by destroying it; and its most delicate contents are the first sufferers in the search. They are found in very different situations and conditions by different anatomists, according to their address or their good fortune. Add to this, that the natural varieties are very considerable. Faithful descriptions must therefore give very different notions of the ultimate action and reaction between the unorganised matter in the labyrinth and the ultimate expansion of the auditory nerve.

SOUND, a kind of metallic probe, with which surgeons examine cavities that are inaccessible by other means, as in the case of a stone in the bladder. See INSTRUMENTS.

SOUP, a strong decoction of flesh or other substances. *Portable* or *dry soup* is a kind of cake formed by boiling the gelatinous parts of animal substances till the watery parts are evaporated. This species of soup is chiefly used at sea, and has been found of great advantage. The following receipt will shew how it is prepared:—Of calves feet take 4; leg of beef 12 ℔s.; knuckle of veal 3 ℔s.; and leg of mutton 10 ℔s. These are to be boiled in a sufficient quantity of water, and the scum taken off as usual; after which the soup is to be separated from the meat by straining and pressure. The meat is then to be boiled a second time in other water; and the two decoctions, being added together, must be left to cool, in order that the fat may be exactly separated. The soup must then be clarified with five or six whites of eggs, and a sufficient quantity of common salt added. The liquor is then strained through flannel, and evaporated on the water-bath to the consistence of a very thick paste; after which it is spread rather thin upon a smooth stone, then cut into cakes, and lastly dried in a stove until it becomes brittle: these cakes are kept in well-closed bottles. The same process may be used to make a portable soup of the flesh of poultry; and aromatic herbs may be used as a seasoning, if thought proper. These tablets or cakes may be kept four or five years. When intended to be used, the quantity of half an ounce is put into a large glass of boiling water, which is to be covered, and set upon hot ashes for a quarter of an hour, or until the whole is entirely dissolved. It forms an excellent soup, and requires no addition but a small quantity of salt.

SOUR CROUTE. See SAUER KRAUT.

SOUR DOCK. The common sorrel is sometimes so called. See ACETOSA.

SOUTHERNWOOD. See ABROTANUM.

SOW-BREAD. See ARTHANITA.

SOW-BREED. See CYCLAMEN.

SPA-WATERS, the produce of medicinal springs in the bishopric of Leige, in Germany. At *Spa* there are a number of different springs, but the waters of two of them are reckoned superior by the company who resort there; viz. those of *Pouhon*, and *Geronsterre*. The Spa waters are of the brisk chalybeate kind, but the last is the weakest chalybeate, though brisker and more spirituous. This is alleged to have more of a sulphureous smell, to be brisker at the fountain, and more apt to make those who drink it giddy than any other of the waters at this place. The waters of *Spa* have been analysed by different physicians and chemists. Dr. Lucas, Dr. Rutty, Mons. Monet, and Sir Tobern Bergman, have written on them. The last says, that a gallon contains, of aërated iron, 4 grains and above $\frac{3}{4}$; aërated lime, 12 grains and above $\frac{1}{3}$; aërated magnesia, 20 gr.; mineral alkali crystallised, 12 grains and above $\frac{1}{3}$; of common salt, $1\frac{101}{224}$ gr. A different statement, however, appears in Saunders's Table annexed to the article MINERAL WATERS. The Spa waters are diuretic, and sometimes purgative, and, like other ferruginous waters, they tinge the stools black. They exilarate the spirits much better than wine, or spirituous liquors; and their general operation is that of invigorating the system and strengthening the fibres. They are drunk by a glassful, at repeated times in a morning, for the same purposes as other chalybeate waters. Externally applied, as well as internally, these waters have in several cases been attended with success. They have been used by injection in leucorrhœa, ulcers of the womb, and in the gonorrhœa. They are useful for washing aphthæ and ulcers of the mouth, phagedænic ulcers, &c. and give relief as gargles for relaxed tonsils.

SPA'DIX, in botany, anciently signified the receptacle of the palm. It is now used to express every flower-stalk that is protruded out of a spatha or sheath. The spadix of the palm is branched; that of all other plants, simple. This last case admits of some variety: in calla, dracontium, and pothos, the florets cover it on all sides; in arum, they are disposed on the lower part only; and in zostera, on one side.

SPAIN, PELLITORY OF. See Pyrethrum.

SPANISH FLY. See Cantharides.

SPANISH LIQUORICE. See Glycyrrhiza.

SPAR, a name given to those earths which break easily into rhomboidal, cubical, or laminated fragments, with polished surfaces. As the term *spar* is thus applied to stones of different kinds, without any regard to the ingredients of which they are composed, some additional term must be used to express the constituent parts as well as the figure; for instance, calcareous spar, gypseous spar, &c. The spars found in Britain and Ireland are of four different species; opaque, refracting, diaphanous, and stalactitical. A species of spar has also been found in the East Indies, which, from its extreme hardness, approaching to that of a diamond, is called *adamantine spar.* It was discovered, by Dr. Black of Edinburgh, to be a distinct species. There are two varieties: one of them comes from China, and crystallises in hexagonal prisms without pyramids, the length of the sides varying from six to twelve lines; their breadth being about nine, of a grey colour with different shades. Though the entire pieces are opaque, the thin laminæ are transparent, and, when broken, its surfaces appear slightly striated. Its crystals are covered with a very fine and strongly-adhering crust, composed of scales of silvery mica, mixed with particles of red feld-spar. Sometimes the surface has martial pyrites or yellow sulphuret of iron adhering to it. Its hardness is so great, that it not only cuts glass as easily as the diamond, but even scratches rock-crystal and other very hard stones. Its specific gravity is to that of water as 2710 to 1000. Sometimes it contains crystallised grains of magnetic oxyd of iron, which may be separated from the stone, when pulverised, by means of the loadstone. The other kind found in Hindostan is of a whiter colour, and of a more laminated texture than the former: the grains of iron contained in it are likewise a smaller size than those of the former; they are not diffused through its substance, but only adhere to its surface. This spar is exceedingly difficult to analyse. M. Morveau appears to have ascertained that this stone is also found in France. A small bit of it was tried in the presence of Mr. Wedgewood, and he found that its specific gravity was superior to the spar of China, being no less than 4,1803, and the true adamantine spar of China gave 3,8222.

SPA'RTIUM SCOPA'RIUM; the systematic name of the common broom. See Genista. This has been of great benefit sometimes in dropsical complaints. The manner in which Dr. Cullen administered it was this: He ordered half an ounce of fresh broom tops to be boiled in a pound of water till one half of the water was evaporated. He then gave two tablespoonfuls of the decoction every hour till it operated both by stool and urine. By repeating these doses every day, or every second day, he says some dropsies have been cured. Dr. Mead relates, that a dropsical patient, who had taken the usual remedies, and been tapped three times without effect, was cured by taking half a pint of the decoction of broom tops, with a spoonful of whole mustard seed, every morning and evening. Dr. Withering says an infusion of the seeds, drunk freely, has been known to produce similar happy effects; but whoever expects these effects to follow in every dropsical case will be greatly deceived. He knew them succeed in one case that was truly deplorable; but out of a great number of cases in which the medicine had a fair trial, this proved a single instance. The flower-buds are in some countries pickled, and eaten as capers; and the seeds have been used as a bad substitute for coffee.

SPA'SMUS (of the Gr. *σπασμος*, from *σπαω*, to *draw*), a spasm or convulsion; an involuntary contraction of the muscular fibres, or that state of the contraction of muscles which is not spontaneously disposed to alternate with relaxation. When the contractions alternate with relaxation, which are frequently and preternaturally repeated, they are called convulsions. Spasms are distinguished by authors into clonic and tonic spasms. In *clonic* spasms, which are the true convulsions, the contractions and relaxations are alternate, as in epilepsy; but in *tonic* spasms the member remains rigid, as in locked-jaw. See Convulsion and Tonic spasm. Dr. Cullen attributes fever to a spasm of the extreme vessels. See Fever.

SPA'SMI, spasmodic diseases; constituting the third order of the class *neuroses* of Cullen: characterised by a morbid contraction or motion of the muscular fibres. The term *spasm* has been variously used: in the most common sense it has signified any preternatural contraction of any particular part of the body, either without any stimulus immediately applied to the part, or which remains after its cause is removed. More properly, spasms are those preternatural contractions which are attended with considerable mobility of the system. Dr. Cullen defines spasm to be preternatural motions of the muscles, or of the muscular fibres; and under the title of *spasmodic affections* he includes all the diseases which consist of a preternatural state of the contraction and motion of the muscular or moving fibres in any part of the body. The *Spasmi* have generally been divided into the *Tonici* and *Clonici*, *Spastici* and *Agitatorii*, or *Motorii*, or *Spasms* strictly so called, and *Convulsions*. But most of the diseases called spasmodic are, in respect to tonic or clonic, of so mixed a nature, that it seems preferable to arrange spasmodic disorders accordingly as they affect the several functions, animal, vital, or natural.

SPASMODIC COLIC. See Colica.

SPASMOLO'GIA (of the Gr. *οπασμολογια*, from σπασμος, a *spasm*, and λογος, a *discourse)*, spasmology, or a treatise on convulsions.

SPA'SMUS CY'NICUS, the cynic spasm, or sardonic grin; a convulsive affection of the muscles of the face and lips on both sides, which involuntarily forces the muscles of those parts into a species of distortion like grinning. If one side only be affected, the disorder is denominated *tortura oris.* When the masseter, buccinator, temporal, nasal, and labial muscles, are involuntarily excited to action, or contorted by contraction or relaxation, they form a species of malignant sneer. It sometimes arises, as a symptom, after eating hemlock, or other acrid poisons, or succeeds to an apoplectic stroke.

SPA'THA, in botany, a sheath; a species of calyx which bursts lengthwise, and protrudes a stalk supporting one or more flowers, which commonly have no perianthium or flower-cup.

SPATHA'CEÆ (from *spatha*, a sheath), the name of the 9th order in Linnæus's Fragments of a Natural Method, consisting of plants whose flowers are protruded from a spatha or sheath.

SPA'TULA, an instrument used by apothecaries and surgeons, wherewith they spread plasters, unguents, &c. or stir medicines together.

SPEARMINT. See Mentha sativa.

SPEARWORT WATER. See Flammula.

SPE'CIES, in pharmacy, an old name for certain officinal preparations in the form of powder, as the *Species è bolo*, &c.

SPE'CIES PLANTA'RUM, in the Linnæan system of botany, comprehended all the different forms of plants which are supposed to have been originally created. These plants, says Linnæus, have, by the established laws of nature, continued to produce others like themselves; therefore the *species plantarum* comprehend all the different invariable forms of plants which are known at this day upon the face of the earth.

SPECIFIC GRAVITY, the appropriate and peculiar gravity or weight, which any species of natural bodies have, and by which they are plainly distinguishable from all other bodies of different kinds. Water is usually the standard of comparison. By some it is not improperly called *relative gravity*, to distinguish it from absolute gravity, which increases in proportion to the bigness of the body weighed. Thus, if any body weigh a pound, one as big again will weigh two pounds; and let the bodies be of what nature or degree of specific gravity soever, a pound of one will be as much as a pound of the other, absolutely considered: thus, as commonly said, a pound of feathers is as heavy as a pound of lead. But if we consider lead and feathers relatively, the specific gravity of the former will be much greater than that of the latter; or lead, bulk for bulk, will be much heavier than feathers, and gold heavier than lead, &c. Tables of the specific gravity of bodies are given in most of our modern pharmacopœias.

SPECIFICS, in medicine. By specifics is not meant such as infallibly and in all patients produce salutary effects. Such medicines are not to be expected, because the operations and effects of remedies are not formally inherent in them, but depend upon the mutual action and reaction of the body and medicine upon each other; hence the various effects of the same medicine in the same kind of disorder in different patients, and in the same patient at different times. By specific medicines we understand such medicines as are more infallible than any other in any particular disorder.

SPE'CULUM A'NI, an instrument for distending the anus, whilst an operation is performed upon the parts within. See Fistula in ano. Formerly, when a sinus running upon, or in the neighbourhood of, the rectum was to be laid open, the generality of surgeons contented themselves with doing it at random, with the probe-scissars; an imperfect, and therefore frequently an unsuccessful, mode of operating. Cutting also, on the common director, in a part so confined, and the necessary subsequent dressings to a wound so difficult of access, were attended with uncertainties, and embarrassments, which entitled the operator to little better hopes of success.

Mr. Pott, indeed, with his usual skill and sagacity, simplified and greatly improved the old mode of operating; and the success frequently attending his method, is a proof of its superior merit; however, even his mode of operation has been found capable of great improvement. When, therefore, sinuses, which run into, or burrow on the fat surrounding the rectum, are to be laid open, and afterwards treated with proper dressings, Dr. Mudge, of Plymouth, for many years, and with uninterrupted success, employed the speculum exhibited in two figures in pl. XI. in order to see clearly and distinctly the parts to be operated upon. They are not unlike the gorget used in cutting for the stone, except that they are not so taper, and without the beak. The first and largest, is subservient to the knife; the other, and smaller, is for facilitating the application of the subsequent dressings. In order, therefore, to lay open a sinus, in its whole extent and direction, the patient ought, in order to empty the rectum, the evening preceding the operation, to take a dose of rhubarb; then being placed in a proper situation, which will be found that of kneeling upon, not against, the side of a bed, his body should be inclined forward and downward, sufficiently so to spread the buttocks. If the sinus is on the left side of the intestine, the fore-finger of the left hand, being first oiled, is to be introduced its whole length into the anus and rectum; and then the concave part of the large speculum, oiled also, being placed upon it, is under that direction to be gently introduced almost its whole length, but so, that by pressing the end of it against the finger, the rectum may not be injured by any corrugation of the intestine, between the instrument and finger. The speculum being in the rectum, and the finger withdrawn, gives a fair view of the gut, provided the patient is placed advantageously for the light, to an extent of nearly four inches. A director is then to be introduced into the sinus, the end of which, if it perforates the intestines, will be seen; or, if it does not, will be felt; and the cavity must be laid open its whole extent, with a straight-edged knife.

This being done, a dossil of dry lint should be applied with a probe between the lips of the wound, the whole extent of the incision, and the speculum withdrawn; which will leave the dressing, provided the probe is kept upon it till then, in its proper place, with the lips of the wound closed upon it. On the succeeding dressing of the next day, the finger is again to be introduced, accompanied with the smaller speculum, still bearing on the opposite side of the rectum; when, if the patient has not had an intermediate stool, the dressing will be found in its place, and the wound seen in its whole extent.

To give the wound a good surface, by the removal of callosities, Dr. Mudge recommends the dipping a hair pencil in muriated antimony, and lightly touching, or smearing expeditiously, the whole wound, and its edges, with it; which, by the assistance of the speculum, will be done at the expense of a momentary pain, and with the utmost precision. Dry lint is then again to be placed into and between the edges of the incision, and the speculum withdrawn as before.

After the next dressing or two, a slough will be thrown off, about the thickness of shammoy leather; when the surface of the wound will be found rather unfavourably smooth; but in a day or two after, by the use of a precipitate ointment, the whole will have a proper granulating surface, and the wound usually heals rapidly, without any intervening impediment. Excepting the incision, and the application of the caustic, both of which are momentary matters only, the whole is attended with so little pain, that the dressing speculum, after introduction, is generally held by the patient himself. Dr. Mudge usually carried the specula in his side-pocket, that the patient might not feel them disagreeably cold; and they should always be oiled before their introduction.

SPE'CULUM O'CULI *(speculum*, from *specio*, to view), an instrument used by surgeons to keep the eyelids open, and the eye fixed, during the performance of an operation. See Cataract.

SPE'CULUM O'RIS; an instrument to force open the mouth.

SPE'CULUM VE'NERIS. See Millefolium.

SPEECH. See Voice.

SPEEDWELL, FEMALE. See Elatina.

SPEEDWELL, MALE. See Veronica.

SPEEDWELL, MOUNTAIN. See Veronica.

SPERMACE'TI, a substance produced from the *Physeter Macrocephalus*, or Spermaceti whale, characterised by his enormous head, a great part of which is occupied by a triangular cavity of bone, covered only by the common integuments. In the living animal this cavity is filled with a white, fluid, oily substance, amounting sometimes to many tons in weight. On the death of the whale, it congeals into a white unctuous mass, from which a considerable quantity of very pure whale oil is obtained by expression. The residuum, afterwards freed from impurities, by washing with water, melting, straining, expression through linen bags, and, lastly, washing in a weak ley of potass, is the peculiar substance well known by the name of spermaceti. It is also contained in solution in the common whale and other fish oils; for it is often found deposited, by a species of crystallisation, in the reservoirs containing them.

As a medicine for internal use, spermaceti agrees with the fixed vegetable oils; forming an article in the composition of linctuses, &c. It is also used in the composition of ointments, &c. but its place may be very well supplied by a mixture of oil and wax. The officinal preparations are: *Ung. sperm. ceti*, Lond. Dubl. *Ung. ceræ*, Lond. Dubl. *Cerat. simp.* Edin. Lond. Dubl.

A method has been proposed by Mr. Smith Gibbes of Magdalen College, Oxford, to convert animal muscle into a substance much resembling spermaceti. See Phil. Trans. 1794. The process is remarkably simple: nothing more is necessary than to take a dead carcase and expose it to a stream of running water; it will in a short time be changed to a mass of fatty matter. To remove the offensive smell, a quantity of nitrous acid may then be poured upon it, which uniting with the fetid matter, the fat is separated in a pure state. This acid indeed turns it yellow, but it may be rendered white and pure by the action of the oxygenated muriatic acid. Mr. Gibbes brought about the same change in a much shorter time. He took three lean pieces of mutton and poured on them the three mineral acids, and he perceived that at the end of three days each was much altered: that in the nitrous acid was much softened, and on separating the acid from it, he found it to be exactly the same with that which he had before got from the water; that in the muriatic acid was not in that time so much altered; the vitriolic acid had turned the other black.

SPERMATOCE'LE (of the Gr. *σπερματοκηλη*, from *σπεδμα*, *seed*, and *κηλη*, a *tumor)*; a swelling of the testicle, or epididymis, from an accumulation of semen. It is known by a swelling of those organs, pain extending to the loins without inflammation. The disease may arise from tumors, stricture, or inflammation about the vas deferens, or its termination in the penis; but more usually from inflammation there. When an inflammatory disposition is discovered, general and topical blood-letting, gentle laxatives, a low cooling diet, and rest of body, will commonly be found the best remedies. When tumors are found to press upon the vas deferens, they ought either to be brought to a state of suppuration, or entirely extirpated, if that can be properly effected. If the disease proceed from a venereal cause, nothing can be so useful as a course of mercury properly directed.

SPHA'CELUS (of the Gr. *σρακελος*, from *σφασω*, to *destroy)*; a mortification of any part. See Gangrene.

SPHÆNOI'DES OS (from *σφην*, a *wedge*, and *ειδος*, *likeness*; because it is fixed in the cranium like a wedge), also named *os cuneiforme*, and *os multiforme*, the sphenoid or pterygoid bone. This is called by the above name, from its wedge-like situation amidst the other bones of the head. It is however of a more irregular figure than any other bone, and has been compared to a bat with its wings extended. Yet this resemblance is but faint, though it would be difficult perhaps to find any better comparison. Anatomists distinguish, in this bone, its body or middle part, and its wings or sides, which are much more extensive than its body. Each of its wings is divided into two parts, of which the uppermost and most considerable portion, helps to form the deepest part of the temporal fossa on each side, and is called the *temporal process.* The other portion makes a part of the orbit, and is therefore named the *orbitar process.* The back part of each wing, from its running out sharp to meet the os petrosum, has been called the *spinous process;* and the two processes, which stand out almost perpendicular to the basis of the skull, have been named *pterygoid* or *aliform* processes, though they may be said rather to resemble the legs than the wings of the bat. Each of these processes has two plates and a middle fossa facing backwards; of these plates the external one is the broadest, and the internal one the longest. The lower end of the internal plate forms a kind of hook, over which the round tendon of the *musculus circumflexus palati* goes. Besides these, we observe a sharp middle ridge, which stands out from the middle of the bone. The fore part of it, where it joins the nasal lamella of the ethmoidal bone, is thin and straight; the lower part of it is thicker, and is received into the vomer.

The cavities observable on the external surface of the bone, are where it helps to form the temporal, nasal, and orbitar fossæ. It has likewise two fossæ in its pterygoid processes. Behind the edge, which separates these two fossæ, there is a small groove, which is made by a branch of the superior maxillary nerve in its passage to the temporal muscle. Besides these, it has other depressions, which serve chiefly for the origin of muscles.

Its foramina are four on each side. The first three serve for the passage of the optic, superior maxillary, and inferior maxillary, nerves; the fourth transmits the largest artery of the dura mater. On each side we observe a considerable fissure, which, from its situation, may be called the superior orbitar fissure. Through it pass the third and fourth pair of nerves, a branch of the fifth, and likewise the sixth pair. Lastly, at the basis of each pterygoid process, we observe a foramen which is named *pterygoidean,* and sometimes *Vidian,* from Vidius the anatomist who first described it. Through it passes a branch of the external carotid, to be distributed to the nose.

The os sphenoides on its internal surface exhibits three fossæ. Two are considerable ones, formed by the lateral processes, and making part of the lesser fossæ of the basis of the skull. The third, which is smaller, is on the top of the body of the bone, and is called *sella Turcica,* from its resemblance to a Turkish saddle. In this fossa the pituitary gland is placed. At each of its four angles is a process. They are called the *clinoid* processes, and are distinguished by their situation into anterior and posterior processes. The two latter are frequently united into one.

Within the substance of this bone, immediately under the sella Turcica, we find two cavities, separated by a thin bony lamella. These are the sphenoidal sinuses. They are lined with the pituitary membrane, and, like the frontal sinuses, separate a mucus which passes into the nostrils. In some subjects there is only one cavity; in others, though more rarely, we find three.

In infants the os sphenoides is composed of three pieces, one of which forms the body of the bone and its pterygoid processes, and the other two its lateral processes. The clinoid processes may even then be perceived in a cartilaginous state, though some writers have asserted the contrary; but we observe no appearance of any sinus.

This bone is connected with all the bones of the cranium, and likewise with the ossa maxillaria, ossa malarum, ossa palati, and vomer.

SPHÆNOIDAL SUTURE. The sphænoidal and ethmoidal sutures are those which surround the many irregular processes of these two bones, and join them to each other and to the surrounding bones.

SPHÆ'NO-SALPINGO-STAPHILI'NUS. See Circumflexus.

SPHÆNO-STAPHILI'NUS. See Levator palati.

SPHI'NCTER (σφινκτηρ, from σφιγγω, to *shut up);* the name of several muscles, whose office is to shut or close the apertures which they surround.

SPHI'NCTER A'NI, the *Sphincter externus* of Albinus and Douglas, and *Sphincter cutaneus* of Winslow; a single muscle of the anus, which shuts the passage into the rectum, and pulls down the bulb of the urethra, by which act it assists in ejecting the urine and semen. This muscle arises from the skin and fat that surround the verge of the anus on both sides, nearly as far as the tuberosity of the ischium; the fibres being gradually collected into an oval form, surround the extremity of the rectum. It is inserted by a narrow point into the perinæum, acceleratores urinæ, and traversi perinæi; and behind, into the extremity of the os coccygis, by an acute termination.

SPHI'NCTER A'NI CUTA'NEUS. See Sphincter ani.

SPHI'NCTER A'NI EXTERNUS. See Sphincter ani.

SPHI'NCTER A'NI INTERNUS. The name by which Albinus and Douglas call the circular fibres of the muscular coat of the rectum which surround its extremity.

SPHI'NCTER LABIO'RUM. See Orbicularis oris.

SPHI'NCTER O'RIS. See Orbicularis oris.

SPHI'NCTER VAGI'NÆ, a muscle which contracts the mouth of the vagina, and compresses its corpus cavernosum. It is the *Constrictor cunni* of Albinus; and accounted the second muscle of the clitoris by Douglas. This muscle arises from the sphincter ani and from the posterior side of the vagina near the perinæum; from thence it runs up the side of the vagina, near its external orifice, opposite to the nymphæ, covers the corpus cavernosum, and is inserted into the crus and body, or union of the crura clitoridis. See Vagina.

SPHI'NCTER VESI'CÆ; the sphincter muscle which compresses the neck of the bladder. See Vesicæ urinaria.

SPHONDY'LIUM (of the Gr. σπονδυλιον, from σπονδυλος, *vertebra;* named from the shape of its root;

or, as some say, because it was used against the bite of a serpent, called σπονδυλις); a plant supposed to be the branckursine. See Banca ursina.

SPI'CA, in botany, a spike. This consists of several flowers, sitting alternately close on the flower-stem. It occurs in wheat, barley, &c.

SPI'CA CELTICA. See Nardus Celtica.

SPI'CA INDICA. See Nardus Indica.

SPI'CA NARDI. See Nardus Indica.

SPIGE'LIA (from *spica*, an ear of corn; so called from its spicated top); the *Spigelia anthelmia, caule herbaceo foliis summis quaternis*, Linn. This plant is directed as an anthelmintic. Its virtues are very similar to those of the Indian-pink. See Spigelia Marilandica.

SPIGE'LIA ANTHELMIA; the systematic name of the spigelia of some pharmacopœias. See Spigelia.

SPIGE'LIA LONICERA. See Spigelia Marilandica.

SPIGE'LIA MARILANDICA, or Spigelia lonicera; the perennial worm-grass, or Indian-pink: *Spigelia Marilandica* Linn. *Spigelia caule tetragono, foliis omnibus oppositis.* Class, *Pentandria.* Order, *Monogynia.* The whole of this plant, but most commonly the root, is employed as an anthelmintic by the American Indians. Dr. Hope has written in favour of this plant, in continued and remitting low worm-fevers. Besides its property of destroying the worms in the primæ viæ, he says, it acts as a purgative.

SPIGE'LIAN LOBE. See Liber.

SPIGNEL. See Meum athamanticum.

SPIKE. See Nardus Indica.

SPIKENARD. See Nardus Indica.

SPILA'NTHUS ACMELLA, the systematic name of the balm-leaved spilanthus, which possesses a bitter taste and a fragrant smell. The leaves and seeds are said to be diuretic and emmenagogue. Hence they are supposed useful in dropsies, jaundice, fluor albus, &c.

SPI'NA ACIDA. See Berberis.

SPI'NA BIFIDA, a tumor which sometimes appears upon the lower part of the spine in new-born children. A fluctuation is distinctly perceived in it, and the fluid it contains can in some measure be pressed in at an opening between the vertebræ. In some cases this opening is owing to a natural deficiency of bone; in others, to the separation of the spinous process of the vertebra.

The disease proceeds from serum collected within the coverings of the spinal marrow. It is always fatal. Children labouring under it have been known to live for two or three years; but in general they linger and die in a few weeks. All that art has been able to do is to support the tumor by gentle pressure with a proper bandage. When a tumor of this kind is laid open or burst, the child dies in a few hours. A tumor nearly of the same nature with this is sometimes met with in different parts of the head in new-born children: it is formed by a fluid lodged beneath the membranes of the brain, which have been forced out at some unossified part of the skull. What we have said with respect to the former is exactly applicable to this.

Mr. Abernethy, in the close of his account of the lumbar abscess, proposes an attempt at the cure of this malady; for, says he, the reason of the accumulation of fluid in those diseases beneath the dura mater is not very apparent; nor does the cause producing the secretion appear to be powerful or constant; for the water collects very slowly at first; and, in some cases, none has ever been effused, and the child has grown up without experiencing any inconvenience. When once the collection has begun, the cause of its continuance and increase is evident; the collected fluid irritates and distends the membranes which secrete it, and thus augments the disease. Besides, we have seen very healthful infants who have been very imperfectly formed with respect to the vertebræ whence this disease originates, whose health has sustained but little derangement until the tumor has burst, when they have perished from the inflammation of the medulla spinalis, which inevitably ensues. To remedy all these, Mr. A. proposes that a gentle degree of pressure should be made on the tumor from birth, or at its commencement, which might produce the absorption of any deposited fluid, and thus prevent the distension of the unsupported dura mater. But should this have no effect, and should the accumulation of fluid continue to increase, as the death of the patient would be inevitable on the spontaneous rupture, he thinks it would be expedient to discharge the fluid, by a puncture with a finely cutting instrument, and endeavour to heal the wound immediately; and, should this be accomplished, to repress a future collection, by bandage, and by those topical applications which appear best adapted to this purpose.

SPI'NA CERVINA (so called from its thorns resembling the horns of the stag), also called *Rhamnus catharticus, Spina infectoria,* and *Cervispina;* the purging buckthorn: *Rhamnus catharticus* Linn. *Rhamnus spinis terminalibus floribus quadrifidis dioicis, foliis ovatis, caule erecto.* Class, *Pentandria.* Order, *Monogynia.* The fruit or berries have been long ranked amongst the materia medica. In our markets, the fruit of some other trees, as the blackberry-bearing alder, and the dogberry tree, have of late been frequently mixed with, or substituted for, those of buckthorn. This abuse may be discovered by opening the berries; those of buckthorn have almost always four seeds, the berries of the alder two, and those of the dogberry only one. Buckthorn berries, bruised on white paper, stain it of a green colour, which the others do not. Those who sell the juice to the apothecaries, sometimes mix it with a large proportion of water.

Buckthorn berries have a faint disagreeable smell, and a nauseous bitter taste. They have long been in considerable esteem as cathartics; and celebrated in dropsies, rheumatisms, and even in the gout; though in these cases they have no advantage above other purgatives, but are more offensive, and operate more severely, than many which the shops are furnished with. They generally occasion gripes, sickness, dry the mouth and throat, and leave a thirst of long duration. About twenty of the fresh berries in substance, and twice or thrice this number in decoction; an ounce of the expressed juice, or a drachm of the dried berries, are employed for a dose.

The only officinal preparation of them is the *Syr. rhamni cathart.* Edin. Lond.

SPI'NA INFECTO'RIA. See Spina cervina.

SPI'NA VENTO'SA, called also *sideratio ossis, cancer ossis, gangræna ossis,* &c. and, by some French authors, *exostosis.* When children are the subjects of this disease, M. Severinus calls it *Pædarthrocace.* Dr. Cullen makes this a variety of the phlogosis phlegmone, under the genus phlogosis, on account of its situation, and leaves it to the judgment of the more experienced to determine, whether this complaint, with some others he has there enumerated, should be considered as a species of the above genus or not. The term *spina* seems to have been applied by the Arabians to this disorder, because it occasions a pricking in the flesh like the puncture of thorns; and the epithet *ventosa* is added, because, upon touching the tumor, it seems to be filled with wind, though this is not the cause of the distension. The late Mr. Sharp describes the *spina ventosa* as a *caries* of a bone, attended with an internal corruption of its whole substance, and generally arising from a putrefaction of the marrow, by which the periosteum and ligaments, as well as the bone, are wholly destroyed. Dr. White, in his Present Practice of Surgery, says that this disorder is generally understood to be a tumor, which takes its rise in the internal parts of the bone, and gradually enlarges its substance. It is frequently hard, and without much pain; sometimes it appears as if it were puffed up with air, and is attended with shooting pricking pains, from which indications it has its name. It gradually extends itself to the periosteum and integuments which cover or lie near the part affected, and in the end, produces an ulcer of the most stubborn kind. It is not confined to the cylindrical bones; it affects also all those of the head, face, neck, back, and chest, though the former are the most frequent seats of the complaint. It is most mischievous when fixed on the heads and processes of bones. It may be caused by a scorbutic, scrofulous, or venereal acrimony, affecting the lamellæ or medullary substance of the bone; or by injury done to the corresponding vessels between the periosteum, lamellæ, and medulla, from external violence.

The milder species of this complaint requires a similar treatment with caries in other cases. See Caries. When it arises from constitutional acrimony an alterative course, with mercurial inunction, decoction of sarsaparilla, or of the woods, together with an acescent and milk diet, have been the usual practice. Accidents are generally confined to the external lamellæ, and seldom produce diseases of greater depth in the cylindrical bones, unless there be some predisposing cause in the habit, which is the business of the surgeon to attend to. When the superincumbent parts begin to be discolored, and there are pricking pains and burning heat in the part, an ulcer is certainly forming withoutside the bone. At that time an opening should be made, sufficient to lay bare the diseased part. If it is of moderate extent, a caustic may be applied; otherwise the knife will answer better. Perforation of the bone, as in the carious ulcer, then becomes expedient: and such dressings are to be applied as will absorb the discharge, and restrain the flesh from growing over the denuded bone, until the diseased part is separated, or the discharge dried up. When the whole of the substance is diseased, particularly in or near a joint, amputation is the only remedy.

SPINA'CHIA. See Spinacia.

SPINA'CIA (σπιναχια, *quasi* ισπιναχια, from Ισπανια, *Spain,* whence it originally came, or from its spinous seed), or *Spinachia,* spinach; the *Spinacea oleracea* Linn. This plant has been directed for medicinal purposes in the cure of phthisical complaints. It was made into a poultice, by boiling the leaves and adding some oil, and applied to the chest; but, as may well be imagined, with little good effect. As an article of food it may be reckoned similar to cabbage and other oleraceous plants. See Brassica capitata.

SPINA'CIA OLERA'CEA; the systematic name of spinach. See Spinacia.

SPI'NÆ, in botany, thorns, or rigid prickles: a species of *arma,* growing on various parts of certain plants for their defence; "*spinæ ramorum arcent pecora.*" On the branches we find examples in the pyrus, prunus, citrus, gmelina, rhamnus, lycium, &c.; on the leaves, in the aloe, agave, yucca, ilex, hippomane, theophrasta, carlina, &c.; on the calyx, in the carduus, cnicus, centauria, moluccella, galeopsis, &c.; on the fruit, in the trapa, tribulus, murex, spinacia, agrimonia, datura, &c.

SPINAL-MARROW. See Medulla spinalis.

SPINA'LIS CE'RVICIS, a muscle, situated close to the vertebræ at the posterior part of the neck and upper part of the back. It arises, by distinct tendons, from the transverse processes of the five or six uppermost vertebræ of the back, and, ascending obliquely under the complexus, is inserted, by small tendons, into the spinous processes of the sixth, fifth, fourth, third, and second cervical vertebræ. The use of this muscle is to extend the neck obliquely backwards.

SPINA'LIS DO'RSI, the name given, by Albinus, to a tendinous and fleshy mass, which is situated along the spinous processes of the back and the inner side of the longissimus dorsi. It arises tendinous and fleshy from the spinous processes of the uppermost lumbar vertebræ, and the lowermost of the back, and is inserted into the spinous processes of the nine uppermost vertebræ of the back. Its use is to extend the vertebræ, and to assist in raising the spine.

SPINE (from *spina,* thorn; so called from the spine-like processes of the vertebræ), called by different anatomists *Spina dorsi, Columna spinalis,* and *Columna vertebralis,* the spine; a bony column or pillar, which extends, in the posterior part of the trunk, from the great occipital foramen to the sacrum. It is composed of twenty-four vertebræ. The cavity that runs down the middle, and which contains the spinal marrow, is called the *specus* or *theca vertebralis.* See Vertebræ.

SPINO'SUS, in botany, spinous. This term is applied to a stem covered with strong woody prickles, whose roots are not superficial, but proceeding from the body of the stem. When applied to a leaf, *spino-*

sum folium, it indicates the margin running out into rigid points or prickles.

SPINE, DISTORTED, a disease of the spinal column, manifested by its becoming more or less curved, and generally by a loss of the use of the lower limbs. The late Mr. Pott was the first who conceived a just idea either of the true nature of this disease or of its cure. He calls it a *palsy in the lower limbs; or rather a useless state of them.* He shews satisfactorily that it has a scrofulous origin; but as its most striking symptoms arise nevertheless from *caries* which takes place in the bodies of some of the vertebræ, and as both the incurvation and the palsy are mere consequences of this, may it not be more properly termed *a caries of the spine?*

To this disease, both sexes, and all ages, are equally liable, though the majority of these patients are infants or young children. When the attack is made on an infant of only one or two years old, the true cause is rarely discovered until some time after the mischief has taken place; the nurse or parents supposing that the child is weakly, or has been somehow hurt at its birth. When, on the attack, the patient has been used to walk, the loss of the use of his legs is gradual, though not in general very slow. At first he shews signs of being soon tired; he is languid, listless, and unwilling to move much, or at all briskly; soon after this he is observed frequently to trip and stumble, although there is no impediment in his way; whenever he attempts to move quickly, he finds that his legs involuntarily cross each other, by which he is frequently thrown down suddenly, and that without stumbling; upon endeavouring to stand still and erect, even for a few minutes, his knees give way, and bear forward. When the distemper is a little further advanced, it will be found that he cannot, without much difficulty, direct either of his feet precisely to any exact point: on attempting to do so, they suddenly intersect, and, very soon after, both thighs and legs lose much of their natural sensibility and become perfectly useless. When an adult is thus affected, the progress of the distemper is much the same, but rather quicker. Arrived at this state, whatever be the age or sex of the patient, complaint is made of twitching and frequent pains in the thighs, particularly when in bed, and of uneasy sensation at the pit of the stomach; when he sits on a chair or a stool, his legs are almost always found across each other, and drawn up under the seat: in a little time after these particulars have been observed, the power of walking is totally lost.

The true curvature is invariably uniform in being from within outwards. This curve of the spine varies in situation, extent, and degree, being either in the neck, back, or, more rarely, in the upper part of the loins; sometimes comprehending one vertebra only, sometimes two, three, or more; by which the curve becomes necessarily more or less extensive: but, whatever variety these circumstances may admit, the lower limbs most frequently feel the effect; sometimes the arms only are paralytic, as it is called; and a few instances have occurred, in which both legs and arms were alike affected. The effect is also different in different subjects: some are soon rendered totally and absolutely incapable of walking, while others can move with the help of crutches, or by grasping their thighs just above the knees with their hands.

The general health of the patient does not seem, at first, to be materially, if at all, affected; but when the disease has continued some time, and the curvature has thereby increased, many inconveniences and complaints come on; viz. When the incurvation is *in the neck*, and to a considerable degree, by affecting several vertebræ, the child finds it inconvenient and painful to support its head, and is always desirous of laying it on a table or pillow, or any thing to take off the weight. When in *the dorsal vertebræ*, there is a difficulty of breathing, loss of appetite, indigestion, dry cough, quick pulse, a disposition early to hectic pain, and what they all call tightness at the stomach, obstinate constipations, or purgings, involuntary flux of urine and fæces, &c. with the addition of what are called nervous complaints.

Mr. Pott has observed, that previous both to the paralytic state of the legs, and to the alteration of the figure of the back-bone in these cases, "there is a predisposing cause of both, consisting in a distempered state of the ligaments and bones, where the curve soon after makes its appearance. The primary and sole cause of the mischief, then," he says, "is a distempered state of the parts composing, or in immediate connection with, the spine; tending to, and most frequently ending in, a caries of the body or bodies of one or more of the vertebræ." From every circumstance in the living, and appearance in the dead, it is also evident "that the complaint arises from a scrofulous indisposition affecting the parts that compose the spine, or those in its immediate vicinity." In this morbid affection it may, however, be remarked, that strumous tubercles in the lungs, and a distempered state of some of the abdominal viscera, often make a part of the case. The original attack is sometimes on the bodies of some of the vertebræ; and when this is the case, ulceration and erosion of the bones is the consequence. This caries of the bones often produces the curvature peculiar to this disease, by wasting the body of each vertebra that is affected; and then the spinal processes of the diseased vertebræ protuberate behind in consequence of their fore parts falling down. When the attack is made upon the dorsal vertebræ, the sternum and ribs, for want of proper support, necessarily give way, and other deformity, additional to the curve, is produced.—As to the cases of carious spine, without curvature, it sometimes happens that large internal collections of matter are formed near the spine; this matter affecting the spine, and also making its way outward, produces what are called psoas abscesses, &c. and destroys the patient. The real and immediate cause of death in these instances is rarely known until the body is examined. The useless state of the limbs is by no means a consequence of the altered figure of the spine, or of the disposition of the bones with regard to each other, *but merely of the caries.* Of this truth, Mr. Pott says, there needs no other proof than what may be drawn from the cure of a large and extensive curvature, in which three or more vertebræ were concerned: in this the deformity always remains unaltered and unalterable, notwithstanding the patient recovers both his health and limbs.

The restoration of the spine to its natural figure depends much on the early administration of the means to be hereafter proposed. But though the disease may be so far cured, even by these, as that the patient may recover the use of his limbs, yet such an alteration may have taken place in the bodies of the vertebræ, as to render it impossible for the spine itself to become straight again; and if, from inattention, from length of time, or from any other circumstances, it happens that the bodies of the vertebræ become completely carious, and the intervening cartilages are destroyed, no assistance is to be expected either from medicine or the application of machinery, both of which might have been made to cooperate in an early stage of the complaint.

While the curvature of the spine remains undiscovered or unattended to, the case is generally supposed to be nervous, and *nervous medicines*, so called, are as generally administered; but without any advantage. When the case is known, recourse is too exclusively had to steel stays, swings, screw-chairs, &c. to restore the spine to its natural figure; but still the patient grows unhealthy, and, languishing under a variety of complaints, dies in an exhausted, emaciated state. Mr. Pott positively insists, that the remedy for this dreadful disease consists merely in procuring a large discharge of matter by suppuration, from underneath the membrana adiposa on each side of the curvature, and in maintaining such discharge until the patient shall have perfectly recovered the use of his legs. They who have been experimentally acquainted with the very wonderful effects of purulent drains, made from the immediate neighbourhood of diseased parts, will not be much surprised at this particular one; and will immediately see how such kind of discharge, made and continued from the diseased part, checks the further progress of the caries, gives Nature an opportunity of exerting her own powers, of throwing off the diseased parts, and of producing by incarnation an union of the bones.

For this purpose Mr. Pott directs an eschar to be made on each side of the curved part of the spine by means of a caustic. It should be of an oval shape, about an inch and a quarter in length, and three quarters of an inch in breadth, at the broadest part. We are directed to apply each caustic near the side of the curvature, so as to leave the portion of the skin covering the spinal processes of the protruded bones, entire and unhurt, and so large, that the sores upon the separation of the eschars may easily hold each three or four peas in the case of the smallest curvature, but, in large curves, at least as many more. A few days after applying the caustics, the sloughs will begin to loosen, and it is then proper to cut out all the middle, and put into each a large kidney-bean. When the bottoms of the sores are become clean, it will be proper to sprinkle now and then a small quantity of finely-powdered cantharides on them, by which the sores will be prevented from contracting, the discharge increased, and possibly other benefit obtained. The issues should be kept open until the cure is complete; that is, until the patient has not only the perfect use of his limbs, but also his general health. Mr. Pott says, by means of this discharge, the eroding caries is first checked, then stopped; in consequence of which, an incarnation takes place, and the cartilages between the bodies of the vertebræ having been previously destroyed, the bones become united with each other, and form a kind of anchylosis. No degree of benefit or relief, nor any the smallest tendency towards a cure, is to be expected until the caries be stopped, and the rotten bones have begun to incarn; the larger the quantity of bones concerned, and the greater the degree of waste committed by the caries, the greater must be the length of time required for the correction of it, and for restoring to a sound state so large a quantity of distempered parts; and *vice versa*. Nothing can be more uncertain than the time required to accomplish a cure: sometimes it is perfected in two months, and at others it requires two years; and in this last, two-thirds of the time may be passed without any sensible amendment.

The discharge by means of the issues is all that is requisite for the cure where the case admits of one; but yet this is no reason why every assisting means should not be applied at the same time in order to expedite it, such as the bark, cold bathing, frictions, &c. We should be inclined even to employ some of the artificial supports which have been invented by ingenious mechanics, particularly the suspensory machine of Mr. T. Sheldrake and the stays of Mr. Jones, for delineations of which, see pl. XXXI. Fig. 1 and 2 are two views of the former, and the latter is shewn at fig. 3, in a manner which sufficiently demonstrates the nature of these contrivances; from the use of which, however, a judicious practitioner will neither expect too much nor too little.

SPIRÆ'A (from *spira*, a pillar; so named from its spiral stalk), the African meadow-sweet.

SPIRE'A FILIPE'NDULA; the systematic name of the officinal drop-wort. See FILIPENDULA.

SPIRE'A ULMA'RIA; the systematic name of the meadow-sweet. See ULMARIA.

SPI'RITUS, in pharmacy, a spirit, or distilled spirituous liquor; of which the *Sp. cinnam. Sp. nuc. mosch. Sp. pimento*, &c. furnish examples. The flavour and virtues of these distilled liquors are owing to their being impregnated with a portion of the essential oil of the subject from which they are drawn. Alcohol, considered as a vehicle for these oils, has this advantage over water, that it keeps all the oil that rises with it perfectly dissolved into an uniform limpid fluid. Nevertheless, many substances, which, on being distilled with water, impart to it their virtues in great perfection, if treated in the same manner with alcohol, scarcely give over to it any smell or taste. The cause of this difference is, that alcohol is not susceptible of so great a degree of heat as water. It is obvious, therefore, that substances may be volatile enough to rise with the heat of boiling water, but not with that of boiling alcohol. Thus, if cinnamon be committed to distillation with a mixture of alcohol and water, or with a pure proof spirit, the alcohol will arise first clear, colourless, and transparent, and almost without any taste of the spice; but as soon as the more ponderous watery fluid begins to arise, the oil comes freely over with it, so as to render the liquor highly odorous, sapid, and of a milky hue. The proof spirits usually met with are accompanied with a degree of ill flavour; which, though concealed by some artful means, plainly discovers itself in distillation. This nauseous flavour does not begin to arise till after the purer spirituous part has come over; which is the very time that the virtues of the ingredients begin also to arise most plentifully; and hence the liquor receives an ungrateful taint. To this cause principally is owing the general complaint, that the cordials of the apothecary are less agreeable than those of the same kind prepared by the distiller. Some essential oils are popularly called *spirits*, as that of turpentine; and some compounds, as that of camphor with alcohol, called *camphorated spirits*, &c.

SPITHAMA, in botany, a span; the sixth degree in the Linnæan scale for measuring the parts of plants. It is the distance between the extremity of the thumb and that of the first finger when extended; or seven Parisian inches.

SPITTING OF BLOOD. See HÆMATEMESIS and HÆMOPTYSIS.

SPLANCHNOLO'GIA (*σπλαγχνολογια*, from *σπλαγχνον*, an *entrail*, and *λογος*, a *discourse)*, splanchnology, or the doctrine of the viscera.

SPLANCHNIC NERVE, a name for the interior intercostal nerve. See INTERCOSTAL NERVE.

SPLEEN *(Splen*, Lat. of the Gr. *σπλην*), one of the viscera. It is a bluish mass, something inclined to red, and of a long oval figure, being about seven or eight fingers breadth in length, and four or five in breadth. It is of a softish substance, and is situated in the left hypochondrium, between the great extremity of the stomach and the neighbouring false ribs, under the edge of the diaphragm, and above the left kidney.

It may be naturally divided into sides, edges, and extremities. It has two sides, one external and gently convex, and one internal, which is irregularly concave; two extremities, one posterior, which is large, and one anterior, which is smaller, and more depressed; two edges, one superior, and one inferior, on both which there are, in some subjects, several inequalities.

The inner or concave side is divided, by a longitudinal groove or scissure, into two planes or half sides, one upper, the other lower; and, by this groove, the vessels and nerves enter in human subjects. The superior half side is broader and more concave than the inferior, being proportioned to the convexity of the great extremity of the stomach. The inferior half side lies backward on the left kidney, and forward on the colon; and sometimes this side of the spleen appears to have two superficial cavities, one answering to the convexity of the stomach, the other to that of the colon. The convex side of the spleen is turned to the left ribs.

It is connected, 1. With the stomach, by a ligament and short vessels. 2. With the omentum, and the left kidney. 3. With the diaphragm, by a portion of the peritonæum. 4. With the beginning of the pancreas, by vessels. 5. With the colon, by a ligament.

The figure of the spleen is not always regular, and is as various as the size. Sometimes it has considerable scissures both in the sides and edges, and sometimes it has appendices. Anatomists sometimes find a kind of small distinct spleens, more or less round, and connected separately to the omentum, at some distance from the anterior extremity of the ordinary spleen.

In man, the substance of the spleen is almost wholly vascular, that is, composed of the ramifications of all kinds of vessels. In oxen, the substance of the spleen is chiefly reticular, and in sheep it is cellular. In oxen and sheep, there are no venal ramifications; but only open sinuses disposed like branches, except a small portion of a venal trunk perforated on all sides, at the extremity of the spleen.

The spleen is one of those viscera which send their blood to the liver, and its situation varies with that of the stomach. When the stomach is empty, the spleen is raised perpendicularly, so as to place its extremities right up and down; but when the stomach is full, the middle curve or arch of the spleen arises upward and forward; and at the same time obliges it to change its situation, so as to lie almost transversely with its lower end forward, and its upper end backward. Being of a very soft and loose texture, it grows larger by distension when the stomach is empty, and becomes less again when it is pressed by the full stomach against the ribs. Hence the spleen is found large in those who die of lingering diseases; but in those who die suddenly, and in full health, it is small. The spleen descends with the diaphragm in inspiration, and ascends again in exspiration; and it often varies in its situation with the colon. Frequently there is a second or less spleen placed upon the former.

The *blood-vessels* of the spleen are, the splenic artery coming from the celiac artery, which, considering the size of the spleen, is much larger than is requisite for the mere nutrition of it. This wanders by serpentine movements, out of its course, over the pancreas, and behind the stomach; and after having given off branches to the adjacent parts, it is inserted into the concave surface of the spleen. It is afterwards divided into smaller branches, which are again divided into other yet smaller, delivering their blood immediately to the veins, but emitting it no-where else. The veins, having come together into one, called the splenic vein, and having received the large coronary vein of the stomach, besides others, these constitute the left principal branch of the vena portæ.

The *nerves* of the spleen are small; they surround the arteries with their branches; they come from the particular plexus, which is formed of the posterior branches of the eighth pair, and the great intercostal nerve. Numerous *lymphatic vessels* are seen creeping along the surface of this viscus.

The use of spleen has not hitherto been determined; yet if its situation and fabric be regarded, one would imagine its use to consist chiefly in detaining the blood for some space of time, dissolving it by its warmth, and rendering it more fluid. Mr. Hewson imagined its office to be that of forming the red particles of the blood; but this theory could not be supported.

SPLEEN-WORT. See CETERACH.

SPLENI'TIS (σπληνιτις, from σπλην, the *spleen)*, inflammation of the spleen; a genus of disease in the class *pyrexiæ*, and order *phlegmasiæ*, of Cullen. It is characterised by pyrexia, tension, heat, tumor, and pain in the left hypochondrium, increased by pressure. This disease, according to Juncker, comes on with a remarkable shivering, succeeded by a most intense heat, and very great thirst; a pain and tumor are perceived in the left hypochondrium, and the paroxysms for the most part assume a quartan form: when the patients expose themselves for a little to the free air, their extremities immediately grow very cold. If an hæmorrhage happen, the blood flows out of the left nostril. The other symptoms are the same with those of the hepatitis. See HEPATITIS. Like the liver, the spleen is sometimes also subject to a chronic inflammation, which often happens after agues, and is called the ague-cake, though that name is also frequently given to a scirrhous tumor of the liver succeeding intermittents. The causes of this disease are in general the same with those of other inflammatory disorders of the viscera; but those which determine the inflammation to that particular part more than another, are very much unknown. It attacks persons of a very plethoric and sanguine habit of body rather than others.

SPLE'NIUS (of the Gr. σπληνιος; from σπλην, the *spleen*; so named from its resemblance in shape to that viscus, or, according to some, it derives its name from *splenium*, a ferula, or splint, which surgeons apply to the sides of a fractured bone). The splenius is a flat, broad, and oblong muscle, in part covered by the upper part of the trapezius, and obliquely situated between the back of the ear, and the lower and posterior part of the neck.

It arises tendinous, from the four superior spinous processes of the vertebræ of the back; tendinous and fleshy, from the five inferior of the neck, and adheres firmly to the ligamentum nuchæ. At the third vertebra of the neck, the splenii recede from each other, so that part of the complexus muscle is seen. It is inserted, by as many tendons, into the five superior transverse processes of the vertebræ of the neck; and tendinous and fleshy, into the posterior part of the mastoid process, and into the os occipitis, where it joins with the root of that process. The use of the splenius is to bring the head and upper vertebræ of the neck backwards laterally; and, when both act, to pull the head directly backwards. Albinus divides this muscle into two. That portion which arises from the five inferior spinous processes of the neck, and is inserted into the mastoid process and os occipitis, he calls *Splenius Capitis*: and that portion which arises from the third and fourth of the back, and is inserted into the five superior transverse processes of the neck, is called by him *Splenius Colli.*

SPLENOCE'LE (σπληνοκηλη; from σπλην, the *spleen*, and κηλη, a *tumor)*, a rupture or hernia of the spleen.

SPLENT, or SPLINT (from *splenium*, a ferula), a thin scale of wood, pasteboard, or leather, of adequate shape and dimensions, which surgeons apply to the sides of a broken bone, to keep the ends in contact.

SPO'NGIA (of the Gr. σπογγος, or σπογγια), sponge, a marine production; the *Spongia officinalis* of Linnæus. Burnt sponge is said to cure effectually the bronchocele, and to be of infinite utility in scrofulous complaints. Sponge tents are employed by surgeons to dilate fistulous ulcers, &c.: a kind of tent is also made of this substance by first dipping it into a melted composition of wax, &c. and then pressing it strongly between two iron plates, where it is suffered to grow cold.

SPO'NGIA OFFICINA'LIS; the systematic name of the sponge. See SPONGIA.

SPO'NGIA U'STA, burnt sponge; a preparation that is exhibited with cinchona bark in the cure of scrofulous complaints. It also forms the basis of a lozenge which has been known to cure the bronchocele in many instances. See BRONCHOCELE.

SPONTANEOUS EVOLUTION, of the fœtus. See PRESENTATION.

SPORADIC (of the Gr. σποραδικος; from σπειρω, to *sow)*, an epithet for such diseases as seize persons at any time or season of the year, and occur promiscuously in all situations.

SPOTTED LUNG-WORT. See PULMONARIA.

SPURGE FLAX. See THYMALÆA.

SPURGE LAUREL. See LAUREOLA.

SPURGE OLIVE. See MEZEREUM.

SPRAIN, a name for that common accident in which the muscles or ligaments of a part have been extended beyond their natural tone. This produces pain, swelling, and inflammation, in some cases, to a considerable degree; and there is frequently a total loss of motion for many weeks, and sometimes for years, if an early attention be not paid. An effusion of fluids always succeeds the injury, which seems to be, for the most part, of a serous nature, as the skin usually retains its natural colour; though sometimes there is considerable extravasation.

In the treatment of sprains, it is the first business of a surgeon to examine whether the joint has received any other injury, or if there is reason to believe that the ligaments have only been stretched in such a violent manner as to lacerate some of the blood-vessels, and destroy the tone of the absorbents, and thus render them incapable of executing their office for a time. If any of the bones of the joint are found to be displaced, they must be reduced; after which, the joint is instantly to be immersed in a vessel of water as hot as the patient can bear it, the heat always under 112° of Fahrenheit, by which means such a relaxation will take place in the vessels of the parts immersed, as will allow the quantity of effused or stagnating fluid to pass on almost as freely as before. In this way, the sudden and very great swelling and tension, which take place immediately after the injury, are almost completely prevented. After the limb has thus been immersed for a sufficient time in the water, a number of leeches ought to be applied; and after they have dropped off, unless the pain of the diseased limb be very great, it ought again to be immersed in warm water, by which the bleeding will be promoted; and sometimes, in cases of violent sprains, it is of service to take away a great quantity. The bleeding being stopped, we must place the limb upon a pillow in the most easy posture; the patient is to have an opiate, and the joint should be covered with several folds of flannel, moistened with a discutient solution. But, if the inflammation and pain should not decrease in twelve hours, or should increase within that period, we ought again to apply the leeches and warm moist cloths as before.

In very violent sprains of the wrist, it will be found of great service to support the arm and hand by a splint, reaching from the point of the finger to the elbow, and of sufficient breadth to cover the under half of the arm. Another of equal breadth ought to be applied to the outside, passing over the wrist to the middle of the metacarpal bones. The splints ought to be well moistened in a solution of vitriolated zinc, and ought to be kept firm in their places, by means of a flannel roller put round the arm; and all the dressings, as well as the arm itself, ought to be kept constantly moist with the solution. If still the patient be not relieved in eighteen or twenty hours, we must not hesitate at applying the leeches a third time, as well as the other medicines persevered in, until he recovers.

Where the application of leeches is not attempted, one of the best and easiest remedies for a violent sprain is a poultice made with vinegar, thickened with crumbs of bread and linseed meal, and applied cold. After the inflammation and swelling have somewhat subsided, a soapy volatile liniment will be of service.

SPRUCE-TREE. See Pinus.

SPRUCE-BEER, a cheap and wholesome liquor, which is thus made: Take of water sixteen gallons, and boil the half of it. Put the water thus boiled, while in full heat, to the reserved cold part, which should be previously put into a barrel or other vessel; then add sixteen pounds of treacle or molasses, with a few table-spoonfuls of the essence of spruce, stirring the whole well together; add half a pint of yeast, and keep it in a temperate situation, with the bung-hole open, for two days, till the fermentation be abated. Then close it up or bottle it off, and it will be fit for being drunk in a few days afterwards. In North America, and perhaps in other countries, where the black and white spruce-firs abound, instead of adding the *essence* of the spruce at the same time with the molasses, they make a decoction of the leaves and small branches of these trees, and find the liquor equally good. It is a powerful antiscorbutic, and may prove very useful in long sea-voyages. See Scorbutus.

SQUAMOSE SUTURE (from *squama*, a scale; because the bones lie over each other like scales), that suture which unites the squamose portion of the temporal bone with the parietal.

SQUILL. See Scilla.

SQUI'LLA. See Scilla.

SQUINA'NTHUS (from *squinanthia*, the quinsey; so named from its uses in that disease); a former name for the sweet-rush. See Juncus odoratus.

SQUINTING. See Strabismus.

STAFF, the name of a grooved steel instrument shaped like a catheter, and used to direct the incision and beak of the cutting gorget in lithotomy. See Lithotomia.

STAHL (George Ernest), an eminent German chemist, was born in Franconia in 1660, and chosen professor of medicine at Hall, when a university was founded in that city in 1694. The excellence of his lectures while he filled that chair, the importance of his various publications, and his extensive practice, soon raised his reputation to a very great height. He received an invitation to Berlin in 1716, which having accepted, he was made councellor of state and physician to the king. He died in 1734, in the 75th year of his age. Stahl is, without doubt, one of the greatest men of which the annals of medicine can boast: his name marks the commencement of a new and more illustrious era in chemistry. He was the author of the doctrine of phlogiston, which, though now completely overturned by the discoveries of Lavoisier and others, was not without its use; as it served to combine the scattered fragments of former chemists into a system, and as it gave rise to more accurate experiments and a more scientific view of the subject, to which many of the subsequent discoveries were owing. This theory maintained its ground for more than half a century, and was received and supported by some of the most eminent men which Europe has produced; a sufficient proof of the ingenuity and great abilities of its author. He was the author also of "*A theory of Medicine*," founded upon the notions which he entertained of the absolute dominion of mind over body; in consequence of which, he affirmed, that every muscular action is a voluntary act of the mind, whether attended with consciousness or not. This theory he and his followers carried a great deal too far. But the advices, at least, which he gives to attend to the state of the mind of the patient are worthy of the attention of physicians. His principal works are: 1. *Experimenta et Observationes Chemicæ et Physicæ*, Berlin, 1731, 8vo. 2. *Dissertationes Medicæ*, Hall, two vols. 4to. This is a collection of theses. 3. *Theoria Medica vera*, 1737, 4to. 4. *Opusculum Chymico-physico-medicum*, 1740, 4to. 5. A Treatise on Sulphur, both Inflammable and Fixed, written in German. 6. *Negotium Otiosum*, Hall, 1720, 4to. It is in this treatise chiefly that he establishes his system concerning the action of the soul upon the body. 7. *Fundamenta Chymicæ Dogmaticæ et Experimentalis*, Nuremberg, 1747, three vols. 4to. 8. A Treatise on Salts, written in German. 9. *Commentarium in Metallurgium Beccheri*, 1723.

STALA'CTITÆ, crystalline spars formed into oblong, conical, round, or irregular bodies. They are composed of various crusts, and usually found hanging in form of icicles from the roofs of grottoes, &c.

STA'MINA, in physiology, those simple original parts which existed first in the embryo or even in the seed; and by whose distinction, augmentation, and accretion by additional juices, the animal body at its utmost bulk is supposed to be formed.

STA'MINA, in botany, are those little fine threads or capillaments, which grow up within the flowers of plants encompassing round the style, and on which the antheræ grow at their extremities. In the Linnæan system, the *stamina* are supposed to be the male part of the flower, designed for the preparation of the pollen, or fine dust secreted therein, and destined for the impregnation of the germen. Each *stamen* consists of two parts, a filament and anthera. The construction and distribution of the sexual system is principally founded upon, and regulated by, the *stamen*. Such flowers, according to the same system, as want this part, are called *female;* such as have it, but want the pistillum, or female part, are termed *male;* and such as have them both, *hermaphrodite.*

STA'NNUM, tin. See Tin.

STAPE'DIUS (from *stapes*, one of the bones of the ear), the *Stapedæus* of Douglas, and *Musculus stapedis* of Winslow; a muscle of the internal ear, which draws the stapes obliquely upwards towards the cavern; by which, the posterior part of its base being moved inwards, the anterior part passes outwards.

STA'PES (that is, *in quo pes stat)*, a bone of the internal ear, so called from its resemblance to a stirrup. See Ear.

STAPHILI'NUS EXTERNUS. See Circumflexus.

STAPHISA'GRIA (ϛαφις αγρια, *wild vine;* from the resemblance of its leaves to those of the vine), also named *Staphys*, and *Pedicularia*, staves-acre; *Delphinum staphisagria* Linn. *Delphinum nectariis tetraphyllis petalo brevioribus, foliis palmatis, lobis obtusis.* Class, *Polyandria.* Order, *Trigynia.* The seeds are usually brought from Italy. They are large and rough, of an irregular triangular figure, of a blackish colour on the outside, and yellowish or whitish within; they have a disagreeable smell, and a very nauseous, bitterish, acrimonious taste. Neumann got from 480 parts, 45 alcoholic extract, besides 90 of fixed oil, which separated during the process, and afterwards 44 insipid watery, and inversely 95 watery, and then by alcohol only one, besides 71 of oil. Staves-acre was employed by the ancients as a cathartic; but it operates with so much violence, both upwards and downwards, that its internal use has been, among the generality of practitioners, for some time laid aside. It is chiefly employed in external applications for some kinds of cutaneous eruptions, and for destroying lice and other insects; insomuch, that from this virtue it has received the name of *louse-wort* amongst the vulgar.

STAPHYLI'NUS (ϛαφυλινος; from ϛαφυλη, the *uvula)*, also named *Azygos uvulæ*, *Epistaphylinus*, and *Palato-staphylinus;* an azygos muscle of the uvula, which arises fleshy from the extremity of the suture that joins the palate bones, runs down the whole length of the velum pendulum palati, and uvula, resembling an earth-worm, and adheres to the tendons of the circumflexi. It is inserted into the tip of the uvula, which, by contracting, it raises upwards and forwards, and shortens it.

STAPHYLO'MA (ϛαφυλωμα; from ϛαφυλη, a *grape)*, a disease of the cornea of the eye, in which that membrane acquires a preternatural thickness and opacity. The proximate cause is an alteration of structure in consequence of the effusion of a thick humour between the lamellæ of the cornea, so that the internal and external superficies very much protuberates. The remote causes are, an habitual ophthalmia, great contusion, and frequently a deposition of the variolous humour in the small-pox. The species of this disease are: 1 *Staphyloma totale*, which occupies the whole transparent cornea: this is the most frequent species. In this, the opaque cornea protuberates, and if in the form of a cone, increasing in magnitude, it pushes out and inverts the lower eyelid; and sometimes the morbid cornea is so elongated, as to lie on the cheek, causing friction and excoriation. The bulb of the eye being exposed to the air, sordes generate; the inferior palpebra is irritated by the cilia, and very painful red and small papillæ are observable. 2. *Staphyloma racemosum;* known by carnous tubercles, about the size of a small pin's head. 3. *Staphyloma partiale*, which only occupies a part of the cornea. This exhibits an opaque tumor prominent from the cornea, similar to a small bluish grape. 4. *Staphyloma scleroticæ*, a bluish tumor attached to some part of the sclerotica, but arising from the tunica albuginea. 5. *Staphyloma pellucidum;* the cornea not thickened, but very much extended and pellucid. 6. *Staphyloma complicatum*, or that which is complicated with an ulcer, ectropium, caruncles, &c. 7. *Staphyloma iridis.* For an account this species see Ptosis iridis.

STAPIDÆ'US. See Stapedius.

STARCH, the fecula of wheaten flour. See Amylum.

STATI'CE (στατικη; from στατιζω, to *stop*, so named from its supposed property of stopping hæmorrhages); the herb sea-thirst.

STATI'CE LIMO'NIUM; the systematic name of the thrift or sea-frisk. See Behen rubrum.

STAVES-ACRE. See Staphisagria.

STEAM-BATH, or *Vapour-bath;* a contrivance by which the relaxing properties of hot water are most effectually applied to contracted limbs, &c. It has been said, that this effect may be greatly enhanced by exhausting the air, at the same time, by means of an air-pump, as proposed by Mr. Smith of Brighton. Steam has also been made the vehicle of some medicinal applications, as of aromatic effluvia, camphor, &c. and its use in fomentation is well known.

STEATI'TES, or *Soap-earth*, a genus of the magnesian order of earths, of which there are several species. According to Bergmann, 100 parts of steatites contain 80 of silex, 17 of mild magnesia, 2 of argillaceous earth, and nearly 1 of iron in a semioxidated state. This substance has the property of fuller's-earth, but does not diffuse in water so well as clays do; and when digested with vitriolic acid, it does not form alum, as clays do, but a salt similar to Epsom salt.

STEATOCE'LE (of the Gr. *ϛεατοκελη*; from *ϛεαρ*, *suet*, and *κελη*, a *tumor)*, a collection of suetty matter in the scrotum. It is a trivial affection.

STEATO'MA (*ϛεατωμα*; from *ϛεαρ*, *suet)*; an encysted tumor, whose contents are of a suetty consistence. Steatomatous tumors have been ranked by authors among those of the encysted kind; but they have no other cyst containing them than the common cellular substance, somewhat condensed; and the particles of fat composing them are found of the same size with those in a sound part of the body. Authors formerly advised the discussion of steatoms, or the prevention of their growth, by the application of pressure; but by such means the growth is rather promoted than retarded, nor have internal remedies been of any advantage. They must be removed, therefore, by an operation, which is the same with that for the extirpation of encysted tumors.

STEEL (*Chalybs*, Lat.) iron, combined with carbon by a particular process. It is in no respect preferable to iron as a medicine; nor is the term *chalybeate* properly applied to waters or other medicinal vehicles for iron.

STELLATE, in botany, an epithet applied to leaves which grow not less than six at a joint, and are arranged like the rays of a star.

STEM, in botany, that part of a plant arising out of the root, and which sustains the leaves, flowers, fruits, &c.

STE'PHYLA, a word used by the ancients to express the husks of grapes, or the remains of the pressings of wine. The same word is also used by some to express the remaining mass of the olives, after the oil is pressed out.

STELOCHI'TES. See OSTEOCOLLA.

STEMLESS MILK-VETCH. See ASTRAGALUS EXCAPUS.

STERILITY, barrenness, in opposition to fertility. In women this sometimes happens from a miscarriage, or violent labour injuring some of the genital parts; but one of the most frequent causes is the suppression of the menstrual flux. There are other causes, however, arising from various diseases incident to those parts; by which the uterus may be unfit to receive or retain the male seed;—from the tubæ Fallopianæ being too short, or having lost their erective power; in either of which cases no conception can take place;—from universal debility and relaxation; or a local debility of the genital system; by which means, the parts having lost their tone or contractile power, the semen is thrown off immediately *post coitum;*—from imperforation of the vagina, of the uterus, or the *tubæ*, or from diseased ova, &c. Hence medical treatment can only avail in cases arising from topical or universal debility; in correcting irregularities of menstrual flux, or in removing tumors, cicatrices, or constrictions of the passage, by the art of surgery.

STE'RNO. Names compounded of this word belong to muscles which are attached to the sternum; as,

STE'RNO-CLEIDO-HYOIDEUS. See STERNO-HYOIDEUS.

STE'RNO-CLEIDO-MASTOIDEUS, the *Sterno-mastoideus* and *Cleido-mastoideus* of Albinus, and *Mastoideus* of Winslow; a muscle situated on the anterior and lateral part of the neck, and whose office is to turn the head to one side and bend it forward. It arises by two distinct origins; the anterior tendinous and fleshy, from the top of the sternum near the junction with the clavicle; the posterior fleshy, from the upper and anterior part of the clavicle: both unite a little above the anterior articulation of the clavicle, to form one muscle, which runs obliquely upwards and outwards, to be inserted, by a thick strong tendon, into the mastoid process of the temporal bone, which it surrounds; and gradually becoming thinner, is inserted as far back as the lambdoidal suture.

STE'RNO-COSTALES, commonly called the *musculi triangulares sterni*, in anatomy, are five pairs of fleshy planes, disposed more or less obliquely on each side the sternum, on the inside of the cartilages of the second, third, fourth, fifth, and sixth true ribs.

STE'RNO-HYOIDEUS, a muscle that arises from the clavicle, as well as from the sternum, for which reason Winslow calls it *sterno-cleido-hyoideus.* It is a long, flat, and thin muscle, situated obliquely between the sternum and os hyoides, behind the lower part of the mastoideus, and covering the *sterno-thyroideus* and the *hyo-thyroideus.* It arises, by very short tendinous fibres, from the cartilaginous part of the first rib, from the upper and inner part of the sternum, from the capsular ligament that connects that bone with the clavicle, and commonly from a small part of the clavicle itself; from thence, ascending along the anterior and lateral part of the neck, we see it united to its fellow, opposite to the inferior part of the larynx, by means of a thin membrane, which forms a kind of *linea alba.* After this, the two muscles separate again, and each passing over the side of the thyroid cartilage, is inserted into the basis of the os hyoides, immediately behind the insertion of the sterno-costales. This muscle draws the os hyoides downwards.

STE'RNO-MASTOIDEUS. See STERNO-CLEIDO-MASTOIDEUS.

STE'RNO-THYROIDEUS, a muscle of the throat. It is a flat and thin muscle, like the preceding one, but longer and broader. It is placed at the fore part of the neck, between the sternum and thyroid cartilage, and behind the sterno-hyoideus. It arises broad and fleshy from the upper and inner part of the sternum, between the cartilages of the first and second ribs, from each of which it receives some few fibres, as well as from the clavicle, where it joins with the sternum. From thence, growing narrower, it ascends, and, passing over the thyroid gland and the cricoid cartilage, is inserted tendinous into the lower and posterior edge of the rough line of the thyroid cartilage, immediately under the insertion of the last-described muscle. In some subjects we find a few of its fibres passing on to the os hyoides. This muscle draws the thyroid cartilage, and consequently the larynx, downward.

STE'RNUM, the *Os pectoris* or breast-bone; a broad flat bone, or series of bones, situated at the fore-part of the thorax. In adults that are young, it is composed of three bones, which easily separate after the cartilages connecting them are destroyed. Frequently the two lower bones are found intimately united; and very often, in old people, the sternum is a continued bony substance from one end to the other; though we still observe two, sometimes three, transverse lines on its surface; which are marks of the former divisions.

Considering the sternum as one bone, we find it broadest and thickest above, and becoming smaller as it descends. The internal surface of this bone is somewhat hollowed for enlarging the thorax; but the convexity on the internal surface is not so conspicuous, because the sides are pressed outward by the true ribs; the round heads of whose cartilages are received into seven smooth pits formed in each side of the sternum, and are kept firm there by strong ligaments, which on the external surface have a particular radiated texture. Frequently the cartilaginous fibres thrust themselves into the bony substance of the sternum, and are joined by a sort of suture. The pits at the upper part of the sternum are at the greatest distance one from another, and, as they descend, are nearer; so that the two lowest are contiguous.

The substance of the breast-bone is cellular, with a very thin external plate, especially on its internal surface, where we may frequently observe a cartilaginous crust spread over it. On both surfaces, however, a strong ligamentous membrane is closely braced; and the cells of this bone are so small, that a considerable quantity of osseous fibres must be employed in the composition of it. Whence, with the defence which the muscles give it, and the moveable support it has from the cartilages, it is sufficiently secured from being broken: for it is strong by its quantity of bone; its parts are kept together by ligaments; and it yields enough to elude accidental violence.

Of the three bones, of which the sternum consists in adults, the *first* is somewhat of the figure of a heart, as it is commonly painted; only it does not terminate in a sharp point. This is the uppermost thickest part of the sternum. The *second* or middle division of this bone is much longer, narrower, and thinner, than the first; but, excepting that it is a little narrower above than below, it is nearly equal all over in its dimensions of breadth and thickness. In the sides of it are complete pits for the third, fourth, fifth, and sixth ribs, and half of the pits for the second and seventh; the lines, which are marks of the former division of this bone, being extended from the middle of the pits of one side to the middle of the corresponding pits of the other side. Near its middle an unossified part of the bone is sometimes found; which, freed of the ligamentous membrane or cartilage that fills it, is described as a hole: and in this place, for the most part, we may observe a transverse line, which has made authors divide this bone into two. When the cartilage between this and the first bone is not ossified, a manifest motion of this upon the first may be observed in respiration, or in raising the sternum, by pulling the ribs upward, or distending the lungs with air in a dead subject.

The *third* bone is much less than the other two, and has only one half of the pit for the seventh rib formed in it; wherefore it might be reckoned only an appendix of the sternum. In young subjects it is always cartilaginous, and is better known by the name of *cartilago xiphoides* or *ensiformis* than any other. This third bone is seldom of the same figure, magnitude, or situation, in any two subjects; for sometimes it is a plain triangular bone, with one of the angles below, and perpendicular to the middle of the upper side, by which it is connected to the second bone. In other subjects the point is turned to one side, or obliquely forward or backward. Frequently it runs all nearly of an equal breadth, and in several subjects it is bifurcated, or perhaps unossified in the middle. In the greatest number of adults, it is ossified, and tipped with a cartilage; in some, one half of it is cartilaginous; and in others, it is all in a cartilaginous state. Generally several oblique ligaments, fixed at one end to the cartilages of the ribs, and by the other to the outer surface of the xiphoid bone, connect it firmly to those cartilages.

The sternum is *joined* by cartilages to the seven upper ribs, unless when the first coalesces with it in an intimate union of substance; and its unequal cavity on each side of its upper end is fitted for the clavicles. It most frequently has four round small bones, surrounded with cartilage, in children born at the full time; the uppermost of these, which is the first bone, being the largest.—Two or three other very small bony points are likewise met with in several children. The number of bones increases for some years, and then diminishes, but uncertainly, till they are at last united into those above described in the adult subject.

The *uses* of this bone are, to afford origin and insertion to several muscles; to sustain the mediastinum; to defend the viscera of the thorax at their forepart; and lastly, by serving as a moveable fulcrum of the ribs, to assist considerably in respiration.

STERNUTAMENTO'RIA. See Ptarmica.

STERNUTATORY, a medicine to produce sneezing. See Errhina.

STE'RTOR, noisy respiration, as in an apoplexy, in which the mucus from the fauces is forced through the nostrils. Snoring, snorting, or the noise made through the nose in sleep, has been called *stertor.*

STHE'NIA, a term employed by the followers of Dr. Brown, to denote that state of the body which disposes to inflammatory diseases, in opposition to those of debility which arise from *Asthenia.* See Brunonianism. Dr. Struve, in his work on the "Art of prolonging the Life of incurable Persons," gives a few of the theorems after the manner of Brown. He says a stronger stimulus does not, as is commonly believed, destroy a weaker; it only lessens in a greater or less degree the force of the latter. Sthenia is always more violent when it is preceded by a considerable asthenia, and *vice versa.* A famished person suddenly filled with food, dies apoplectic. Drunkards, if they immediately begin a total abstinence from wine, expose themselves to incurable diseases. Sthenia becomes more violent in proportion as it alternates more completely with asthenia, that is to say, in proportion as the habit is more frequently exposed at one time to sthenic affections, and at another, to asthenic. By this perpetual irritation the organisation becomes so susceptible, that it is very liable to suffer in the highest degree from sthenic diseases. This principle is of the greatest importance for practitioners to be aware of, since it proves, that a sudden transition from one extreme to another (as, for example, from cold to heat, taking cold liquors when the body is hot, which often destroys the tone and energy of the stomach), may lay the foundation of an incurable disease, which sometimes remains long concealed, and then shews itself by the most alarming symptoms.

STI'BIUM, an ancient name of antimony. See Antimonium.

STI'CHOS, a name given by the old writers to a pectoral confection, the principal ingredient of which was the herb *marrubium* or horehound.

STI'GMA, a small red speck in the skin, occasioning no elevation of the cuticle. Stigmata are generally apart from each other. They sometimes assume a livid colour, and are then termed *petechiæ*. See Petechiæ.

STI'GMA, in botany, the apex, or capital of the pistillum, containing the viscus which receives the pollen. Linnæus compares this organ to the vulva in female animals.

STILL, the name of a well-known apparatus used in chemistry and in the distillation of ardent spirits. See Distillation.

STIMULA'NTIA (from *stimulo*, to stir up or irritate), stimulants; or those substances that increase the action of the moving fibres in a living animal.

The celebrated Boerhaave says, in order to produce the oscillatory motion of the fibre, it is required that an increase of motion should be given at that particular point from whence the increase of oscillation begins; and that the cause producing this effect is two-fold: 1. By a particle of matter, not annexed to the vessel, rushing with proper force up a point, or particle, so as to force it out of its natural situation; but the impulse of that particle ceasing, the fibre will immediately contract itself, in order that the part so impelled from its place may again restore itself; and that its contraction is by so much the more powerful as the particle has been further removed from its natural state; but that causes of this kind do not long continue, therefore the effect ceases. 2. The other cause, and whose effects are more permanent, may arise from a particle being fixed in the side of the vessels, either internally from the circulating fluid, or externally from external causes. But this is the doctrine of mechanical reasoning, and may serve to account for the locality of action produced from some material substance in the part stimulated. But anger, and some other of the active passions, cannot act from such causes. How stimulus increases action, we cannot point out; but this we know, all those things which increase the influence of the vital powers, either diffusively or partially, are real stimulants, and as such must be considered.

Dr. Cullen describes two kinds of stimulants: 1. Those which are *indirect*, that is, those which act on the organs of sense, by which means a perception is excited in the sensorium commune, which acting there, determines the nervous power to flow more copiously into the whole, or a particular part, of the system;—and, 2. Those which are *direct*, that is, because they are imagined to act directly on the moving fibres. The indirect are the most common and universal, but stimulants do excite motion in the moving fibres themselves, independent of any connection with the common sensorium, as muscular action may be promoted by stimuli applied to their fibres, when detached or separated from the body. Hence we may fairly conclude that action is produced in two ways, by *sympathy*, and *local stimulus*. And in many of these actions the mind is the first cause: as may be discovered in longings; desire for food which we see others eating with uncommon relish; weeping from sorrow; vomiting and sickness from recollection and reflection, &c. General stimulus seems also to be produced by all such things as are taken into the stomach, and communicate a general affection through the system, owing to the connection of that organ with every other part of the machine; and indeed the whole which come under this head may be said properly to belong to this division, either from their general mode or elective action. Those which are productive of the first effects are antispasmodics, sedatives, diaphoretics. Those of the second are errhines, sialagogues, expectorants, cathartics, diuretics, emmenagogues, and emetics; though some of these last have also a diffusive action.

STI'MULUS, a name given to any medicinal substance that irritates.

STING, an apparatus in the bodies of certain insects, in form of a little spear, serving them as a weapon of offence. The means generally employed to remedy the inconvenience produced by the stings of insects are noticed under the articles Musquitoe, Venom, &c.

STINKING LETTUCE. See Lactuca graveolens.

STI'PULA, in botany, signifies stubble. It is one of the seven fulcra of plants, according to Linnæus; and *stipulation* means the situation and structure of the *stipula*, at the base of the leaves.

STIZOLO'BIUM, a name by which the cowhage is sometimes called. See Dolichos.

STOE'CHAS (of the Gr. *στοιχας*; from *ϛοιχαδες*, the islands on which it grew); the French lavender.

STOE'CHAS ARA'BICA, a species of French lavender; the *Lavendula stæchas* of Linnæus. This plant is much less grateful in smell and flavour than the common lavender, to which it is allied in its properties as a medicine.

STOE'CHAS CI'TRINA. See Elichrysum.

STOMACA'CE (of the Gr. *στομακακη*; from *στομα*, the *mouth*, and *κακος*, *evil)*; a fetor in the mouth, attended with a bloody discharge from the gums.

STOMACH *(ventriculus*, Lat.), a great bag or reservoir, which is situated partly in the left hypochondrium, and partly in the epigastrium, in the human subject. Its figure, when distended, is like that of a bag-pipe; oblong, incurvated, large, and capacious, at one end, and small and contracted at the other. In the curvature of the stomach we distinguish two arches; one large, which runs along the greatest convexity; and one small, directly opposite to the former. These arches are named the *great* and *small* curvatures of the stomach; and by the sides of the stomach, we understand the two lateral portions which lie between the two arches. The stomach has two extremities; one large and one small. It has two openings, called the *orifices of the stomach;* one between the great extremity and the small curvature, the other at the end of the small or contracted extremity. The first opening is a continuation of the œsophagus; the other joins the intestinal canal, and is called *pylorus.*

The stomach is not situated in the left hypochondrium and epigastric region, in the manner represented in most of the figures. It lies transversely, obliquely, and almost laterally; in such a manner as that the great extremity, and the orifice next it, are on the left hand; and the small extremity, with its orifice, or the pylorus, on the right hand, and lower and more inclined than the former: therefore Dr. Monro thinks we ought, with the ancient anatomists, to call one of these orifices *superior,* the other *inferior.* The great extremity of the stomach is in the left hypochondrium, and for the most part immediately under the diaphragm: yet the superior orifice is not in the left hypochondrium, but almost opposite to, and very near the middle of, the bodies of the lowest vertebræ of the back.

The small extremity of the stomach does not reach to the right hypochondrium. It bends obliquely backward toward the upper orifice: so that the pylorus lies about two fingers-breadth from the body of the vertebræ immediately under the small portion of the liver; and consequently lower down, and more forward, than the other orifice by almost the same distance. This extremity of the stomach has sometimes a particular dilation on the side next the great curvature. According to this natural situation, the stomach, especially when full, is situated with its great curvature forward and a little downward, and its small curvature backward and a little upward. One of the lateral convex sides is turned upward, the other downward; and not forward and backward as they appear in dead bodies, where the intestines do not support them in their natural situation.

If we divide the stomach along the two curvatures into two equal parts, we shall see that the two orifices do not both adhere to the same half of this division, as we would be apt to imagine according to the common notion; but that the diaphragmatic orifice is entirely in the upper half, and the intestinal orifice in the lower. Therefore the body of the stomach is so far from lying in the same plane with the œsophagus, as it is commonly represented in figures drawn from a stomach taken out of the body and laid upon a table, that it forms an angle or fold immediately at the passage of the œsophagus through the small muscle of the diaphragm; and it is on account of this angle that the superior orifice is turned backward.

The stomach is composed of different strata, to which the anatomists give the name of *tunicæ* or *coats.* These coats are commonly reckoned to be four; the outer or common, the fleshy or muscular, the nervous or aponeurotic, and the villous or inner coat; and they are afterwards subdivided several ways.

The *first* or outermost coat is simply membranous, being one of the internal productions of the peritonæum. The *second* or muscular coat is made up of several planes of fibres, which may all be reduced to two; one external, the other internal. The external coat is longitudinal, though in different respects following nearly the direction of the curvatures and convexities of the stomach; and the internal plane is transversely circular.

The fibres of the external plane run slanting in several places. Those of the inner or circular plane are stronger than those of the outer. They are rather segments which unite at different distances, than entire circles; and they are likewise intersected by great numbers of small white lines, in some measure tendinous and very oblique, which all together represent a kind of minute net-work. As these circles or segments advance on the great extremity of the stomach, they diminish gradually, and form a kind of muscular vortex; the center of which is in the middle of that extremity. Between the outer and inner planes, round the superior orifice, there are two distinct planes about the breadth of a finger, and very oblique, which surround this orifice in opposite directions, and intersect each other where they meet on the two lateral sides.

Along the middle of each lateral side of the small extremity, there runs a tendinous or ligamentary flat portion, above a quarter of an inch in breadth, which terminates in the pylorus. These two portions lie between the common and muscular coats, and adhere very strongly to the first. Between the same two coats there is a cellular substance which adheres very closely to the external coat, and insinuates itself between the fleshy fibres of the second, all the way to the third, as may be perceived by blowing it up. Some make it a distinct coat, and call it *tunica cellulosa;* but it is no more than the cellular portion of the membraneous coat, like the cellular portion of the peritonæum.

The *third* coat, called most properly *tunica cellulosa,* but by some *tunica nervosa,* is composed of capillary vessels and nerves, with a very large proportion of cellular substance. On the concave side it seems to be of a very loose spongy or filamentary texture, resembling fine cotton, as may be seen by macerating it a little in clear water, which swells it considerably in a very short space of time. It is supported by a kind of ground-work of a very fine ligamentary or aponeurotic filaments which intersect each other obliquely, much in the same manner as the third coat of the intestines; and it adheres to the convex side of the villous coat.

The *fourth* coat of the stomach has been termed by Fallopius *tunica villosa,* because, when it swims in clear water, something is seen in it like the pile of velvet. The ancients called it *tunica fungosa;* and perhaps this name agrees best with its true structure.

These two coats are of a larger extent than the two former, and they join in forming large rugæ on the concave surface of the stomach; the greatest part of which is transverse, though irregular and waving. There are likewise some longitudinal ones which intersect the others; but at the pylorus they all become longitudinal, and terminate there. At the superior orifice of the stomach, which is called *cardia*, these rugæ are in a manner radiated, and seem to be a continuation of the plicæ or folds of the œsophagus; only they are thicker; and where these rugæ and plicæ meet, they form a sort of crown, which distinguishes the superior orifice of the stomach from the inferior extremity of the œsophagus.

In the interstices of these rugæ, there is often found a sort of slimy mucus, the gastric juice, with which the whole cavity of the stomach seems likewise to be moistened. See Gastric juice.

On the inner surface of the small extremity of the stomach, at the place where it ends in the intestinal canal, is situated the inferior orifice of the stomach, called *pylorus*. For an account of it, see Pylorus.

The arteries of the stomach are the coronaria dextra and sinistra; the veins are ramifications of the vena portæ; and the nerves arise chiefly from the sympathetici medii, or eighth pair, by means of the plexus coronarius stomachicus formed round the superior orifice of the stomach, by the expansion of the extremities of two large ropes, which run down upon the œsophagus, by the name of *nervi stomachici*. The great sympathetic nerve, commonly called *intercostalis*, contributes likewise to them, by communicating filaments, which the plexus stomachicus receives from the semilunar ganglions of the plexus hepaticus, and particularly from the plexus splenicus. See Walter's beautiful and accurate Tables of the Nerves, of the Thorax, and Abdomen.

The stomach receives in general whatever is swallowed: but its particular use is to receive the aliments, contain them for a longer or shorter time, and to digest, or put them in a condition to be turned into *chyle*. For an account of this operation, see Digestion.

The pylorus serves to retain the aliments in it, till they have acquired a sufficient degree of fluidity, to pass easily through that opening. But by a particular irritation of the muscular coat of the stomach, and still more by a violent contraction of the diaphragm and muscles of the abdomen, the contents of the stomach may be very soon forced towards the small extremity, pushed through the pylorus, and thus sent forward into the intestines.

This important viscus, being more immediately than any other exposed to human management, is often the victim of human infirmity. Gluttony and intemperance, ill-judged privations, powerful medicinal applications, accidental or intended poisons, and other abuses, render it the seat or source of innumerable diseases. Happy then is he, whose well-regulated mind enables him to preserve a just medium between the pleasure and the necessity of eating! For an account of the various diseases of the stomach, see Dyspepsia, Cardialgia, &c. &c.

STOMACH, INFLAMMATION OF. See Gastritis.

STOMA'CHICA (from στομαχος, the *stomach)*; stomachics, or medicines suited to excite and strengthen the action of the stomach. Dr. Cullen says, he is at a loss to determine how far this term, so frequently employed, could be properly rejected; but he is persuaded that it ought, for the same reason as other too general terms.

STONE. See Calculus.

STONE-CROSS. See Illecebra.

STO'RAX (of the Gr. στοϱαξ). See Styrax and Liquidamera.

STORAX, WHITE. See Balsamum Peruvianum.

STRABI'SMUS (of the Gr. στραϐισμος, from στραϐιζω, to *squint)*; squinting, an affection of the eye, by which the person sees objects in an oblique manner, from the axis of vision being distorted. Dr. Cullen arranges this disease in the class *locales*, and order *dyscinesiæ*.

1. This disease may proceed *from custom and habit*; while in the eye itself, or in its muscles, nothing is preternatural or defective.

Thus children, by imitating those that squint, and infants, by having many agreeable objects presented to them at once, which invite them to turn one eye to the one and the other eye to another, do frequently contract a habit of moving their eyes differently, which afterwards they cannot so easily correct. Infants likewise get a custom of squinting, by being placed obliquely towards a candle, window, or any other agreeable object capable of attracting their sight: for though, to see the object, they may at first turn both eyes towards it, yet, because such an oblique situation is painful and laborious, especially to the most distant eye, they soon relax one of the eyes, and content themselves with examining it with the eye that is next it, whence arises a diversity of situation, and a habit of moving the eyes differently.

In this case, which may admit of a cure, if not too much confirmed, it is evident, that objects will be seen in the same place by both eyes, and therefore must appear single as to other men; but because in the eye that squints, the image of the object to which the other eye is directed, falls not on the most sensible and delicate part of the retina, which is naturally in the axis of the eye, it is easy to see that it must be but faintly perceived by this eye. Hence it is, that while they are attentive in viewing any object, if the hand be brought before the eye, this object will be but obscurely seen, till the eye change its situation, and have its axis directed towards it; which change of situation is indeed very easy for them, because it depends on the muscles of the eyes, whose functions are entire; but, by reason of the habit they have contracted of moving their eyes differently, the other eye is, at the same time, frequently turned aside, so that only one at a time is directed to the object. That all this may be the better perceived, for an object, cause them to look at the image of the upper part of your nose in a plane mirror, while you stand directly behind them, to observe the direction of their eyes.

2. The strabismus may proceed from a *fault in the first conformation*, by which the most delicate and sensible part of the retina is removed from its natural situation, which is directly opposite to the pupil, and is placed a little to one side of the axis of the eye; which obliges them to turn away the eye from the object they would view, that its picture may fall on this most sensible part of the organ. Whenever this is the case, the disease is altogether incurable; and the phenomena that arise therefrom, differ in nothing from the phenomena of the former case, excepting only that here, (1.) The object to which the eye is not directed, will be best seen; which is the reverse of what happens when the disease arises barely from habit or custom. (2.) No object will appear altogether clear and distinct; for all objects to which the eye is directed, by having their image painted on the retina at the axis of the eye, where it is not very sensible, will be but obscurely seen; and objects that are placed so far to one side of the optic axis, as is necessary for making their image to fall on the most sensible and delicate part of the retina, must appear a little confused, because the several pencils of rays that come therefrom fall too obliquely on the crystalline, to be accurately collected in so many distinct points of the retina: though it must be acknowledged, that this confusion will, for the most part, be so small as to escape unobserved.

3. This disease may proceed from *an oblique position of the crystalline*, where the rays that come directly to the eye from an object, and that ought to converge to the point of the retina, which is in the axis of the eye, are, by reason of the obliquity of the crystalline, made to converge to another point on that side of the visual axis, where the crystalline is most elevated; and, therefore, the object is but obscurely seen, because its image falls not on the retina at the axis of the eye, where it is most sensible: but the rays that fall obliquely on the eye, will, after refraction, converge to this most sensible part of the retina; and, by converging there, must impress the mind with a clearer idea of the object from whence they came. It is for this reason that the eye never moves uniformly with the other, but turns away from the object it would view, being attentive to the object to which it is not directed. When this is the case, it is in vain to expect any good from surgery.

The symptoms that naturally arise from it are, (1.) The object to which the eye is directed will be but faintly seen, because its image falls on the retina where it is not very sensible. (2.) The object to which the eye is not directed, by having its image painted on the retina at the axis of the eye, will be clearly perceived. But, (3.) This same object must appear somewhat indistinct, because the pencils of rays that flow from it, are not accurately collected in so many distinct points in the retina, by reason of their oblique incidence on the crystalline. (4.) It must be seen, not in its proper place, but thence translated to some other place, situated in the axis of vision. And, (5.) Being thus translated from its true place, where it is seen by the other eye that does not squint, it must necessarily appear double; and the distance between the places of its appearance will be still greater, if the crystalline of the other eye incline to the contrary side.

4. This disease may arise from an oblique position of the cornea; which in this case is generally more arched and prominent than what it is naturally. When the eye has this conformation, no object to which it is directed can be clearly seen, because its image falls not on the retina at the axis of the eye; and, therefore, the eye turns aside from the object it would view, that its image may fall on the most sensible part of the retina. When the strabismus proceeds from this cause, the prognostic, and the phenomena that attend it, will be much the same as in the case immediately preceding; from which, nevertheless, it may be distinguished by the obliquity of the cornea, which is manifest to the senses; and if the cornea be also more arched and prominent than what it is naturally, which is commonly the case, the eye will also be short-sighted.

5. This want of uniformity in the motion of our eyes, may arise from a defect, or any great *weakness or imperfection*, in the sight of both or either of the eyes; and this, according to Dr. Porterfield, is the most common cause of this disease. The prognostic in this case, is the same with that of the disease from which it proceeds.

6. Another cause from which the strabismus may proceed, lies *in the muscles* that move the eye. When any of those muscles are too short or too long, too tense or too lax, or are seized with a spasm or paralysis, their equilibrium will be destroyed, and the eye will be turned towards or from that side where the muscles are faulty. In this case the disease frequently yields to medicine, and therefore admits of a favourable prognostic: excepting only when, by a fault in the first conformation, any of the muscles are longer or shorter than their antagonists; in which case, if ever it should happen, no medicine can be of any use. As to what concerns the optical phenomena, they are the same here as in case first: only when the disease commences not till, by custom and habit, the uniform motion of the eyes has been rendered necessary, all objects do for some time appear double; but in time they appear single.

7. This want of uniformity in the motions of our eyes, may proceed from a *preternatural adhesion to the eye-lids:* of this we have an instance in Languis. And that the same thing may also be occasioned by a tumor of any kind within the orbit, pressing the eye aside, and restraining it from following the motions of the other, is so evident, that instances need not be brought to prove it. Here also the case may admit of a favourable prognostic; and as for what concerns the optical phenomena, they must be the same as in the case immediately preceding.

In confirmed cases, the cure is to be effected by mechanical contrivances, by which the person may be obliged to look straight upon objects, or not see them at all; or, at least, that he may see with uneasiness and confusedly when he squints. Dr. Darwin, in the 68th volume of the Phil. Trans. has given an account of a confirmed case of squinting of a very uncommon kind, in which the patient, a boy of five years old, viewed every object which was presented to him, with but one eye at a time. If the object was presented on his right side, he viewed it with his left eye; and if it was presented on his left side, he viewed it with his right eye. He turned the pupil of that eye, which was on the same side with the object, in such a direction, that the image of the object might fall on that part of the bottom of the eye where the optic nerve enters it. When an object was held directly before him, he turned his head a little to one side, and observed it with but one eye, viz. that most distant from the object, turning away the other in the manner above described; and when he became tired of observing it with that eye, he turned his head the contrary way, and observed it with the other eye alone, with equal facility; but never turned the axes of both eyes on it at the same time. The cure in this case was effected by the use of a paper gnomon.

STRAMO'NIUM (from *stramen*, straw; so called from its fibrous roots), the common thorn-apple: *Datura stramonium* Linn. *Datura pericarpiis spinosis erectis ovatis, foliis ovatis glabris.* Class, *Pentandria.* Order, *Monogynia.* This plant has been long known as a powerful narcotic poison. In its recent state it has a bitterish taste, and a smell somewhat resembling that of the poppy, when rubbed between the fingers. There have been many instances of the deleterious effects of this plant, and more particularly of the seeds. An extract prepared from the latter, is recommended by Stoerck in maniacal, epileptic, and convulsive affections.

STRANGU'RIA (στραγγυρια, from στραγξ, a *drop*, and υρον, *urine);* the strangury, or a difficulty of making water, attended with pain and dripping. In this the patient has a continual and violent desire of passing his urine; while, at the same time, only two or three drops can be produced at once, and that not without some pain. It is occasioned, even in healthy people, by some acrid substance taken into the stomach; and is very common to old people, who are generally subject to disorders of the kidneys and bladder. See Dysuria. It arises also frequently from a stone irritating the bladder (see Calculus), or from an inflammation of it, or from its being deprived of its natural mucus, or this last being somehow or other altered in its properties; or, lastly, from certain diseases or some particular state of the neighbouring parts, as of the uterus, vagina, urethra, prostate gland, &c. In the case of a simple or accidental strangury, it is generally sufficient to resort to a copious use of mucilaginous diluents, such as infusion of linseed, or barley-water, in which gum-arabic has been dissolved. In some cases nitre, and in others terebinthinate remedies, have been administered, with a view to wash off the irritating matter from the bladder, by an increased secretion from the kidneys; these last, however, are more frequently productive of mischief. A strangury, produced by the absorption of cantharides, in consequence of their application in blisters, may be remedied by the simple means first mentioned, and by mild opiates.

STRATIO'TES (στρατιωτης, from στρατος, an *army*, so named from its supposed virtues in healing recent wounds, and its consequent usefulness to soldiers.) See Millefolium.

STRAWBERRY. See Fragaria.

STRO'BILUS, in botany, a cone. It is a species of *pericarpium*, or seed-vessel, formed from an *amentum*, as in fir-trees.

STRO'NTIA, a mineral substance, which was for some time confounded with barytes, having indeed a great many of the properties of the latter. Strontia exists in a fossil state, and was first discovered at *Strontian*, in Argyleshire in Scotland, from whence it takes its name. It is found united to carbonic acid, forming what is called carbonate of strontia. This mineral is somewhat transparent; but it has, in general, a yellow or greenish tinge. Combined with sulphuric acid, it constitutes the mineral called sulphate of strontia. This fossil is of a reddish or flesh colour. It has been found lately in the vicinity of Bristol, and has also been met with in Pennsylvania.

Pure strontia has a caustic taste, changes blue vegetable colours green, and unites oil with water. It attracts carbonic acid strongly from the atmosphere, becomes slaked, and swells up. It heats much and hardens strongly with water. It is not fusible by the blow-pipe, but becomes extremely phosphorescent. It tinges the flame of burning bodies carmine-red, if moisture be present. It is soluble in 200 parts of water, at the common temperature: boiling water dissolves it readily; and the solution on cooling shoots into regular crystals; these are thin quadrangular plates, sometimes square, oftener parallelograms. It has a great attraction for acids, but adheres to them with less force than barytes, and even with less than potash and soda. It combines with combustible bodies, such as sulphur, phosphorus, &c. That it is not poisonous to animals, has been shewn by experiment; but whether it admits of any medicinal application, has not been ascertained. Strontia may be obtained from its native combinations by processes similar to those by which barytes is obtained. See Barytes.

STRO'PHULUS, the name of a papulous eruption, which is peculiar to infants. This disease exhibits a variety of forms, which have been described by Dr. Willan, under the titles of *intertinctus, albidus, confertus, volaticus*, and *candidus*. We shall here give the author's account of them:

1. *Strophulus Intertinctus.* This is usually called, by our nurses, the *red-gum;* and by the French, *efflorescence benigne.* The papulæ characterising this affection, rise sensibly above the level of the cuticle, are of a vivid red colour, and commonly distinct from each other. Their number and extent vary much in different cases. They appear most constantly on the cheeks, fore-arm, and back of the hand; but are sometimes diffused over the whole body. The papulæ are, in many places, intermixed with stigmata, and often with red patches of a larger size, which do not, however, occasion any elevation of the cuticle. A child's skin thus variegated, somewhat resembles a piece of

red printed linen; and hence this eruption was formerly called the *red gown*, a term which is still retained in several counties of England, and may be found in old dictionaries. Medical writers have changed the original word for one of a similar sound, but not more significant. The *strophulus intertinctus* has not, in general, any tendency to become pustular; a few small pustules, containing a straw-coloured watery fluid, occasionally appear on the back of the hand, but scarcely merit attention, as the fluid is always re-absorbed in a short time, without breaking the cuticle. The eruption usually terminates in scurf, or exfoliation of the cuticle; its duration, however, is very uncertain, the papulæ and spots sometimes remain for a length of time, without an obvious alteration, sometimes disappear and come out again daily; but, for the most part, one eruption of them succeeds another, at longer intervals, and with more regularity. This complaint occurs chiefly within the first two months of lactation. It is not always accompanied with, or preceded by, any disorders of the constitution; but appears occasionally in the strongest and most healthy children. Some authors connect it with aphthous ulcerations, common in children, supposing the latter to be a part of the same disease, diffused along the internal surfaces of the mouth and intestines. The fact however seems to be, that the two affections alternate with each other; for those infants, who have the papulous eruption on the skin, are less liable to aphthæ; and when the aphthæ take place to a considerable degree, the skin is generally pale and free from eruption. The *strophulus intertinctus* is, by most writers, said to originate from an acidity, or acrimonious quality of the milk taken into a child's stomach, communicated afterwards to the blood, and stimulating the cutaneous excretories. This opinion might, without difficulty, be proved to have little foundation. The pre-disposition to the complaint, may be deduced from the delicate and tender state of the skin; and from the strong determination of blood to the surface, which evidently takes place in infants. The papulous eruption is, in many cases, connected with a weak, irritable, state of the alimentary canal, and consequent indigestion. For if it be, by any means, suddenly repelled from the surface, diarrhœa, vomiting, spasmodic affections of the bowels, and often general disturbance of the constitution, succeed; but as soon as it re-appears, those internal complaints are wholly suspended. The most violent, and even fatal symptoms, have often been the consequence of an imprudent exposure to cold.

2. *Strophulus Albidus.* This is, by some, termed the *white-gum;* but it is merely a variety of strophulus intertinctus. It deserves however some notice, on account of the different appearance of its papulæ. In place of those that characterise the red-gum, there is a number of minute whitish specks, a little elevated; and sometimes, though not constantly, surrounded by a slight redness. These papulæ, when their tops are removed, do not discharge any fluid; it is however probable, that they are originally formed by the deposition of a fluid, which afterwards concretes under the cuticle. They appear chiefly on the face, neck, and breast, and are more permanent than the papulæ of the red-gum. In other respects, they have the same nature and tendency, and require a similar plan of treatment. Although a distinctive name has been applied to this eruption, when occurring alone, yet it is proper to observe, that in a great number of cases, there are red papulæ and spots intermixed with it, which prove its connection with the strophulus intertinctus.

3. *Strophulus Confertus;* an eruption of numerous papulæ, varying in their sizes. It appears on different parts of the body in infants during dentition, and has thence been denominated the tooth-rash: nurses sometimes term it the *rank red-gum.* About the fourth or fifth month after birth, an eruption of this kind usually takes place on the cheeks and sides of the nose, extending sometimes to the forehead and arms, but rarely to the trunk or body. The papulæ on the face are smaller, and set more closely together than in the red-gum; their colour is not so vivid, but they are generally more permanent. They terminate at length with slight exfoliations of the cuticle, and often appear again in the same places, a short time afterwards. The papulæ which, in this complaint, occasionally appear on the back or loins, are much larger, and somewhat more distant from each other, than those on the face. They are often surrounded by an extensive circle of inflammation, and a few of them contain a semi-pellucid watery fluid, which is re-absorbed when the inflammation subsides. In the seventh or eighth, the strophulus confertus assumes a somewhat different form: one or two large irregular patches appear on the arms, shoulder, or neck; in which the papulæ are hard, of a considerable size, and set so closely together, that the whole surface is of a high red colour. Most commonly the fore-arm is the seat of this eruption, the papulæ rising first on the back of the hand, and gradually extending upwards along the arm. Sometimes, however, the eruption commences at the elbow, and proceeds a little upwards and downwards on the outside of the arm. It arrives at its height in about a fortnight; the papulæ then begin to fade, and become flat at the top; afterwards the cuticle exfoliates from the part affected, which remains discoloured, rough, and irregular, for a week, or perhaps longer.

Now and then an obstinate and very painful modification of this disease takes place, on the lower extremities. The papulæ spread from the calves of the legs to the thighs, nates, loins, and round the body, as high as the navel: being very numerous and close together, they produce a continuous redness over all these parts. The cuticle presently becomes shrivelled, cracks in various places, and finally separates from the skin in large pieces. During this process a new cuticle is formed, notwithstanding which the complaint recurs in a short time, and goes through the same course as before. In this manner successive eruptions take place, during the course of three or four months, and perhaps do not cease till the child is one year old, or somewhat more. Children necessarily suffer great uneasiness from the heat and irritation occasioned by so extensive an eruption; yet, while they are affected with it, they often remain free from any internal or febrile complaint. This appearance should be distinguished from the intertrigo of infants, which exhibits an uniform, red, smooth, shining surface, without papulæ; and which affects only the lower part of the nates and inside of the thighs, being produced by the stimulus of the urine, &c. with which the child's clothes are almost constantly wetted. The strophulus confertus, where the child is otherwise healthy, is generally ascribed to a state of indigestion, or some feverish complaint of the mother or nurse. Dr. Willan however asserts, that he has more frequently seen the eruption, when no such cause was evident. It may, with more probability, be considered as one of the numerous symptoms of irritation, arising from the inflamed and painful state of the gums in dentition: since it always occurs during that process, and disappears soon after the first teeth have pierced the gums.

4. *Strophulus Volaticus.* This species is characterised by an appearance of small circular patches, or clusters of papulæ, arising successively on different parts of the body. The number of papulæ in each cluster, is from six to twelve. Both the papulæ and their interstices, are of a high red colour. These patches continue red, with a little heat or itching, for about four days, when they turn brown, and begin to exfoliate. As one patch declines, another appears at a small distance from it; and in this manner the complaint often spreads gradually over the face, body, and limbs, not terminating in less than three or four weeks. During that time, the child has sometimes a quick pulse, a white tongue, and seems uneasy and fretful. In many cases, however, the eruption takes place, without any symptoms of internal disorder. The above complaint has been, by some writers, denominated *ignis volaticus Infantum:* under this title, Astruc and Lorry have described one of the forms of crusta lactea; in which a successive eruption of pustules takes place on the same spot, generally about the mouth or eyes, in children of different ages, and sometimes in adults. The *maculæ volaticæ infantum*, mentioned by Wittichius, Sennertus, and Sebizeus, agree in some respect with the strophulus volaticus; but they are described by other German authors as a species of erysipelas, or as irregular efflorescences, affecting the genitals of infants, and often proving fatal. The strophulus volaticus is a complaint by no means frequent. In most cases which have come under Dr. Willan's observation, it appeared between the third and sixth month; in one instance, however, it occurred about ten days after birth, and continued three weeks, being gradually diffused from the cheeks and forehead to the scalp, afterwards to the trunk of the body, and to the extremities; when the patches exfoliated, a red surface was left, with a slight border or boundary of detached cuticle.

5. In the *Strophulus Candidus*, the papulæ are larger than in any of the foregoing species. They have no inflammation round their base; their surface is very smooth and shining, whence they appear to be of a lighter colour than the adjoining cuticle. They are diffused, at a considerable distance from each other, over the loins, shoulders, and upper part of the arms; in any other situation they are seldom found. This eruption affects infants about a year old, and most commonly succeeds some of the acute diseases to which they are liable. Dr. Willan observed it on their recovery from catarrhal fevers, and after inflammations of the bowels or lungs. The papulæ continue hard and elevated for about a week, and then gradually disappear.

STRU'MA (from *struo*, to heap up), a term applied by some authors to scrofula in general, and by others exclusively to an induration of the thyroid gland, which is endemial to the Tyrolese and Swiss.

STRU'THIUM (*ϛρȣθιον*, from *στρυθος*; a *sparrow*, so named from the resemblance of its flowers to an unfledged sparrow), the herb master-wort or soap-wort. See Imperatoria.

STRY'CHNOS NUX VOMICA; the systematic name of the tree whose seed is called the *poison-nut.* See Nux vomica.

STRY'CHNOS VOLU'BILIS; the systematic name of the tree which is supposed to afford the Jesuit's-bean. See Faba Indica.

STUPE, a piece of cloth, dipped in some medicinal liquor, and applied to an affected part. It is synonimous with *fomentation.*

STU'POR (from *stupeo*, to be senseless), insensibility to external impressions.

STYE, or Stian, called by the French *L'orgelet;* a species of tumor very frequently seen, and exceedingly liable to return in those who have been once affected with it. It is considered by Scarpa as a particular species of inflammation. The disease commences in the skin, extends by degrees into the cellular membrane, and surrounds and deadens a part of it. The tumor becomes circumscribed, and forms a hard painful swelling, which although considerably elevated above the skin, contains only coagulated lymph, and the disorganised mortified portion of the cellular membrane. It does not suppurate unless in a very imperfect manner, and when that happens, it does not take place in the centre of the tumor, but all round it. The skin generally ulcerates in one or more places, and opening, there escapes through the aperture a small quantity of serum, and soon afterwards the portion of mortified cellular membrane which formed the nucleus of the small tumor.

Except at the very commencement of the disease, some surgeons think it improper to attempt the cure by resolution; but when the skin alone is affected, cold metal or ice applied to the apex of the tumor is the most useful remedy. When it has advanced, so that the cellular membrane is affected, the best mode of treatment is the use of fomentations, and the application of emollient poultices.

With regard to the more indolent species of tumors which frequently grow on the eye-lids, extirpation is recommended as the only remedy; and as they are more commonly connected with, and adhere closer to the inner membrane than external skin, it is advisable to remove them from the inside of the eye-lid. This operation is not, however, necessary, unless the tumors grow so large as to become a deformity, impair vision, or encircle important organs; for cases have occurred, where such tumors have disappeared after remaining for many years; and others where they have undergone no change whatever, and have been the source of little or no distress for a long time after their first formation.

STYLE (from στυλος, *columna*, a *pillar)*, in botany, that part of the pistillum which elevates the stigma from the germen. Linnæus, in his Gen. Plant. assimilates this organ to the vagina, or Fallopian tubes, in the females of the animal creation.

STYLIFO'RMIS (from *stylus*, a bodkin, and *forma*, likeness), shaped like a bodkin or style.

STY'LO. Anatomical names compounded of this word, belong to muscles which are attached to the styloid process of the temporal bone; as in the following cases:

STYLO-GLO'SSUS, a muscle, which is situated between the lower jaw and the os hyoides laterally, and which draws the tongue aside and backwards. It arises tendinous and fleshy from the styloid process, and from the ligament which connects that process to the angle of the lower jaw, and is inserted into the root of the tongue, runs along its sides, and is insensibly lost near its tip.

STYLO-HYOIDE'US, a muscle, situated between the lower jaw and the os hyoides laterally. This is a small, thin, fleshy muscle, situated between the styloid process and os hyoides, under the posterior belly and middle tendon of the digastricus near the upper edge of that muscle. It arises, by a long thin tendon, from the basis and posterior edge of the styloid process, and, descending in an oblique direction, is inserted into the lateral and anterior part of the os hyoides, near its horns. Its fleshy belly is usually perforated, on one or both sides, for the passage of the middle tendon of the digastricus. Now and then there is another smaller muscle placed before the stylo-hyoideus, which, from its having nearly the same origin and insertion, and the same use, has been called *stylo-hyoideus alter.* It arises from the apex of the styloid process, and sometimes, by a broad and thin aponeurosis, from the inner and posterior part of the angle of the lower jaw, and is inserted into the appendix or little horn of the os hyoides. Both these muscles pull the os hyoides to one side, and a little upwards.

STYLO-HYOIDE'US ALTER. See STYLO-HYOIDEUS.

STYLO-MASTOID FORAMEN, a hole between the styloid and mastoid process of the temporal bone, through which the portio dura of the auditory nerve passes to the temples.

STYLO-PHARYNGE'US, a muscle, situated between the lower jaw and os hyoides laterally, which dilates and raises the pharynx and thyroid cartilage upwards. It arises fleshy from the root of the styloid process, and is inserted into the side of the pharynx and back part of the thyroid cartilage.

STY'PTICA (of the Gr. ςυφω, to *constringe)*, a term given to those substances which possess the power of stopping hæmorrhages, such as turpentine, alum, vitriolated iron, &c. Under the name of *pulvis sulphatis aluminæ compositus*, the Edinburgh College direct the following styptic powder:

Take of Sulphate of alumina (common alum), four parts;
Kino, one part.
Rub them together to a fine powder.

This powder is composed of two very powerful astringents, but which, as Dr. A. Duncan justly observes, are not combined with propriety: at least, it is certain, that a solution of alum is decomposed by a solution of kino.

This College also retains their former *Styptic Water*, under the name of

SOLUTIO SULPHATIS CUPRI COMP.

Take of Sulphate of copper,
Sulphate of alumina, of each three ounces,
Water, two pounds;
Diluted sulphuric acid, an ounce and a half.
Boil the sulphates in the water to dissolve them, and then add the acid to the liquor, after being filtered through paper.

Dr. A. Duncan says, that in this preparation, the substances dissolved in the water exert no chemical action on each other. The composition, he thinks, was probably contrived from the false idea, that the sum of the powers of substances having similar virtues, was increased by mixing them with each other.

When the powder is used, it must be applied dry. As a styptic for stopping bleedings at the nose, and other purposes, cloths or dossils, steeped in the liquid preparation, are to be applied to the part.

STY'RAX (from στυραξ, a *reed*, in which it was formerly preserved), *Styrax calamita*, or the officinal storax; *Styrax officinalis* Linn. *Styrax foliis ovatis, subtus villosis, racemis simplicibus folio brevioribus.* Hort. Kew. Class, *Decandria*. Order, *Monogynia*. There are two kinds of storax to be found in the shops; the one is usually in irregular compact masses, free from impurities, of a reddish brown appearance, and interspersed with whitish tears, somewhat like gum-ammoniac or benzoin: it is extremely fragrant, and upon the application of heat readily melts. This has been called *storax in lump*, *red storax;* and in separate tears, *storax in tears*. The other kind, which is called the *common storax*, is in large masses, very light, and bears no external resemblance whatever to the former storax, as it seems almost wholly composed of dirty saw-dust, caked together by resinous matter. Storax has been advantageously used in catarrhal complaints, coughs, asthmas, obstructions, &c. but in the present practice it is almost totally disregarded. It is an efficacious remedy however in nervous diseases, and the now rejected opiate *Pil. è Styrace*, is an excellent one in certain cases, as many practitioners know from experience.

The *Styrax purif.* Lond. Dubl. *Tinct benzo. comp.* Lond. Edin. are the only officinal preparations of this substance now sanctioned by authority.

STY'RAX ALBA. See BALSAMUM PERUVIANUM.

STY'RAX BENZOIN; the systematic name of the tree which affords the gum benzoin. See BENZOIN.

STY'RAX LI'QUIDA. See LIQUIDAMBRA.

STY'RAX OFFICINA'LIS; the systematic name of the tree which affords the solid styrax. See STYRAX.

SUBCLAVIAN ARTERY (from *sub*, under, and *clavis*, a key, because the clavicles were supposed to resemble the key of the ancients). The subclavian on the right side arises from the arteria innominata, and proceeds under the clavicle to the axilla. The left subclavian artery arises from the arch of the aorta, and ascends under the left clavicle to the axilla. These vessels, in their course, give off the internal mammary, the cervical, the vertebral, and the superior intercostal arteries.

SUBCLA'VIUS, the name of a muscle, which is situated on the anterior part of the thorax. Its office is to pull the clavicle downwards and forwards. It arises tendinous from the cartilage that joins the first rib to the sternum, is inserted, after becoming fleshy, into the inferior part of the clavicle, which it occupies from within an inch of the sternum, as far outwards as to its connection, by a ligament, with the coracoid process of the scapula.

SU'BER, the cork-tree; *Quercus suber* Linn. The fruit of this tree, which is sweet and more nutritious than our acorns, is often eaten, when roasted, in some parts of Spain. The bark, called cork when burnt, is employed as an astringent application to bleeding piles; and pessaries and other chirurgical instruments are also made of this useful substance. See PESSARY.

SUBJECT, in anatomy, an animal body on which the operations of dissection are to be performed. See DISSECTION.

SUBLIMATE, or *Corrosive sublimate;* the old name for muriated mercury. See HYDRARGYRUS MURIATUS.

SUBLIMATION (from *sublimo*, to raise or sublime), a chemical process usually performed either for the purpose of purifying certain substances, and disengaging them from extraneous matters; or else to reduce them into vapour, and combine, under that form, principles which would have united with greater difficulty if they had not been brought to that state of extreme division.

As all fluids are volatile by heat, and consequently capable of being separated, in most cases, from fixed matters, so various solid bodies are subjected to a similar treatment. Sublimation differs from distillation only in the form of the product. When it is compact, it is termed a *Sublimate;* when loose and spongy, it formerly had the improper appellation of *Flowers.* Sublimation is sometimes performed in a crucible, and the vapours are condensed in a paper cone, or in another crucible inverted over it; sometimes in the lower part of the glass flask, cucurbit, or phial, and the condensation is effected in the upper part or capital, and sometimes in a retort with a very short and wide neck, to which a conical receiver is fitted. The heat is most commonly applied through the medium of a sand-bath; and the degree of heat, and the depth to which the vessel is inserted in it, are regulated by the nature of the sublimation.

SUBLI'MIS, a muscle of the foot. See FLEXOR BREVIS DIGITORUM PEDIS, and FLEXOR SUBLIMIS PERFORATUS.

SUBLINGUA'LES GLANDULÆ, the sublingual glands, or those which are situated under the tongue. These secrete saliva. Their excretory ducts are called *Riverian*, from the name of their discoverer.

SUBLUXA'TIO, a sprain. Sprains are always attended with inflammation, and often with an ecchimosis. Some have used this term to denote a bone, so far out of joint, as to rest on the edge of the socket.

SUBME'RSIO (from *sub*, under, and *mergo*, to sink), submersion or drowning. See RESUSCITATION.

SUBSCAPULA'RIS (from *sub* under, and *scapula*, the shoulder-blade), a muscle, whose name sufficiently indicates its situation. It is composed of several fasciculi of tendinous and fleshy fibres, the marks of which are seen imprinted on the under surface of the scapula. These fasciculi arise from all the basis of that bone internally, and likewise from its superior, as well as from one half of its inferior, costa, and unite to form a considerable flat tendon which adheres to the capsular ligament, and is inserted into the upper part of the lesser tuberosity at the head of the os humeri. The office of this muscle principally is to roll the arm inwards. It likewise serves to bring the arm close to the ribs; and, from its adhesion to the capsular ligament, it prevents that membrane from being pinched in the motions of the joint.

SUBSU'LTUS TE'NDINUM (*Subsultus*, from *subsulto*, to leap), a weak convulsive motion or twitching of the tendons, mostly of the hands, generally observed as a fatal symptom in the extreme stages of typhous fever.

SU'CCINAS AMMONI'ACÆ. See SPIRITUS AMMONIÆ SUCCINATUS.

SU'CCINATES, the salts formed by the combination of the acid of amber, or succinic acid, with different bases; as in the *succinates of potash*, *ammonia*, &c. See SUCCINIC ACID.

SUCCINIC ACID, or *Acid of Amber.* This acid exists in a solid form. Its crystals are colourless, four-sided oblique plates, which are permanent in the air. It has a strong acid taste. It is soluble in twenty-four parts of cold, and in two of boiling water. It is slightly soluble in alcohol, and is volatilised by heat. To obtain this acid, fill a matrass half full of amber, lute to it an alembic, and distil with a gradual heat, till drops of oil fall from the beak of the alembic. Then separate the solid acid which has sublimed, dissolve it in water, filter the solution, and suffer it to crystallise. Repeat these latter operations till the salt is nearly colourless.

The salts formed by succinic acid, are termed *succinates;* but their properties are very little known. The succinates of potash, soda, ammonia, or lime, may be obtained, by dissolving these alkalies to saturation in succinic acid, evaporating the solution, and setting it aside to crystallise. Succinate of magnesia is obtained in a similar manner, but it does not crystallise.

SU'CCINUM (from *succus*, juice, because it was thought to exude from a tree. For an account of this substance, see Amber. The only officinal preparations of it are:—*Acid. et Ol. succin.* Lond. Edin. Dubl. *Succin. præp.* Lond.

SU'CCINUM CINE'REUM. By this name ambergrise is called by some authors. See Ambragrisea.

SU'CCINUM GRI'SEUM; another name for ambergrise. See Ambragrisea.

SU'CCINUM PREPARA'TUM; prepared amber. See Amber. The salt and oil of amber are sometimes applied to the pit of the stomach, in the form of a liniment, for the hooping-cough.

SUCCULE'NTÆ (from *succus*, juice), in botany, an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus. It contains several genera, as the melon-thistle, &c.

SU'CCUS, juice; the fluid part of a plant, or its fruit, extracted by first pounding or bruising it, and afterwards subjecting it to strong pressure. The *inspissated juices*, prepared under the direction of our pharmacopœias, supply a very convenient form for the exhibition of those substances which are sufficiently succulent, and whose virtues do not reside in any very volatile matter. By inspissation, the bulk of the medicine is very much diminished; it is reduced to a form convenient for making up into pills, and is much less apt to spoil than the recent juices. This mode of preparation is not yet, however, reduced to fixed principles. Some direct the juices to be inspissated as soon as they are expressed; others allow them previously to undergo a slight degree of fermentation; some defecate them before they proceed to inspissate them; and, lastly, Baumé prepares his elaterium, by inspissating the defecated juice of the wild cucumber; while our colleges give the same name to the matter which subsides from it. The nature of the soil, of the season, and many other circumstances, must materially alter the quantity or nature of the product. In moist years, Baumé got from thirty pounds of elder berries, four or five pounds of inspissated juice, and in dry years only two, or two and a half. From hemlock he got in October, 1769, $\frac{1}{12.5}$ of inspissated juice; and in May, of the same year, only $\frac{1}{28.5}$: on the contrary, in August, 1768, $\frac{1}{21.4}$; and in May, 1770, $\frac{1}{15}$; but, in general, the product in the autumn months was greatest. Hyosciamus gave him about $\frac{1}{22.5}$, and belladonna $\frac{1}{14}$.

SU'CCUS GA'STRICUS, the gastric juice; one of the secretions of the stomach. See Stomach, and Gastric juice.

SU'CCUS LIMO'NIS SPISSA'TUS. See Limon.

SUDA'MINA (from *sudor*, sweat); called also by the names of *Hidrou* and *Boa;* a term used to denote vesicles, resembling millet-seeds in form and magnitude, which appear suddenly, without fever, especially in the summer-time, after profuse sweating, in consequence of bodily exertion.

SUDA'TIO (from *sudor*, sweat); a sweating. See Ephidrosis.

SUDORI'FICA (from *sudor*, sweat, and *facio*, to make); a term synonimous with Diaphoretica. See Diaphoretica.

SUGAR. See Saccharum.

SUGAR OF MILK, a substance procured from whey; which, if not sour, contains a saline substance, to which this name has been given. The process by which this saline substance is produced, has been described by Valgamoz and Lichtenstein, and is this:—The milk is deprived of its cream in the usual manner, and of its curd by rennet. It is then concentrated by evaporation, till it has acquired the consistence of honey; after which it is put into moulds, and dried in the sun. This is called *Sugar of Milk in Cakes.* These cakes are dissolved in water, clarified with white of egg, evaporated to the consistence of syrup, and set to crystallise in a cool place. White crystals, in the form of rhomboidal parallelopipedons, are soon produced. Sugar of milk has a slightly saccharine taste, insipid, and as it were earthy. It is soluble in three or four parts of hot water. From one pound of this salt when burned, M. Rouelle obtained from twenty-four to thirty grains of ashes. Three-fourths consisted of muriate of pot-ash, and the rest was carbonate of potash. M. Chaptal obtained the oxalic acid, by treating the sugar of milk with the nitric acid. Mr. Scheele also procured five drachms of acid of sugar in long crystals, by distilling nitrous acid from twelve ounces of sugar of milk, and seven drachms and a half of the peculiar *Acid of Sugar of Milk* in a white powder.

SU'LCUS, in anatomy, a groove or furrow; generally applied to the bones.

SU'LPHAS, a sulphat, or sulphate. See Sulphates. Various officinal remedies are found in our modern pharmacopœias under this title, as in the following instances:

SU'LPHAS ALU'MINÆ, common alum. See Alum.

SU'LPHAS AMMO'NIÆ, *Vitriolum ammoniacale;* the *Alkali volatile vitriolatum* of Bergman, and *Sal ammoniacum secretum* of Glauber. This salt has been found native in the neighbourhood of some volcanoes. As a diuretic and deobstruent, it has been exhibited in the same diseases as the muriate of ammonia. See Ammonia muriata.

SU'LPHAS CU'PRI, *Vitriolum cupri*, *Vitriolum cæruleum*, vel *Romanum;* the *Cuprum vitriolatum* of the London Pharmacopœia. The sulphat of copper possesses acrid and styptic qualities; is powerfully tonic, emetic, astringent, and escharotic, and is exhibited internally in the cure of dropsies, hæmorrhages, and as a speedy emetic in cases of poison. Externally, it is applied as a styptic to the hæmorrhoids; as a caustic, to phagedenic ulcers, proud flesh, and condylomata; and in the form of injection, in leucorrhœa, gonorrhœa, &c.

SU'LPHAS CU'PRI AMMONIACA'LIS, or *Cuprum ammoniacale;* a preparation of copper, which possesses considerable astringent and antieleptic virtues. With these views, it is given internally in the cure of weakness of the primæ viæ, intermittents, epilepsies, and hysterical affections.

SULPHATES, or Sulphats; salts formed by the combination of the sulphuric acid with different bases; as, *sulphate of alumine*, *sulphate of iron*, &c.

All the sulphates are insoluble in alcohol; their solutions are decomposed by a solution of barytes; they become converted into sulphurets by ignited charcoal at high temperatures, but they are undecomposable by mere heat. Mr. Accum describes the following methods of obtaining sulphates:

Sulphate of *potash, soda,* or *ammonia,* may be obtained by saturating these alkalies with sulphuric acid, evaporating the solution and crystallising it. Sulphate of magnesia, and sulphate of alumine, may be produced in a similar manner. Sulphate of lead may be obtained, by pouring sulphuric acid into a solution of acetite of lead: the sulphate of lead precipitates. Sulphate of zinc is produced, by dissolving this metal in diluted sulphuric acid; with subsequent evaporation and crystallisation. Sulphate of nickle, sulphate of bismuth, and sulphate of cobalt, are produced by dissolving the metals, by the assistance of heat, in sulphuric acid, and proceeding as before.

Sulphate of *iron* is obtained, by dissolving iron filings in diluted sulphuric acid, evaporating the solution and subsequent crystallisation. This salt, if exposed to the air, soon becomes covered with a yellowish crust, because it absorbs more oxygen, and becomes partially converted into an oxy-sulphate of iron, which is of a red colour, uncrystallisable, and soluble in alcohol; it may be deprived of its excess of oxygen, by passing a current of sulphurated hydrogen gas through it.

SULPHITES, salts formed by the combination of the sulphureous acid with different bases; such as, *sulphite of iron, of ammonia,* &c.

All the salts of this class yield sulphur, and are converted into *sulphates* by heat. The nitric and oxygenated muriatic acids also, convert them into *sulphates.* The following are the methods used for obtaining sulphites:—The sulphites of *potash, soda, ammonia, barytes,* or *lime,* may be obtained, by receiving a stream of sulphureous acid gas into a concentrated solution of the base employed, and then evaporating it for crystallisation. Sulphate of *magnesia* is produced, by saturating carbonate of magnesia with sulphureous acid. Sulphite of ammonia and magnesia is obtained, by mingling together solutions of sulphite of magnesia and sulphite of ammonia. Sulphite of *lead* may be produced, by dissolving carbonate of lead in the sulphureous acid. Sulphite of *bismuth,* and sulphite of *antimony,* are precipitated, by pouring sulphureous acid into muriate of antimony or bismuth. Sulphite of *iron* may be formed in a direct manner.

SU'LPHUR, brimstone; a combustible, dry, very brittle substance, of a lemon-yellow colour, insoluble in water, destitute of smell unless heated, and of a peculiar faint taste. It becomes electric by friction. The earth abounds with sulphur, both pure and in a state of combination. The general name of *sulphur,* or *flowers of sulphur,* is given to the *sulphur sublimatum* of the pharmacopœias. Sublimed sulphur is never prepared by the apothecary. This has the form of a very fine powder, having a beautiful yellow colour. It often is contaminated with a little sulphuric acid, formed during the process, from which it is easily freed by washing. As an internal medicine, pure sulphur loosens the belly, and promotes insensible perspiration. It seems even to pass through the whole habit, and manifestly transpires through the pores of the skin; as appears from the sulphureous smell of persons who have taken it, and from silver being stained in their pockets of a blackish colour, which is the known effect of sulphureous fumes. It is a celebrated remedy against cutaneous and asthmatic diseases, particularly in catarrhs of the chronic kind; and it is frequently used with great advantage in hæmorrhoidal affections, to keep the belly moderately loose.

The officinal preparations are:—*Sulph. sub. lot.* Edin. Lond. Dubl. *Sulph. potas. cum sulph.* Edin. *Sulph. potas.* Edin. Lond. Dubl. *Hydro-sulph. ammon.* Edin. *Sulph. hydr. nigr.* Edin. Lond. Dubl. *Hyd. sulph. rub.* Lond. Dubl. *Oleum sulph.* Edin. Lond. *Petrol. sulph.* Lond. *Ung. sulph.* Edin. Lond. Dubl.

SU'LPHUR ANTIMONII PRÆCIPITATUM, or *Sulphur auratum antimonii;* a preparation of antimony, which appears to have superseded that called *Kermes mineral.* It is a yellow red hydro-sulphuret of antimony, and therefore called *hydro-sulphuretum stibii luteum* in the new chemical nomenclature. As an alterative and sudorific, it has been long in estimation. It is given in diseases of the skin and glands; and, joined with calomel, it is one of the most powerful and penetrating alteratives we are in possession of.

SU'LPHUR AURA'TUM ANTIMONII. See SULPHUR ANTIMONII PRÆCIPITATUM.

SU'LPHUR PRÆCIPITA'TUM, formerly called *Lac sulphuris.* This is made by decomposing sulphurated kali by means of sulphuric acid, washing the powder which falls down, and drying it for use. This preparation is often preferred to the common flowers of sulphur, in consequence of its being freed from its impurities.

SULPHURATED HYDROGEN GAS. This gas possesses the properties of an acid; for when absorbed by water, its solution reddens vegetable blues; it combines also with alkalies, earths, and with several metallic oxids. It has an extremely offensive odour, resembling that of rotten eggs. It is destructive to animals, and extinguishes burning bodies. When mixed with oxygen gas, or atmospheric air, it is inflammable; and if mingled with nitrous gas, it burns with a yellowish green flame. It is decomposed by ammonia, by oxygenated muriatic acid gas, and by sulphureous acid gas. It has a strong action on the greater number of metallic oxyds. Its specific gravity to common air, is as 1106 to 1000. It is composed, according to Thenart, of 70.857 sulphur, and 29.143 hydrogen. It has the property of dissolving a small quantity of phosphorus. Though sulphur makes no alteration on water, which proves that sulphur has less attraction for oxygen than hydrogen has, yet if sulphur be united to an alkali, this combination decomposes water whenever it comes into contact with it, though the alkali itself has no attraction either for oxygen or hydrogen.

SULPHURWORT. See PEUCEDANUM.

SULPHUREOUS ACID, called by the different names of *Phlogisticated vitriolic acid, Volatile sulphuric acid, Sulphurous acid,* and *Volatile acid of vitriol.* This constitutes the imperfect degree of oxygenation of sulphur; that is to say, the sulphur is not fully saturated with oxygen. Sulphureous acid naturally exists in the gaseous state. Its acid properties are not considerable. It does not redden blue vegetable colours; but, on the contrary, renders them white. It exerts little action on metallic substances, and has a feeble attraction for the alkalies and earths. It is exceedingly volatile, and assumes the state of gas, if moisture be excluded. See SULPHUREOUS ACID GAS.

In order to prepare sulphureous acid, we are directed to take one part of mercury, and four of concentrated sulphuric acid. Put these into a retort, furnished with a receiver, and connected with Burkitt's or Pepys's apparatus. The sulphureous acid gas which is disengaged, is absorbed by the water in the vessel, and constitutes sulphureous acid. Sulphureous acid is, likewise, formed during the slow combustion of sulphur. The salts, formed by the combination of sulphureous acid with different bases, are called sulphites. See SULPHITES.

SULPHURETS, or SULPHURES; combinations of sulphur with different alkaline, earthy, and metallic bases. Thus we have the sulphurets of arsenic, of antimony, of nickel, lead, &c. The sulphurets of antimony, of quicksilver, and of potash, are articles in the Edinburgh New Dispensatory.

SULPHURIC ACID. Sulphur is capable of combining with two different proportions of oxygen: with the smaller quantity it forms *sulphureous*, with the larger *sulphuric*, acid. Sulphuric acid, popularly named *Oil of Vitriol*, or *Vitriolic Acid*, is in the form of a dense liquid, slightly viscid; it runs in *striæ*, like oil, when poured from one vessel into another. Its specific gravity is in general 1.85; at least it is prepared of that strength in some of our principal manufactures. In its pure state, it is colourless and void of odour. It is of considerable fixity in the fire, and requires a strong heat for ebullition. On being mingled with water, heat is instantaneously evolved. It is not altered by oxygen, nitrogen, or hydrogen gases. It combines with nitrous acid, and forms nitro-muriatic acid, a compound which dissolves silver, but scarcely any other metal. It is decomposable by a number of inflammable substances, which attract its oxygen. If brought in contact with any vegetable or animal matter, it is partially decomposed, and a quantity of carbon is disengaged, which gives the acid a brown or black colour. It oxydates and dissolves a number of the metals; either affording to them part of its oxygen, or enabling the metal to decompose the water which is present. It attracts water from the atmosphere.

Mr. Accum observes, that the sulphuric acid obtained from the manufacturers, is not perfectly pure, but always contains small quantities of sulphate of lead and sulphate of potash; from which it may be freed by re-distillation. The sulphuric acid, when united to alkalies, earths, &c. forms saline combinations called sulphates. See SULPHATES.

SULPHUREOUS ACID GAS. It is well known, that when sulphur is united to oxygen, it forms an acid. When the quantity of oxygen is sufficient to oxygenate a given quantity of sulphur completely, the result is a perfect acid called sulphuric acid. But if a less quantity of oxygen is made use of, the result is an imperfect acid, which is capable of taking the gaseous state; to this gaseous fluid, modern chemists have given the name of sulphureous acid gas. It becomes obvious from this, that sulphureous acid gas has the same relation to sulphuric acid, as phosphorous acid has to the phosphoric acid; at least this gas occupies the middle place between sulphur and sulphuric acid. In Vol. I. p. 318, of his System of Chemistry, Mr. Accum fully describes the properties of this gas, and the means of obtaining it.

SU'LPHURIS, FLO'RES. See SULPHUR.

SULTAN FLOWER; the *Centaurea moschata* Linn.

SU'MACH (*sumak*, from SAMAK, Heb. to be red; so called from the colour of its berry), the elm-leaved sumach; *Rhus coriaria; foliis pinnatis obtusis, caule serratis corolibus subtus villosis* of Linnæus. Class, *Pentandria*. Order, *Triginia*. This is a small tree, growing in the south of Europe; and the only species of the genus Rhus which is perfectly innocent, the others being actively poisonous. Both the leaves and berries are used medicinally, as astringents and tonics. The former are the most powerful, and have been long in common use, in situations where they may be easily obtained, for various complaints indicating this class of remedies. The berries are red, of a roundish compressed figure, and contain a pulpy matter, in which is lodged a brown, hard, oval seed, manifesting a considerable degree of astringency. The pulp, even when dry, is grateful, and has been discovered to contain an essential salt, similar to that of wood-sorrel. The dried fruit appears to be destitute of astringency. But its acidity is extremely grateful; therefore, like many other fruits, these berries may be advantageously taken to allay febrile heat, and to correct bilious putrescency.

SUN-DEW. See ROS SOLIS.

SUPE'RBUS. See RECTUS SUPERIOR OCULI.

SUPERCI'LIUM, the eye-brow. See EYE-BROW.

SUPERCI'LIUM VE'NERIS; a name formerly given to the milfoil or yarrow. See MILLEFOLIUM.

SUPERFŒTATION (from *super*, above, or over, and *fœtus*, an embryo), is when one conception follows another by a future coition, so that both are in the womb together, but come not to their full time for delivery together. The possibility of this, however, is now denied.

SUPINATION; the act of turning the palm of the hand upwards. This is done by rotating the radius upon the ulna.

SUPINA'TOR (from *supinus*, upwards), a name given to those muscles which turn the hand upwards. The following are examples:

SUPINA'TOR LO'NGUS. See SUPINATOR RADII LONGUS.

SUPINA'TOR RADII LONGUS, a muscle, which arises, by an acute and fleshy origin, from the external ridge of the os humeri, above the external condyle, nearly as far up as the middle of that bone. It is inserted into the outer-side of the inferior extremity of the radius. Its use is to roll the radius outwards, and consequently the palm of the hand upwards. This is the *Supinator longus* of Albinus, Winslow, and Douglas.

SUPINA'TOR RADII BREVIS, a muscle of the fore-arm, which arises tendinous, from the external condyle of the os humeri; tendinous and fleshy, from the external and upper part of the ulna, and adheres firmly to the ligament that joins those two bones. It is inserted into the head, neck, and tubercle, of the radius, near the insertion of the biceps, and ridge running from that downwards and outwards. Its use is to roll the radius outwards, and so to bring the hand into a supine posture.

SUPPOSITO'RIUM (from *sub*, under, and *pono*, to put); a suppository. This is a substance to put into the rectum, there to remain and dissolve gradually. This form of medicine is now disused.

SUPPRESSED MENSES. See Amenorrhœa.

SUPPURATION, the second way wherein an inflammation terminates; being a conversion of the inspissated blood and the first adjacent parts, as the vessels and fat, into pus or matter; which disorder, when it has not yet found an opening, is generally called an *abscess*. See Abscess and Pus.

SUPRA-COSTA'LES, a portion of the intercostal muscles. See Intercostal Muscles.

SUPRA-SPINATUS, a muscle, which arises fleshy, from all that part of the base of the scapula that is above its spine; also from the spine and superior costa; passes under the acromion, and adheres to the capsular ligament of the os humeri. It is inserted, tendinous, into that part of the large protuberance on the head of the os humeri, that is next the groove for lodging the tendon of the long head of the biceps. Its use is to raise the arm upwards; and, at the same time, to pull the capsular ligament from between the bones, that it may not be pinched.

SU'RDITAS, deafness. See Deafness.

SURGEON, or Chirurgeon (from χειρ, a *hand*, and εργον, *work*); one who professes the art of surgery. There have been Royal Colleges of Surgeons in Scotland and Ireland some years; and lately, the Company of Surgeons in London have been erected into a Royal College by charter. Henry VIII. rescued this useful profession from the disgrace of being united with the barbers. Vide stat. 32 Hen. VIII. c. 42. See Surgery. According to Mr. Justamond, the qualifications necessary to form a good surgeon, are youth, firmness, dexterity, acute sensation, sound judgment, and humanity. He considers a liberal education indispensable for the student, and a competent knowledge of the dead languages. He recommends the frequent dissection of morbid bodies, as a means not only of anatomical knowledge and the discovery of important facts in medicine, but also as forming the hand to a greater dexterity in the performance of operations on the living body.

SURGERY, or Chirurgery; that part of medicine which treats of diseases to be cured or alleviated by the hand, by instruments, or by external applications. That surgery was coeval with the other branches of medicine, or perhaps antecedent to any of them, will not admit of a doubt. The wars and contentions which have taken place among mankind, almost ever since their creation, necessarily imply that there would be occasion for surgeons at a very early period; and probably these external injuries would, for some time, be the only diseases for which a cure would be attempted, or perhaps thought practicable. In the sacred writings we find much mention of balsams, particularly the balm of Gilead, as excellent in the cure of wounds; though, at the same time, we are informed that there were some wounds which this balsam would not heal.

Concerning the surgery practised among the Egyptians, Jews, and Asiatic nations, we know little or nothing. The Greeks were those from whom the art descended to us, though they confessedly received it from the eastern nations. The first Greek surgeons on record, are Æsculapius and his sons Podalirius and Machaon. Till the days of Hippocrates, we know very little of what was the practice of the Greek surgeons. From him, however, we learn, that the practice of blood-letting, cupping, and scarification, was known to them; also the use of warm and emollient fomentations, issues made with hot irons, pessaries, injections, fumigations, &c. Hippocrates also gives directions with regard to fractures, luxations, ulcers, fistulas. He directs the extension, reduction, bandages, and splints, proper to be used in fractures and luxations of different bones, with several machines to increase the extension when necessary. He directs the laxity and tightness of the bandages; the intervals for unloosing and binding them on again; the position and repose of the fractured member, and the proper regimen; and he mentions the time when a callus is usually formed. He treats also of fractures of the skull, and the method of applying the trepan. In his treatment of ulcers, he speaks of reducing fungous flesh by means of escharotics, some of which are alum, nitre, verdigrise, quick-lime, &c.

In the time of Ptolemy Philopater of Egypt, medicine, all the branches of which had hitherto been practised by the same person, became divided into three, viz. the dietetic, pharmaceutic, and surgical; from which time to the present, surgery has continued to be reckoned a distinct profession from medicine, though very improperly, in the opinion of some.

Surgery appears not to have existed in Rome, notwithstanding the warlike genius of the people, for more than 500 years. Archagathus, a Greek, was the first professor of that art in the city; and so frequently employed the knife, hot irons, and other cruel methods of cure, that he was branded with the opprobrious title of *carnifex*, and expelled the city, where no physician or surgeon of eminence again made his appearance for 180 years. At this time Asclepiades undertook the profession of medicine; but seems to have dealt little in surgery. Neither have we any thing of importance on that subject till the time of Celsus, who flourished during the reigns of Augustus and Tiberius. In his Surgery, all the improvements from Hippocrates to his own days are collected; the most minute and trifling diseases are not omitted; and an eminent modern surgeon emphatically exhorts us, "to keep Celsus in our hands by day and by night."

The last writer of consequence who flourished at Rome was Galen, whose works are for the most part purely medicinal; although he wrote also on surgery, and made commentaries on the Surgery of Hippocrates. He opened the jugular veins, and performed arteriotomy at the temples; directed leeches, scarification, and cupping-glasses, to draw blood. He also described, with accuracy, the different species of herniæ or ruptures. In the year 500 flourished Aëtius, in whose works we meet with many observations omitted by Celsus and Galen; particularly on the surgical operations, the diseases of women, the causes of difficult labours, and modes of delivery. He also takes notice of the dracunculus, or Guinea worm. Aëtius, however, is greatly excelled by Paulus Egineta, who flourished in 640; whose Treatise on Surgery is superior to that of all the other ancients.

From Paulus Egineta to the year 900, no writer of any consequence, either on medicine or surgery, appeared. At this time the Arabian physicians, Rhazes and Avicenna, revived in the east the medical art; which, as well as others, was almost entirely extinguished in the west. Avicenna's *Canon Medicinæ*, or General System of Medicine and Surgery, was for many ages celebrated through all the schools of physic. It was principally compiled from the writings of Galen and Rhazes. Notwithstanding this, however, it was not till the time of Albucasis, that surgery came into repute among the Arabians. Rhazes complains of their gross ignorance, and that the manual operations were performed by the physicians' servants. Albucasis enumerates a tremendous list of operations, sufficient to fill us with horror; particularly the actual cauteries, which were favourite remedies of the Arabians.

From the 11th century to the middle of the 14th, the history of surgery affords nothing remarkable, except the importation of that nauseous disease the leprosy into Europe. Towards the end of the 15th century, the venereal disease is said to have been imported from America, by the first discoverers of that continent. At the beginning of the 16th century, surgery was held in contempt in this island, and was practised indiscriminately by barbers, farriers, and sow-gelders. Barbers and surgeons continued, for 200 years after, to be incorporated in one company, both in London and Paris. In Holland, and some parts of Germany, even at this day, barbers exercise the razor and lancet alternately. It is within the last three centuries, that we find any considerable improvement in surgery; nor do we know of any eminent British surgical writers, until within the last 150 years.

The first surgical work of the 16th century worthy of notice, is that of J. Carpus. F. ab Aquapendente, an Italian, published a System of Surgery; containing a description of the various diseases, accidents, and operations. It drew from Boerhaave the following compliment: *Ille superavit omnes, et nemo illi hanc disputat gloriam; omnibus potius quam hocce carere possumus.* About the same period, A. Parey, a Frenchman, made several important additions to surgery, particularly in his collection of cases of wounds, fractures, and other accidents, which occur during war. B. Maggius and L. Botallus, wrote on the cure of gun-shot wounds. J. A. Cruce, also, wrote a System of Surgery.

In the 17th century, surgery was enriched with several systems, and with detached or miscellaneous observations. The principal authors are, M. A. Severinus, V. Vidius, R. Wiseman, Le Clerc, J. Scultetus, J. Mangetus, C. Magatus, Spigellius, F. Hildanus, T. Bartholin, P. de Marchett. Within the last century, surgery has been enriched with many valuable and important improvements; of the greatest part of which we have availed ourselves in the course of this work. But as it would far exceed our limits, even to enumerate the names and writings of such authors as have lived within the recollection of many practitioners now in existence, so would it be of little advantage to the reader, who cannot but have formed a judgment of the general state of surgery within that period, from the writings which must have fallen under his examination.

SUSPENDED ANIMATION. See RESUSCITATION.

SUTURE (from *suo*, to join together), a term in surgery which signifies the uniting the lips of a wound by a needle and ligature. Many kinds of sutures have been recommended, but all are now reduced to two: namely, the *twisted* and the *interrupted* sutures. The twisted suture is made thus: Having brought the divided parts nearly into contact, a pin is to be introduced from the outside inwards, and carried out through the opposite side to the same distance from the edge that it entered at on the former side; a firm wax ligature is then to be passed around it, making the figure of 8, by which the wounded parts are drawn gently into contact. The number of pins is to be determined by the extent of the wound; half an inch, or at the most three quarters, is the proper distance between two pins. The interrupted suture is where many stitches are required, and the interruption is only the distance between the stitches.

SUTURE, in anatomy, a term applied to the union of bones by means of serrated or dentiform margins, as in the bones of the cranium. See TEMPORAL, SPHÆNOIDAL, ZYGOMATIC, TRANSVERSE, CORONAL, LAMBDOIDAL, and SAGITTAL SUTURES.

SWALLOW-WORT. See VINCETOXICUM.

SWIETE'NIA (so named after *Van Swieten)*. See MAHAGONI.

SWINGING, a kind of exercise recommended as a remedy in phthisis. See PHTHISIS.

SYMBLE'PHARUM (*συμϐλεφαρον*, from *συν*, *with*, and *βλεφαϱον*, the *eyelid)*, a conglutination of the eyelid to the globe of the eye. It chiefly happens in the superior, but very rarely in the inferior, palpebræ. It is caused by a bad conformation of the parts, by ulcers, by imprudent scarifications, or burns, especially if the eye remains long closed. It can only be remedied by an operation, after which the parts must be kept asunder by the introduction of lint, &c.

SYMPATHETIC NERVE, a name for the intercostal nerve. See INTERCOSTAL NERVE.

SYMPATHY (*συμπαθε*, from *συμπασχω*, to suffer together, to sympathise), that property in a part by which applications made to it are capable of affecting a distant part. All the body is sympathetically connected together, and dependent, the one part upon the rest, constituting a general sympathy. But particular parts may be more intimately dependent upon each other than upon the rest of the body, and this constitutes a particular sympathy. Mr. Burns, of Glasgow, has made some ingenious attempts to explain this curious property in the living animal, and from his account the following remarks are derived.

He says, action cannot be greatly increased in any one organ, without being diminished in some other; but certain parts are more apt to be affected by the derangement of particular organs, than others; and it was the observance of this fact, which gave foundation to the old and well-known doctrine of sympathy, which was said to proceed, "*tum ob communionem et similitudinem generis, tum ob viciniam.*" It may be thought that this position of action being diminished in one organ, by its increase, either in the rest or in some other part, is contradicted by the existence of general diseases or actions affecting the whole system. But in them we find, in the first place, that there is always some part more affected than the rest. This local affection is sometimes the first symptom, and affects the constitution in a secondary way, either by the irritation which it produces, or by an extension of the specific action. At other times the local affection is coeval with the general disease, and is called sympathetic; in the second idiopathic. It is observed in the second place, that as there is some part which is always more affected than the rest, so also is there some organ which has its action, in consequence of this, diminished lower than that of the rest of the system, and most commonly lower than its natural standard. From the extensive sympathy of the stomach with almost every part of the body, we find that this most frequently suffers, and has its action diminished in every disease, whether general or local, provided that the diseased action arises to any considerable degree. There are also other organs which may, in like manner, suffer from their association or connection with others which become diseased, as will be hereafter explained. Thus, for instance, we see, in the general disease called puerperal fever, that the action of the breasts is diminished by the increased inflammatory action of the womb.

In consequence of this balance of action, or general connection of the system, a sudden pain, consequent to violent action of any particular part, will so weaken the rest as to produce fainting, and occasionally death. But this dependance appears more evidently in what may be called the smaller systems of the body, or those parts which seem to be more intimately connected with each other than they are with the general system. Of this kind is the connection of the breasts with the uterus of the female; of the urethra with the testicles of the male; of the stomach with the liver; and of the intestines with the stomach, and of this again with the brain; of the one extremity of the bone with the other; of the body of the muscle with its insertion; and of the skin with the parts below it.

These smaller systems, or circles, require to be treated regularly; but, first, it may be proper to premise, that these are not only intimately connected with themselves, but also with the general system, an universal sympathy being thus established.

That there is a very intimate connection between the breasts and uterus, has been long known, but not well explained. Fallopius, and all the older authors, declare plainly, that the sympathy is produced by an anastomosis of vessels; Bartholin adding, that the child being born, the blood no longer goes to the uterus, but it is directed to the breasts, and changed into milk. However, none of all those who talk of this derivation assign any reasonable cause which may produce it.

In pregnancy, and at the menstrual periods, the uterus is active; but, when the child is delivered, the action of the uterus subsides, whilst the breasts in their turn become active, and secrete milk. If, at this time, we should again produce action in the uterus, we diminish that of the breasts, and destroy the secretion of milk, as is well illustrated by the case of inflammation of the uterus, which is incident to lying-in women. When the uterus, at the cessation of the menses, ceases to be active, or to secrete, we often find that the breasts have an action excited in them, becoming slowly inflamed, and assuming a cancerous disposition. The uterus and breasts seem to be a set of glands balancing each other in the system, one only being naturally active, or secreting properly at a time; and accordingly we seldom, if ever, find that when the uterus yields the menstrual discharge, the milk is secreted in perfection, during the continuance of this discharge, nor do we ever find them both inflamed at the same time.

The uterus has not only this connection with the breasts, but it has also a very particular sympathy with the stomach, which again sympathises with the brain; and thus we see how a disorder of the uterus may induce an extensive series of affections, each dependent on the other. The uterus has been known, ever since the foundation of physic, to produce very extensive diseases in the nervous system; and it is amusing to know how this was explained. The organs of generation in the male form likewise a little system, in which all the parts exhibit this sympathy with each other. They likewise give us a very good instance of the association of action, or sympathy in the common acceptation of that word.

Sympathy has been divided into the contiguous, and remote. Mr. Burns supposes it more conformable to the present doctrine, to divide it into, first, the *sympathy of equilibrium*, in which one part is weakened by the increased action of another; and, second, the *sympathy of association*, in which two parts act together at the same time. The sympathy of association is produced suddenly, and for a short time. The sympathy of equilibrium is produced more slowly, and continues to operate for much longer time. It is curious enough that most, or at least many, of those organs, which seem to be connected by the sympathy of equilibrium, exhibit likewise more or less of the sympathy of association, when under the circumstances in which this can take place.

The sympathy of equilibrium is seen in the effects of inflammation of the end of the urethra on the testicle; which often diminishes its action, and produces a very disagreeable sensation of dulness; or if this inflammation be suddenly diminished, the action of the testicle is as suddenly increased, and swelling takes place. The same is seen in the connection of the urethra with the bladder and prostate gland, as is mentioned in all the dissertations on gonorrhœa. These parts likewise affect the stomach greatly, increased action in them weakening that organ much. This is seen in the effects of swelled testicle or excessive venery, or inflamed bladder, and in calculus; all which weaken the stomach, and produce dyspepsia. The same remark applies to the kidney; vomiting and flatulence being produced by nephritis.

The sympathy of association, or an instance of sympathy in the common acceptation of the word, is likewise seen in the connection betwixt the glands and testicles in coition; but for this purpose, the action in the glands must be sudden and of short duration; for if continued long, weakness of the testicles, or diminished action, is induced. In those parts which exhibit this natural association of action, if the action of one part be suddenly and for a short time increased, the action of the sympathising part will likewise be increased; as we see in the instance already given of coition, and likewise in paroxysms of the stone, in which the glans penis, after making water, becomes very painful. But if the action be more slowly induced, and continued for a long time, then this association is set aside, by the stronger and more general principle of the equilibrium of action, and the sympathising part is weakened. Hence, violent inflammation of the end of the urethra produces a weakness and irritability of the bladder, dulness of the testicles, &c.

There is also an evident sympathy of equilibrium betwixt the stomach and lower tract of intestines; which two portions may be said, in general, to balance each other in the abdomen. When the action of the intestines is increased in diarrhœa, the stomach is often weakened, and the patient tormented with nausea. This will be cured, not so easily by medicines taken into the stomach, as by anodyne clysters, which will abate the action of the intestines. When the intestines are inflamed, as in strangulated hernia, vomiting is a never-failing attendant.

When, again, the stomach is inflamed, the intestines are affected, and obstinate costiveness takes place; even in hysterical affections of the stomach, the intestines are often deranged. Injections of cold water frequently relieve these affections of the stomach, by their action on the intestines.

The liver and stomach are also connected with one another. When the liver is inflamed, or has its action increased, the stomach is weakened, and dyspeptic symptoms take place. When the stomach is weakened, as, for instance, by intoxication, then the action of the liver is increased, and a greater quantity than usual of bile is secreted. The same takes place in warm climates, where the stomach is much debilitated. If the liver has its action thus frequently increased, it assumes a species of inflammation, or becomes, as it is called, scirrhous. This is exemplified in the habitual dram-drinkers, and in those who stay long in warm countries, and use freedoms with the stomach. The liver, likewise, sympathises with the brain; for when this organ is injured, and its action much impaired, as in compression, inflammation and suppuration have been often known to take place in the liver.

Besides this connection of the stomach with the liver, it is also very intimately dependent on the brain, being weakened when the action of the brain is increased; as we see in inflammation of that organ. The brain again is affected with pain, when the stomach is weakened by intoxication, or other causes; and this pain will be often relieved by slowly renewing the action of the stomach, by such stimuli as are natural to it; such as small quantities of soups frequently repeated. A slight increase of action in the stomach, at least if not of a morbid kind, affects the brain so as to produce sleep, diminishing its action. This we see in the effects of a full meal, and even of a draught of warm water. The stomach, likewise, sympathises with the throat; squeamishness and anorexia being often produced by inflammation of the tonsils. This inflammation is frequently abated, by restoring or increasing the action of the stomach. Hence the throat, in slight inflammation, is frequently easier after dinner; hence, likewise, the effect of emetics in cynanche.

The extremities of bones and muscles also sympathise in the same manner. When one end of a bone is inflamed, the action of the other is lessened, and pain is produced; for a painful sensation may result both from increased and diminished action. When the tendon of a muscle is inflamed, the body of that muscle often is pained, and *vice versa.*

Lastly, the external skin sympathises with the parts below it. If it be inflamed, as in erysipelas, the parts immediately beneath are weakened, or have their natural action diminished. If this inflammation affect the face or scalp, then the brain is injured; and head-ach, stupor, or mild delirium, supervene. If it attack the skin of the abdomen, then the abdominal viscera are affected, and we have vomiting and purging or obstinate costiveness, according to circumstances. This is illustrated by the disease of children, which is called by the nurses the *bowel-hive*, in which the skin is inflamed, as they suppose, from some morbid matter within.

If the internal parts be inflamed, the action of the surface is diminished, and by increasing this action, we can lessen or remove the disease below; as we see daily proved by the good effects of blisters. When the stomach, intestines, or kidney, have been very irritable, a sinapism has been known to act like a charm; and in the deap-seated inflammations of the breasts, bowels, or joints, no better remedy is known after the use of the lancet, than a blister.

The utility of issues in diseases of the lungs, the liver, and the joints, is to be explained on the same principle. In these cases we find that issues do little good unless they be somewhat painful, or are in the state of healthy ulcers. An indolent flabby sore, however large the discharge (which is always thin, and accompanied with little action), does no good, but only adds to the sufferings of the patient. We may, however, err on the other hand by making the issues too painful, or by keeping them active too long, for after they have removed the inflammatory disease below, they will still operate on these parts, lessening their action, and preventing the healing process from going on properly. This is seen in cases of curvature of the spine, where at first the inflammation of the vertebra is diminished by the issues; but if they be kept long open after this is removed, they do harm. We often see the patient recover rapidly after his surgeon has healed the issue in despair, judging that it could do no further service, but only increase the weakness of his patient.

It is a well-established fact, that when any particular action disappears suddenly from a part, it will often speedily affect that organ which sympathises most with the part which was originally diseased. This is best seen in the inflammatory action, which, as practical writers have well observed, occasionally disappears quickly from the part first affected, and then shews itself in some other.

From the foregoing principles, when action is much increased in one part, it is to a certain degree diminished in some other. On this account, the general sum or degree of action in the body, is less than it otherwise would be, and consequently the system suffers less.

SY'MPHISIS (*συμφυσις*, from *συν*, *together*, and *φυω*, to *grow);* a sort of connection of bones, in which they are united by an intervening body. It comprehends four species, viz. *Synchondrosis*, *Syssarcosis*, *Syneurosis*, and *Syndesmosis*. See those articles.

SY'MPHYTUM (*συμφυτον*, from *συμφυω*, to *unite;* so called because of its supposed power of uniting the lips of a wound), the *Consolida major*; comfrey: *Symphytum officinale, foliis-ovatis lanceolatis decurrentibus*, Linn. This is administered instead of the althæa; its roots abounding with a viscid juice, whose virtues are similar to that of the latter.

SY'MPHYTUM MACULO'SUM. The sage of Jerusalem. See PULMONARIA.

SY'MPHYTUM MI'NUS. See PRUNELLA.

SYMPTOM (*συμπτωμα*, from *συμπιπτω*, to *happen);* such a conjunction of appearances, or such an appearance of any one thing, as indicates what will be the issue of a disease, and the means of cure. Hence the epithet *symptomatic* is often used to denote the difference between the primary and secondary causes in diseases; as a fever from pain is said to be symptomatic, because it arises from pain only: and, therefore, the ordinary means in fevers are not in such cases to be had recourse to, but to what will remove the pain; for when that ceases, the fever will cease without any direct means taken for that purpose. A *secondary symptom* is one that depends on a primary one.

SYMPTOMATOLOGY, the history of diseases. See PATHOLOGY and NOSOLOGY.

SYNARTHRO'SIS (*σοναρθρωσις*, from *συν*, *together*, and *αρθρον*, a *joint);* a sort of connection of bones, in which they are united immovably. It has three species, viz. *suture*, *harmony*, and *gomphosis*.

SYNCHONDRO'SIS (*συνχονδρωσις*, from *συν*, *with*, and *χονδρος*, a *cartilage);* that species of symphisis, in which one bone is united with another by means of an intervening cartilage, as the bones of the pubis and vertebræ are.

SYNCHONDROTO'MIA (*συνχονδρωτομια*, from *συνχονδρωσις*, the symphisis of the pubis, and *τεμνω*, to *cut);* the operation of dividing the symphisis of the pubis in difficult labours. See PELVIS.

SY'NCHYSIS (*συſχυσις*, from *συγχυω*, to *confound);* a dissolution of the vitreous humour of the eye into an aqueous fluid.

SY'NCIPUT, or SINCIPUT; the fore-part of the cranium. See CRANIUM.

SY'NCOPE (*συνκοπη*, from *συν*, *with*, and *κοπτω*, to *cut* or *strike down)*, *Deliquium Animi*, or *Leipothymia;* fainting or swooning. This is a genus of disease in the class *neuroses*, and order *adynamiæ*, of Cullen; in which the respiration and action of the heart either cease, or become much weaker than usual, with paleness and coldness, arising from diminished energy of the brain, or from organic affections of the heart. The species are: 1. *Syncope cardiaca*, arising without a visible cause, and with violent palpitation of the heart, during the intervals. This depends generally on some organic affection of the heart or neighbouring vessels, and is irremediable. 2. *Syncope occasionalis*, the exciting cause being manifest, and easily removed, by a horizontal posture of the body, volatiles taken internally, applied to the nose, &c.

SY'NCOPE ANGINO'SA. See ANGINA PECTORIS.

SYNDESMOLO'GIA (*συνδεσμολογια*, from *συνδεσμος*, a *ligament*, and *λογος*, a *discourse);* the doctrine of the ligaments. See LIGAMENTS.

SYNDESMO-PHARYNGE'US. See CONSTRICTOR PHARYNGIS MEDIUS.

SYNDESMO'SIS (*συνδεσμωσις*, from *συνδεσμος*, a *ligament);* that species of symphisis or mediate connection of bones, in which they are united by ligament, as is the radius with the ulna.

SYNE'CHIA (of the Gr. *συνεχια*); a concretion of the iris with the cornea, or with the capsule of the crystaline lens. The proximate cause is their contact from inflammation, or adhesion of these parts, the consequence of inflammation. The remote causes are, a collapse of the cornea, a prolapsus of the iris, a swelling or tumefied cataract, hypopium, or an unnatural formation.

SYNEURO'SIS (*συνευρωσις*, from *συν*, *with*, and *νευρον*, a *nerve;* the ancients included membranes, ligaments, and tendons, under the head of nerves); that sort of symphisis, in which one bone is united to another by means of an intervening membrane.

SYNE'ZESIS (of the Gr. *συνεζησις*, *confidentia);* a perfect concretion and coarctation of the pupil. It is known by the absence of the pupil, and a total loss of vision. There are many species, but the most remarkable is that from a secession of the iris or cornea. From whatever cause this may happen, the effect is certain, for the pupil contracts its diameter; the longitudinal fibres, separated from the circle of the cornea, cannot resist the orbicular fibres: from hence the pupil is wholly or partially contracted.

SYNGENE'SIA (from *συν*, *together*, and *γενεσις*, *generation)*; in the Linnæan system of botany, a class of plants, the nineteenth in order. The title signifies *congeneration*, alluding to the circumstance of the stamina; in which, though the filaments stand separate, yet the antheræ, which are the parts more immediately subservient to generation, are united in a cylinder, and perform their office together.

SY'NOCHA (*συνοχη*, from *συνεχω*, to *continue)*; inflammatory fever; a species of continued fever, which is characterised by increased heat, pulse frequent, strong, and hard; the urine high-coloured; the senses not much impaired. This fever is so named from its being attended with symptoms of general inflammation, by which it is readily to be distinguished from either the nervous or putrid fever. It makes its attack at all seasons of the year, but is most prevalent in the spring; and it seizes persons of all ages and habits, but more particularly those in the vigour of life, with strong elastic fibres, and of a plethoric constitution. It is a species of fever almost peculiar to cold and temperate climates, being rarely, if ever, met with in very warm latitudes, except amongst Europeans lately arrived; and even then, the inflammatory stage is of very short duration, as this fever soon assumes the putrid type.

The most usual exciting causes are sudden transitions from heat to cold, swallowing cold liquors when the body is much heated by exercise, too free a use of vinous and spirituous liquors, great intemperance, violent passions of the mind, the sudden suppression of habitual evacuations, and the sudden repulsion of eruptions. It may be doubted if this fever ever originates from personal infection; but it is possible for it to appear as an epidemic amongst such as are of a robust habit, from a peculiar state of the atmosphere. It comes on with a sense of lassitude and inactivity, succeeded by vertigo, rigors, and pains over the whole body, but more particularly in the head and back; which symptoms are shortly followed by redness of the face and eyes, great restlessness, intense heat, and unquenchable thirst, oppression of breathing, and nausea. The skin is dry and parched; the tongue is of a scarlet colour at the sides, and furred with white in the centre; the urine is red and scanty; the body is costive; and there is a quickness, with a fulness and hardness, in the pulse, not much affected by any pressure made on the artery. If the febrile symptoms run very high, and proper means are not used at an early period, stupor and delirium come on, the imagination becomes much disturbed and hurried, and the patient raves violently. The disease usually goes through its course in about fourteen days, and terminates in a crisis, either by diaphoresis, diarrhœa, hæmorrhage from the nose, or the deposit of a copious sediment in the urine; which crisis is usually preceded by some variation in the pulse.

The physician's judgment, as to the termination of this disease, must be formed from the violence of the attack, and the nature of the symptoms. If the fever runs high, or continues many days with stupor or delirium, the event may be doubtful; but if to these are added, picking at the bed-clothes, startings of the tendons, involuntary discharges by stool and urine, and hiccough, it will then certainly be fatal. On the contrary, if the febrile heat abates, the other symptoms moderate, and there is a tendency to a crisis, we may then expect a recovery. This fever has been known to terminate in mania, but the instances are rare.

Dr. Cullen objects to the plan of those who are for leaving the cure of continued fevers to the operations of nature; because these operations are neither certain in themselves, nor are they so well understood as to enable us to regulate them properly; and it is, likewise, possible to supersede them by art. The plan, therefore, on which he proceeds is, to form his indications of cure upon the means of obviating the tendency to death in fevers; and these he reduces to three. *First*, To moderate the violence of re-action; *secondly*, To remove or obviate the causes of debility; and, *thirdly*, To obviate or correct the tendency of the fluids to putrefaction. The first indication may be answered by all those means which diminish the action of the heart and arteries; and by those which take off the spasm of the extreme vessels, which is the chief cause of violent re-action.

1. The action of the heart and arteries may be diminished, (1.) By avoiding or moderating those irritations, which, in one degree or other, are almost constantly applied to the body. (2.) By the use of certain sedative powers. (3.) By diminishing the tension or tone of the arterial system.

The irritations mentioned are the impressions made upon our senses, the exercise of the body and mind, and the taking in of aliments. The avoiding of these as much as possible, or the moderating their force, makes what is properly called the *antiphlogistic regimen*, proper to be employed in almost every continued fever. This regimen is to be directed in a manner which is familiar to every practitioner.

To moderate the violence of re-action, we are to employ certain sedative powers, with a view to diminish the activity of the whole body, and particularly that of the sanguiferous system. The first of these is the application of cold. When the generating power of heat in the system is increased, as is commonly the case in synocha, it is necessary not only to avoid all further means of increasing it, but also to apply air of a cooler temperature. This is shewn, from some late observations, to be a very powerful means of moderating the violence of re-action. See COLD AFFUSION.

Another sedative power very frequently employed in fevers, is that of *refrigerants*. See REFRIGERANTS. The chief of these are acids of all kinds when sufficiently diluted, and which are, in several respects, remedies adapted to continued fevers. Those especially in use are the vitriolic, muriatic, and vegetable; and on many accounts the latter, such as the acids of tamarinds, lemons, oranges, mulberries, barberries, &c. are to be preferred. Another set of refrigerants, are the neutral salts formed of the vitriolic, nitrous, or vegetable acids, with alkalies either fixed or volatile. Nitre is a refrigerant much employed, but all the others partake more or less of the same quality. The third general method of diminishing the re-action of the system, is by lessening the tension, tone, and activity, of the sanguiferous system. The most efficacious means of doing this, is by evacuations of bleeding and purging. The former is evidently one of the most powerful means of diminishing the activity of the whole body, and especially of the sanguiferous system; and it must, therefore, be the most effectual means of moderating the re-action in fevers. When the violence of re-action, and its constant attendant a phlogistic diathesis, are sufficiently evident; when these constitute the principal part of the disease, and may be expected to continue through the whole of it, as in the cases of synocha; then blood-letting is the principal remedy, and may be employed as far as the symptoms of the disease may seem to require, and the constitution of the patient will bear. It must, however, be remarked, that a greater evacuation than is necessary may occasion a slower recovery, and render the person more liable to a relapse, or bring on other diseases. It is also to be observed, that this evacuation is the more effectual, as the blood is more suddenly drawn off; and as the body is, at the same time, more free from all irritation, and therefore when it is in a posture in which the fewest muscles are in action.

With regard to purging, it should be done by a stimulus that is not, at the same time, communicated to the rest of the body: in thus emptying both the cavity of the intestines, and the arteries which furnish the excretions poured into it, we induce a considerable relaxation in the whole system. This, therefore, is suited to moderate the violence of re-action in fevers; but it is to be observed, that as the fluid drawn from the excretories opening into the intestines, is not all drawn immediately from the arteries, and as what is even more immediately drawn from these is drawn off slowly, so the evacuation will not, in proportion to its quantity, occasion such a sudden depletion of the red-vessels as blood-letting does; and, therefore, cannot act so powerfully in taking off the phlogistic diathesis of the system. At the same time, the evacuation may induce a considerable degree of debility; and, therefore, in those cases in which a dangerous state of dedility is likely to occur, purging is to employed with a great deal of caution.

2. The other method of moderating the violence of re-action in fevers, is by the exhibition of those remedies suited to take off the spasm of the extreme vessels, supposed to be the irritation which chiefly supports the re-action. The means to be employed for this purpose, are either internal or external.

The internal means are, (1.) Those which determine the force of the circulation to the extreme vessels on the surface of the body; and, by restoring the tone and activity of these vessels, overcome the spasm on their extremities. (2.) Those medicines which have the power of taking off spasm in any part of the system, and which are known under the title of *antispasmodics.* The remedies most fit to determine to the surface of the body are, diluents, neutral salts, sudorifics, and emetics. The use of the first needs no particular mention. The second means of determining to the skin, is by the use of *neutral salts.* These, in a certain dose, produce a sense of heat upon the surface of the body; and, if the body be covered close, and kept warm, a sweat is readily brought out. The same medicines taken during the cold stage of a fever, very often put an end to it, and bring on the hot one; and they are also remarkable for stopping the vomiting, which so frequently attends the cold stage of fevers. All this shews, that neutral salts have a power of determining the blood to the surface of the body; and may, therefore, be of use in taking off the spasm which subsists there in fevers. The neutral most commonly employed in fevers, is that formed of an alkali with the native acid of vegetables. But all the other neutrals have more or less the same virtue; and perhaps some of them, particularly the ammoniacal salts, possess it in a stronger degree. (3.) A third method of taking off spasm, is by the use of *sudorifics.* The propriety of this remedy has been much and justly disputed; though many specious arguments may be adduced, both for and against the practice. It is doubtful if it can be admitted very generally; but, at the same time, it is also very doubtful if the failure of the practice, or the mischiefs said to arise from it, have not been owing to the improper conduct of the practitioner. With respect to the last, it is almost agreed among physicians, 1. That sweating has been generally hurtful when excited by stimulant, heating, and inflammatory medicines. 2. That it has been hurtful when excited by much external heat, and continued with a great increase of the heat of the body. 3. That it is always hurtful when it does not relieve; and rather increases the frequency and hardness of the pulse, the anxiety and difficulty of breathing, the head-ach, and delirium. 4. That it is always hurtful, if it be urged when the sweat is not fluid; or when it is partial, and on the superior parts of the body only.

In these cases it is probable, that either an inflammatory diathesis is produced, which increases the spasm on the extreme vessels; or that, from other causes, the spasm is too much fixed, to yield easily to the increased action of the heart and arteries; and upon either supposition it must be obvious, that urging the sweat may produce determinations to some of the internal parts, attended with very great danger.

But the most effectual mean of determining to the surface of the body, and thereby taking off the spasm affecting the extreme vessels, is by the use of *emetics.* These, particularly of the antimonial kind, have been employed in the cure of fevers, ever since the introduction of chemical medicines; and, though of late their use has become very general, their efficacy is still disputed, and their manner of operating is differently explained. Dr. Cullen thinks full vomiting well suited to determine to the surface of the body, and thereby to obviate the atony and spasm, which lay the foundation of fever. Thus, vomiting excited a little before the expected accession of the paroxysm of an intermittent, has been found to prevent the paroxysm altogether. It has been observed, also, that when contagion has been applied to a person, and first discovers its operation, a vomit given has prevented the fever which might otherwise have been expected. The operation of full vomiting, however, is transitory, and its effects fatiguing; therefore, when the first vomiting does not remove the atony and spasm very entirely, it may give occasion to their recurrence with greater force. For these reasons, after fevers are fully formed, physicians have thought proper to employ emetics in nauseating doses only. These are capable of exciting the action of the extreme vessels, and their operation is more permanent. At the same time, they often shew their power by exciting some degree of sweat; and their operation is rendered more safe, by their commonly producing some evacuation by stool.

The medicines chiefly in use at present are, ipecacuanha and antimony. The former may be employed for determining to the surface of the body; but, even in very small doses, it so readily excites vomiting, that it is with difficulty employed for the purpose of nauseating only; and, in whatever manner employed, there is reason to suspect that its effects are less permanent, and less powerfully communicated from the stomach to the rest of the system, than those of antimony. This last is, therefore, generally preferred; and of all its preparations, the two most worthy of notice are, the *oxydum antimonii cum phosphate calcis*, of the Edinburgh, and the *antimonium tartarisatum*, of the London, dispensatories. Both these are very efficacious medicines; but the former seems preferable, on account of its more gradual operation.

The time most proper for exhibiting the preparations of antimony, with a view to their full effect, is a little before the accession, when that can be certainly known. In continued fevers, the exacerbations are not always very observable; but there is reason to believe, that one commonly happens about noon, or soon after it; and that these, therefore, are the most proper times for exhibiting emetics. As *relaxants*, antimonials should be exhibited, so as neither to excite vomiting nor purging; but, if possible, a general diaphoresis.

The last means of relaxing the spasm of the extreme vessels, that remains to be mentioned, is warm-bathing. This is a highly useful remedy, under judicious management; and the most safe and easy way of obtaining advantage from it, is to employ it in the form of pediluvium, or fomenting the legs and feet of the patient.

SY'NOCHUS (of the Gr. *συνοχος*, from *συνεχω*, to *continue)*; a mixed kind of fever. It is a species of continued fever, commencing with the symptoms of synocha, but terminating in typhus; so that synocha and typhus are blended together in a slight degree; the former being apt to preponderate at its commencement, and the latter towards its termination. Every thing which has a tendency to enervate the body, may be looked upon as a remote cause of fever; but the most usual and universal cause of it, is the application of cold to the body; and its morbid effects seem to depend partly upon certain circumstances of the cold itself, and partly upon certain circumstances of the person to whom it is applied.

The circumstances which seem to enhance the morbid effects of cold in producing fever, are, its degree of intensity; the length of time which it is applied; its being applied generally, or only partially, in a current of air; its having a degree of moisture accompanying it; and its being a considerable or sudden change from heat to cold. Persons become more liable to be affected by cold, when previously in a state of debility; induced either by great fatigue, or violent exertions; by long fasting; want of natural rest; severe evacuations; by preceding disease; by errors in diet; by intemperance in drinking, or sensuality in eating; by too close an application to study, or giving way to grief, fear, or great anxiety; by depriving the body of a part of its accustomed clothing; by exposing any one particular part of it, whilst the rest is kept of its usual warmth; or by exposing it generally or suddenly to cold, when heated much beyond its usual temperature: these may be looked upon as so many causes giving an effect to cold, which it otherwise might not have produced. Another frequent cause of fever seems to be, breathing air contaminated by the vapours arising either indirectly or originally from the body of a person labouring under typhous fever; though this is seldomer a cause of synocha, than of the disease from whence the contagion is derived.

To understand the nature of mixed fevers, the practitioner should be well acquainted with the general phenomena of fever, described under the article Fever; and also with the symptoms of synocha and typhus, which prevail in it in its earlier and latter stages. The treatment must, of course, vary with these circumstances; and for suitable instructions respecting it, the reader has only to refer to the articles Synocha and Typhus.

SYNO'VIA, the name given by Paracelsus to an unctuous fluid, like the white of an egg, secreted from appropriate glands in the joint which contains it. The use of this fluid is, to lubricate the cartilaginous surfaces of the articulatory bones, and to facilitate their motions. The *synovial glands* are an assemblage of a fatty fimbriated structure.

SYNTENO'SIS (*συντενωσις*, from *συν*, *with*, and *τενων*, a *tendon)*; a species of articulation, in which the bones are connected together by tendons.

SY'NTHESIS (*συνθεσις*, from *συντιθημι*, to *compound)*; a term sometimes used in opposition to *analysis;* and signifying the combination of any thing, by the reunion of its different parts. See Analysis.

SY'PHILIS (the name of a shepherd, to whom the disease was given, as the poets tell, for insulting the sun; or, more probably, from *σιφλος*, *filthy)*; a name for the *Lues venerea*, under which head a full account of the disease is given; with the exception, nevertheless, of the method of treatment by the internal use of nitrous acid, of the real effects of which we were desirous of giving the *most recent* and authentic account.

The supposed antisyphilitic powers of the nitrous acid were first announced to the medical world by Mr. William Scott, a surgeon at Bengal. It is said he caught the idea from Dr. Girtanner, who had, in his writings, suggested, that the beneficial effects in syphilis, of the various mercurial preparations, arose from the *oxygen contained in them.*

The dose of the nitric acid is ʒj; afterwards augmented to ʒij, or more, mixed with a pint of distilled water, and sweetened with syrup; and taken down, at different times, in the course of the day, through a small glass tube, to prevent the teeth from being injured.

The remarkable effects of this, are commonly those of increasing the appetite and augmenting the secretion of urine; causing also more or less thirst, a white tongue, sizy blood, and increased action of the whole system; but nothing like mercurial salivation takes place. It does not, however, accommodate itself equally well to all constitutions.

This remedy, though said by some of the most eminent of the profession to be no less adapted for the cure of *primary* than of *secondary* venereal symptoms, has been nevertheless opposed, by what seem to be the most decisive experiments, particularly those of Mr. Pearson, of the Lock Hospital, in London. See Nitrous Acid. By the advocates for the nitric acid, it is said to act sensibly on the disease in six or eight days, and frequently to effect a cure in fifteen or sixteen.

But other substances, which contain oxygen, have been thought no less capable of curing syphilis than nitrous acid. The principal and most approved of these, is the *oxygenated muriate of potash;* which Mr. Cruikshank, of the Royal Artillery, describes as even more efficacious than the acid; since, in one instance, he found it succeed, when the latter had little or no effect.

Amongst the facts brought forward on this disputed topic, there are certainly none on whom we can more securely rely, than on those adduced by Dr. Rollo, Surgeon-General of the Royal Artillery; who, in a multitude of cases, has proved, if not the *unvarying antisyphilitic effects* of nitrous acid, at least its high claims as an *auxiliary remedy.* In a report of 284 venereal cases, treated in the Hospital of the Royal Artillery, by Dr. Wittman, the following results are stated:

The plan consisted in exhibiting gr. x or xv, of the *Pil. Hydrarg.* daily, for the space of eight or ten days; *then the nitrous acid*, in doses of one or two drachms daily, was given for the same number of days; and by the alternate use of these remedies, duly persisted in, the patients were cured. This method was uniformly employed in *all* syphilitic complaints admitted into the hospital within the year 1805.

Dr. Wittman says—"Some instances of relapse, and of secondary symptoms, did occur; yet they have been but few in number, as will be seen in the abstract; and they were *ultimately* cured by the alternate use of the pill and acid. Ill-conditioned or phagedenic ulcerations were by no means frequent; nor did the constitution appear to suffer, as frequently happens when the cure is trusted entirely to mercury.

"In general, we were enabled to persevere in the use of both remedies, without interruption, until the cure was completed. Yet the peculiarly irritable condition of the stomach and bowels in some few patients, prevented the regular use of the Pil. Hydrarg.; and, in other cases, the system was not sensibly affected by it. In such cases, the mercurial frictions were had recourse to with effect; still the nitrous acid was used alternately with the mercury, and with evident marks of good effect, until the cure was obtained."

But these are not the whole of the cases in which this combined treatment has proved eminently successful. The reports of the other surgeons make the whole number of cases, within the year, no less than 755, in which the results corresponded with the foregoing; and it is no inconsiderable augmentation of the praises due to the nitrous acid, that its use in syphilis has greatly reduced the number of soldiers, commonly discharged as unfit for service, in consequence of venereal complaints.

In fine, as it is not our business to decide on the merits of this new, but apparently excellent, treatment, we refer the reader for further information to the recent publications of Dr. Rollo; whose indefatigable endeavours still to draw the attention of medical men to a remedy which seems so highly to deserve it, are entitled to the gratitude of every candid practitioner.

SY'RIÆ O'LEUM, an essential oil, drawn from the canary balsam plant, or *Moldavica.*

SYRIAN HERB MASTICH. See Marum Syriacum.

SYRINGE (from the Greek *συριγξ*, or the Latin *syrinx*, a pipe); a well-known instrument, serving to imbibe or suck in a quantity of fluid, and afterwards to expel the same with violence. A syringe is used for transmitting injections into cavities and canals.

SY'RUPUS, syrup; in pharmacy, a preparation in which sugar is dissolved in some vegetable liquor, and boiled to the consistence of honey. If obtained from a single plant, it is called *simple;* but if from more than one, *compound.* The *Syrupus croci*, *Syrupus colchici*, &c. are examples of the former.

SYSSARCO'SIS (*συσσαρκωσις*, from *συν*, and *σαρξ*, *flesh);* that sort of union of bones, in which one bone is united to another by an intervening muscle. Thus the os hyoides is connected with the sternum and other parts.

SY'STOLE (*συϛολη*, from *συϛελλω*, to *contract);* the contraction of the heart. See Heart and Circulation.

T.

TA'BACUM, tobacco. See Nicotiana.

TA'BES (from *tabeo*, to grow thin), wasting of the body; a genus of disease in the class *cachexiæ*, and order *marcores*, of Cullen. It is characterised by emaciation and weakness, attended with hectic fever. There are three species: 1. *Tabes purulenta*, from an ulcerous discharge; 2. *Tabes scrofulosa*, from a scrofulous habit; 3. *Tabes venenata*, from poison. See Phthisis, and Hectic.

TACAMAHA'CCA, the name of a resinous substance which exudes from incisions made in the stem of the *Fagara octandria; foliolis tomentosis* Linn. Two kinds of tacamahacca are met with in the shops. The best, called, from its being collected in a kind of gourd shell, tacamahacca in shells, is somewhat unctuous and soft, of a pale yellowish or greenish colour, a bitterish aromatic taste, and a fragrant delightful smell, approaching to that of lavender and ambergrise. The more common sort is in semi-transparent grains, of a whitish, yellowish, brownish, or greenish colour, and of a less grateful smell than the former. Tacamahacca was formerly used as an ingredient in stimulating plasters; and also internally, as a corroborant and astringent.

TA'CTUS. See Touch.

TÆ'NIA (of the Gr. *ταινια*, a *fillet;* so named from its resemblance to a piece of tape), the tape-worm; a genus of intestinal worms, characterised by a long, flat, and jointed body. Naturalists have described the following species: 1. *Tænia osculis marginalibus*, the long tape-worm, and the *soleum* of authors, which is peculiar to Russia, France, and some other parts. 2. *Tænia osculis superficialibus*, the broad tape-worm, which is peculiar to the inhabitants of Switzerland, &c. See Worms. Of all the worms that infest the human body, this is the most troublesome and dangerous. The roots of the male fern (see Filix mas) have long been famed for their efficacy in destroying and expelling it. The dose of these roots, in powder, is to half an ounce, to be taken in honey and water, or mead; and if it is accompanied with scammony enough to purge, its efficacy will be the greater. The French physicians, agreeably to the receipt of Madame Nouffer, order over-night a clyster of milk and honey, and a quantity of panada for supper. In the morning the powdered fern-root is given to detach the worm, of which the patient is said to be sensible, by a cessation of the pain in the stomach, and by a weight that is felt in the lower belly. Two hours after this, an active purgative is given to evacuate the loosened worm. Tape-worms are found from two to forty feet long, according to the testimony of Platerus. They generally possess the whole tract of the intestines, but especially the ileum: they very much resemble a piece of tape in their appearance, whence their name of tape-worm. See Pl. XV.

Dr. Temple, in his Practice of Physic, directs the following:

> ℞ Pulv. polypod. fil. mas, ʒj ad ʒij.
> Sumend. in idoneo vehiculo.

Four hours after it has been taken, this purgative should be administered: Or, half an ounce of sulphur may be given, in any proper vehicle.

> ℞ Pulv. jalap. ʒß.
> Ol. menth. sativ. gtt. ij. m. f. pulv.

Many commend the bark of the root of the mulberry tree, the juice of the *auricula muris*, the roots of *chamæleon niger*, ginger, zedoary, decoctions of mugwort, southernwood, penny-royal, origanum, hyssop, and in general of all bitter and aromatic plants, &c. but Madame Nouffer's method of treatment is much the best.

TALC (from *talk*, German), a white, grey, yellow, or greenish substance, of a soft and soapy texture, formed of transparent laminæ placed upon each other. Talc is composed of pure magnesia mixed with near twice its weight of silex, and less than its weight of alumine. Venice talc has been used in medicine, as an antacid and aperient.

TA'LUS; the same as Astragalus.

TAMARI'NDUS (*ταμαρινδος*; from *tamar* or *tamarindi*, Arab. a synonym of the *dactylus* or date), also called *Oscyphœnicon;* the Tamarind tree: *Tamarindus Indica* Linn. Class, *Monadelphia.* Order, *Triandria.* The preserved fruit is employed as a laxative, and for abating thirst or heat in various inflammatory complaints; and for correcting putrid disorders, especially those of a bilious kind, in which its cathartic, antiseptic, and refrigerant qualities have been found extremely useful. The pulp of tamarinds is an ingredient in the *Electuarium è cassia* and *Electuarium è senna* of the pharmacopœias.

TAMARI'SCUS (from *Tamarik*, Heb. abstersion; as cleansing and purifying the blood); *Tamarix gallica* Linn. The bark, wood, and leaves, of this tree, were once employed medicinally: the former for its aperient and corroborant virtues in obstructions of the liver, the latter in icterus and hæmoptysis.

TA'MARIX GA'LLICA. See Tamariscus.

TAME-POISON. See Vincetoxicum.

TANACE'TUM (corrupted from *tanasia*, athanasia, the old name for tansy), tansy; the *Tanacetum vulgare, foliis bipinnatis incisis serratis* Linn. Class, *Syngenesia.* Order, *Polygamia superflua.* The leaves and flowers have a strong, but not disagreeable, smell, and a bitter, somewhat aromatic, taste. The virtues of tansy are tonic, stomachic, anthelmintic, emmenagogue, and resolvent. It has been much used as a vermifuge; and with good effect.

TAR. See Pix liquida.

TAR, BARBADOES. See Petroleum Barbadense.

TAR-WATER, a once celebrated remedy, but now neglected more than it deserves. It is made by infusing tar in water, stirring it from time to time, and lastly pouring off the clear liquor now impregnated with the colour and virtues of the tar. It is drank in many chronic affections, particularly of the lungs.

TARA'XACUM (Ταραξακον, from ταρασσω, to *alter* or *change;* because it alters the state of the blood), *Dens leonis*, the dandelion, or piss-a-bed: *Leontodon taraxacum, caule squamis inferne reflexis, foliis runcinatis denticulatis lævibus.* Class, *Syngenesia.* Order, *Polygamia æqualis.* The young leaves of this plant, in a blanched state, have the taste of endive, and are eaten in salads. The expressed juice of the leaves is bitter and somewhat acrid; the root is bitterer, and possesses more medicinal power. It has been long in repute as a detergent and aperient, and there are various proofs of its efficacy in jaundice, dropsy, and some cutaneous disorders.

TA'RCHON SYLVE'STRIS. See Ptarmica.

TA'RSI; the thin cartilages situated at the edges of the eyelids, to preserve their firmness and shape. See Palpebræ. Their borders, on which the eyelashes are arranged, are called the ciliary edges, and these are beset with minute glands, also denominated ciliary.

TA'RSI, EXTE'NSOR MI'NOR. See Plantares.

TA'RSUS (of the Gr. ταρσος). The tarsus is composed of seven bones, viz. the astragalus, os calcis, os naviculare, os cuboides, and three ossa cuneiformia. See those articles.

TARTAR, the concretion which fixes to the inside of hogsheads containing wine. In this state it is debased with much extractive and colouring matter, from which it is purified by boiling it with argillaceous earths, and afterwards exposing it to crystallisation. It thus becomes perfectly white, the crystals consisting of the acid of tartar and potash. Its virtues are eccoprotic, diuretic, and refrigerant. It is exhibited in abdominal physconia, has been found particularly serviceable in the dropsy, and useful also in inflammatory and bilious fevers, dyspepsia, bilious diarrhœa and colic, hæmorrhoids, &c.

TARTAR, a name heretofore given to many officinal preparations, containing the acid of tartar; but, in consequence of recent changes in the chemical nomenclature, superseded by appellations more expressive of the respective compositions. These changes are exhibited in all the modern pharmacopœias by proper tables. See Tartrites.

TARTAR, SPIRIT OF; a name for the pyro-tartareous acid. If the crystals of tartar be distilled by a strong heat, without any additional body, they furnish an empyreumatic acid, called the pyro-tartareous acid, and a very fetid oil. In the retort there remains a coal, which already contains a greal deal of potash; but the ashes of this coal contain a still greater quantity of potash, scarcely any earth, and no neutral salt. This mild potash, is the *Kali preparatum;* and, when liquefied in the atmosphere, the *aqua kali* of the pharmacopœias.

TARTAREOUS ACID, *Acidum tartarosum*, or *Acidum tartari essentiale.* To obtain this pure, take two pounds of the crystals, and dissolve them in water; into which chalk is to be thrown by degrees, till the liquid is saturated. A precipitate is formed, which is a true tartrite of lime, is tasteless, and cracks between the teeth. This tartrite is put into a cucurbit, and nine ounces of sulphuric acid, with five ounces of water, are poured on it. After twelve hours' digestion, with occasional stirring, the tartareous acid is set at liberty in the solution, and may be cleared of the sulphate of lime by means of cold water. The virtues of this acid are antiseptic, refrigerant, diuretic. It is used in acute fevers, scurvy, and hæmorrhage.

TA'RTRIS AMMONI'ACÆ. This is the *Alkali volatile tartarisatum* of Bergman; also called *Sal ammoniacum tartareum*, and *Tartarus ammoniæ.* The virtues of the tartrite of ammonia are diaphoretic, diuretic, and deobstruent. It is prescribed in fevers, atonic exanthemata, catarrh, arthritic and rheumatic arthrodynia, hysteric spasms, cardialgia, &c.

TA'RTRIS SO'DÆ, called also *Sal polychrestus Seignetti, Sal rupellensis,* and *Alkali minerale tartarisatum;* a preparation commonly supposed to be a triple salt, though only composed of the tartareous acid and soda. In a large dose it proves cathartic, in a lesser diuretic and deobstruent; and is given against saburra of the primæ viæ, obstipation, and in the cure of agues and abdominal physconia.

TARTRITES, salts formed by the combination of the tartareous acid with different bases; as the *acidulous tartrite of potash*, commonly called cream of tartar, &c.

TASTE, one of the senses, the principal organ of which is the tongue. The nearer the tip of the tongue, the more acute is this sense; and the nearer the glottis, so much the more obtuse. It must be owned, however, that some kind of acrid substances, the taste of which is scarcely perceived upon the tip of the tongue, excite a most vehement sensation about its root, or even in the throat itself. The tongue is endowed with many large and beautiful nervous papillæ, which seem to be the chief seat of this sense; and, in the act of tasting, are elevated and erected, in order to give the more acute sensation.

Nothing can be tasted which is not soluble in the saliva, that, being applied in a fluid form, it may pervade the involucra of the tongue, and affect its nervous pulp; and hence insoluble earths are quite insipid. Neither is it sufficient for a body to be soluble, that it may be tasted; it must also have something in it saline, or at least acrid, in order to stimulate the nervous substance; and hence whatever has less salt than the saliva, is totally insipid.

The taste is rarely found to be too acute, unless through a fault in the epidermis, which covers the tongue. If this be removed or wounded, or covered with ulcers, aphthæ, &c. then the taste, becoming too acute, is painful: sometimes no other sensation than that of pain is felt. It may be impaired, as well as the sense of feeling, from various diseases of the brain and nerves; of which, however, the instances are but rare. In some people it is much more dull than in others; and in such the sense of smelling is usually deficient also. The taste is most commonly deficient on account of the want of saliva; for a dry tongue cannot perceive any taste: hence this sense is very dull in many diseases, especially in fevers, catarrhs, &c. as well on account of the defect of saliva as of appetite, which is of so much service in a state of health; or by reason of the tongue being covered with a viscid mucus.

The taste is frequently depraved; when, for example, we have a perception of taste without the application of any thing to the tongue; or, if any thing be applied to it, when we perceive a taste different from what it ought to be. This happens, for the most part, from a vitiated condition of the saliva, which is itself tasted in the mouth. Hence we may perceive a sweet, saline, bitter, putrid, or rancid taste, according to the state of the saliva; which may be corrupted, either from the general vitiated condition of the mass of humours, or the glands which secrete it; of the mouth itself; or even of the stomach, the vapours and eructations of which rise into the mouth, especially when the stomach is diseased. Besides the faults of the saliva, however, the taste may be vitiated from other causes; as, for instance, the condition of the nervous papillæ. This, however, is as yet little known to us; for the taste is sometimes plainly vitiated, when, at the same time, the saliva appears quite insipid, when tasted by other people.

TA'XIS, that manual operation, by which parts, which have quitted their natural situation, are replaced, without the assistance of instruments, as in reducing hernias, &c.

TEA. See Thea.

TEARS *(Lachrymæ*, Lat.); a name for the limpid fluid, secreted by the lachrymal glands, and flowing on the surface of the eye; either in consequence of local irritation, or the emotions of grief. See Lachrymal Gland, &c. Some part of this aqueous fluid is dissipated in the air; but the greatest part, after having performed its office, is propelled by the orbicular muscle, which so closely constringes the eye-lid to the ball of the eye, as to leave no space between, unless in the internal angle, where the tears are collected. From this collection, the tears are absorbed by the orifices of the punctæ lachrymaliæ; from thence they are propelled through the lachrymal canals, into the lachrymal sac, and flow through the ductus nasalis into the cavity of the nostrils, under the inferior concha nasalis.

The tears have no smell, but a saltish taste. The uses of the tears are these: 1. They continually moisten the surface of the eye and eye-lids, to prevent the transparent cornea from drying and becoming opake, or the eye from concreting with the eye-lids. 2. They prevent that pain, which would otherwise arise from the friction of the eye-lids against the ball of the eye, from continually winking. 3. They wash away dust, or any thing acrid, that may have fallen into the eye. 4. Their discharge unloads the head of congestions.

TEETH *(Dentes*, Lat.); the small bones regularly arranged and fixed vertically in the alveoli of the upper and lower jaws. In early infancy, the gums alone are sufficient for manducation; but as we advance in life, and require a different food, teeth become necessary; and these are the hardest and whitest of the bones. At full maturity, we usually find thirty-two teeth in both jaws, viz. sixteen above, and as many below. Their number varies, indeed, in different subjects; but it seldom exceeds thirty-two, or is found to be less than twenty-eight.

Each tooth consists of two parts, viz. its body, which appears above the gum; and its fangs or root, which are fixed within the socket. At the intermediate boundary, close to the edge of the gum, there is usually a small circular depression, called the neck of the tooth. Every tooth is composed of its external *enamel*, and its internal bony substance. The former is a peculiar very hard and compact substance, of a white colour, found only upon the body of the tooth, and covering the outside of the bony substance. When broken, it appears fibrous or striated; and all the striæ are directed from the circumference to the centre of the tooth. This enamel is thickest on the grinding surface, and on the cutting edges or points of the teeth; becoming gradually thinner as it approaches the neck, where it terminates insensibly.

The bony part of a tooth resembles other bones in its structure, though it is much harder than the most compact parts of other bones. It composes the inner part of the body and neck, and the whole of the root of the tooth. This part of a tooth, when completely formed, does not, like the other bones, receive a tinge from madder, nor do the minutest injections penetrate into its substance. Mr. Hunter has been, therefore, induced to deny its being vascular; although he is aware that the teeth, like other bones, are liable to swellings, and that they are found anchylosed with their sockets. He supposes, however, that both these may be original formations; and, as the most convincing proof of their not being vascular, he reasons from the analogy between them and other bones. The facts adduced by Mr. Hunter, Dr. Hooper thinks, are capable of a different explanation from that which he has given them; and when other facts are added, relative to the same subject, it will appear that this bony part of a tooth has a circulation through its substance, and even lymphatics; although, from the hardness of its structure, we are unable to demonstrate its vessels.

The facts which, he thinks, may be adduced, are: 1. A tooth recently drawn and transplanted into another socket, becomes as firmly fixed, after a certain time, and preserves the same colour as the rest of the set; whereas a tooth that has been long drawn before it is transplanted, will never become fixed. Mr. Hunter, indeed, is aware of this objection; and refers the success of the transplantation, in the first instance, to the living principle possessed by the tooth, and which he thinks may exist independent of a circulation. But, however applicable such a doctrine may be to zoophytes, there is room to suspect that it will not hold good in man, and others of the more perfect animals; and there does not appear to be any doubt but that, in the case of a transplanted tooth, there is a real union by vessels. 2. The swellings of the fangs of a tooth, which, in many instances, are known to be the effects of disease, and which are analogous to the swelling of other bones, are a clear proof of a similarity of structure; especially as we find them invested with a periosteum. 3. It is a curious fact, now pretty generally known, that, in cases of phthisis, the teeth become of a milky whiteness, and in some degree transparent. If so, does not this prove them to have absorbent vessels?

Each tooth has an inner cavity, which, beginning by a small opening at the point of the fang, becomes larger, and terminates in the body of the tooth. See pl. I. *sections of the teeth.* This cavity is supplied with blood-vessels and nerves, which pass through the small hole in the root *z, z, z.* In old persons this hole sometimes closes, and the tooth becomes then insensible.

The teeth are invested with a periosteum, from their fangs to a little beyond their bony sockets, where it is attached to the gums. This membrane seems to be common to the tooth which it incloses, and to the sockets which it lines. The teeth are, likewise, secured in their sockets by the *gums,* which every-where cover the alveolar processes, and have as many perforations as there are teeth. The gums are exceedingly vascular, and have something like a cartilaginous hardness and elasticity; but do not seem to have much sensibility. The gums of infants, which perform the office of teeth, have a hard ridge extending through their whole length; but in old people, who have lost their teeth, this ridge is wanting. The three classes into which the teeth are commonly divided, are *incisores, canini,* and *molares* or *grinders; a a, b b, c c,* in the plate, compared at different ages.

The teeth in the adult human subject, may be thus enumerated: 1. The *incisores.* These are the four teeth in the fore-part of the jaws. They derive their name from their use in dividing and cutting the food in the manner of a wedge; and have each of them two surfaces, which meet in a sharp edge. Of these surfaces, the anterior one is convex; and the posterior one somewhat concave. In the upper-jaw they are usually broader and thicker, especially the first two, than those of the under-jaw; over which they generally fall, by being placed a little obliquely. 2. The *canini* or *cuspidati.* These are the longest of all the teeth, deriving their name from their resemblance to a dog's tusks. There is one of these teeth on each side of the incisores, so that there are two in each jaw. They are the longest of all the teeth. Their fangs differ from that of the incisores only in being much larger; and their shape may be easily described to be that of an incisor with its edge worn off, so as to end in a narrow point instead of a thin edge. The canini not being calculated for dividing like the incisores, or for grinding, seem to be intended for laying hold of substances. Mr. Hunter remarks of these teeth, that we may trace in them a similarity in shape, situation, and use, from the most imperfect carnivorous animal, which we believe to be the human species, to the lion, which is the most perfectly carnivorous. 3. The *molares* or *grinders,* of which there are ten in each jaw. These are so called, because from their size and figure they are calculated for grinding the food. The canini and incisores have only one fang; but the last three grinders in the under-jaw have constantly two fangs, and the same teeth in the upper-jaw three fangs. Sometimes these fangs are divided into two points near their base; and each of these points has, perhaps, been sometimes considered as a distinct fang. The grinders, likewise, differ from each other in their appearance. The first two on each side, Mr. Hunter distinguishes by the name of *bicuspides (b b);* as they seem to be of a middle nature between the incisores and grinders. They have, in general, only one root, and the body of the tooth terminates in two points, of which the anterior one is the highest; so that the tooth has, in some measure, the appearance of one of the canini. The two grinders beyond these, on each side, are much larger. Their body forms almost a square, with rounded angles; and their grinding surface has commonly five points or protuberances, two of which are on the inner, and three on the outer, part of the tooth. 4. The *dentes sapientiæ,* which, though grinding teeth, are yet shorter and smaller than the rest, and come later through the gums; sometimes not appearing till very late in life. The variation in the number of teeth, in different subjects, usually depends on the dentes sapientiæ.

Mr. Hunter describes the manner of the formation and growth of the teeth in the fœtus very particularly. He says the alveolar process appears, about the fourth month, only as a shallow longitudinal groove; divided by slight ridges into a number of intermediate depressions, which are to be the future alveoli or sockets. These depressions are at first filled with small pulpy substances, included in a vascular membrane; and these pulpy substances are the rudiments of the teeth. As these advance in their growth, the alveolar processes become gradually more completely formed. The surface of the pulp first begins to harden; the ossification proceeding from one or more points, according to the kind of tooth that is to be formed. Thus, in the incisores and canini, it begins from one point; in the bicuspides, from two points, corresponding with the future shape of those teeth; and, in the molares, from four or five points. As the ossification advances, the whole of the pulp is gradually covered with bone, excepting its under surface; and then the fang begins to be formed. Soon after the formation of this bony part, the tooth begins to be incrusted with its enamel; but in what manner, is not easy to explain. It gradually forms upon the surface of the bony part, and continues to increase in thickness, especially at the points and basis of the tooth, till some time before the tooth begins to pass through the gum; and when this happens, the enamel seems to be as hard as it is afterwards; so that the air does not appear to have the least effect in hardening it, as has been sometimes supposed. While the enamel is thus forming, the lower part of the pulp is gradually lengthened out and ossified, so as to form the fang. In those teeth which are to have more than one fang, the ossification begins from different parts of the pulp, at one and the same time. In this manner are formed the incisores, the canini, and two molares on each side; making, in the whole, twenty teeth in both jaws, which are sufficient for the purposes of manducation in early life. As the fangs of the teeth are formed, their upper part is gradually pushed upwards; till, at length, about the seventh, eighth, or ninth month after birth, the incisores, which are the first formed, begin to pass through the gum. The first that appears, is generally in the lower-jaw. The canini and molares, not being formed so soon as the incisores, do not appear till about the twentieth or twenty-fourth month. Sometimes one of the canini, but more frequently one of the molares, first makes its appearance. See pl. I. *growth of teeth*, at 7 years old.

These twenty teeth are called the *temporary*, or *milk* teeth, because they are all shed between the age of seven and fourteen; and are supplied by others of a firmer texture, with large fangs, which remain till they become affected by disease, or fall out in old age, and are therefore called the *permanent* or *adult* teeth. The rudiments of these adult teeth begin to be formed at different periods. The pulp of the first adult incisor, and of the first adult grinder, may be perceived in a fœtus of seven or eight months; and the ossification begins in them about six months after birth. Soon after birth the second incisor, and the canine tooth on each side, begin to be formed. About the fifth or sixth year the first bicuspis, and about the seventh the second bicuspis, begin to ossify. These bicuspides are destined to replace the temporary grinders. All these permanent teeth are formed in a distinct set of alveoli; so that it is not by the growing of one tooth under another, in the same socket, that the uppermost tooth is gradually pushed out, as is commonly imagined; but the temporary teeth, and those which are to succeed them, being placed in separate alveoli, the upper sockets gradually disappear, as the under ones increase in size, till at length the teeth they contain, having no longer any support, consequently fall out. But, besides these twenty teeth, which succeed the temporary ones, there are twelve others to be added, to make up the number thirty-two. These twelve are three grinders, on each side, in both jaws; and in order to make room for this addition, we find the jaws grow as the teeth grow; so that they appear as completely filled with twenty teeth, as they are afterwards with thirty-two. Hence, in children, the face is flatter and rounder than in adults. The first adult grinder usually passes through the gum about the twelfth year; the second, which begins to be formed in the sixth or seventh year, cuts the gum about the seventeenth or eighteenth; and the third, or dens sapientiæ, which begins to be formed about the twelfth year, passes through the gum between the age of twenty and thirty. The dentes sapientiæ have, in some instances, been cut at the age of forty, fifty, sixty, and even eighty years; and it sometimes happens that they do not appear at all. Sometimes, likewise, it happens, that a third set of teeth appear about the age of sixty or seventy. Mr. Hunter speaks of two fore-teeth, which shot up in the lower-jaw of a very old person; and an account has been published of a man, who had a complete set at the age of sixty. Other instances of the same kind are to be met with in authors.

The teeth are subject to a variety of accidents, of which we shall particularise the following:

1. *Preternatural Derangement.* This happens more frequently in the second than the first set, and more commonly in the fore than in the back teeth. It may be owing to the first set remaining in the jaw, after the second have appeared. Another cause, is a want of space in the jaw; and a third, is a mal-formation of the teeth, where they are too large in proportion to the jaw, and therefore overlap each other. The remedy is the same in each of these cases, viz. to extract the teeth which stand in the way of the rest, to allow those which are out of their place to come into the row, and put on a more uniform appearance.

The usual method of moving teeth, which are out of the row, is, by fixing them with a ligature to the nearest teeth; or the same thing is done by metalline plates or pieces of wire. But these methods will not always answer, though in some cases they may be useful. When one or more front teeth are accidentally drawn out of the jaw, they ought to be immediately replaced. When the teeth are broken, or otherwise injured, they may be supplied with others transplanted from the jaws of another person; but this can only be done when the sockets have been newly emptied; for after inflammation comes on, it is impracticable. In these cases the inflammation must be allowed to subside, and then artificial teeth can be readily adapted.

2. *Loose teeth.* When the teeth are loosened by falls or blows, or by an improper use of instruments, in pulling diseased teeth in the neighbourhood of sound ones, they may again be made tolerably fast, by pressing them as firmly as possible into their sockets, and preserving them so with ligatures of catgut, Indian weed, or waxed silk, and keeping the patient upon spoon-meat till they are firm. When loose teeth are owing to tartar, nothing will fasten them till the cause be removed; and this ought to be done early, otherwise it will have no effect. Frequently the teeth become loose from a sponginess in the gums; often, but improperly, attributed to scurvy. The best remedy is scarifying the gums deeply, and allowing them to bleed freely; this should be repeated till they are fully fastened. Mild astringents, as tincture of bark, or of myrrh, have good effects, though acids do harm. The

loosening of the teeth in old age cannot be remedied; as it is owing to a wasting of their sockets, from which the teeth lose their support.

3. The teeth sometimes become *yellow* or *black*, without any adventitious matter being observed on them; at other times they become foul, and give a taint to the breath. The most frequent cause is *tartar*, which seems to be a deposition from the saliva; and with which the teeth are often almost entirely incrusted. When this is allowed to remain, it insinuates itself between the gums and the teeth; and then gets down upon the jaw, in such a manner as frequently to loosen the teeth. This, indeed, is by far the most common cause of carious teeth; and when they have been long covered with this, or with any other matter, it is seldom they can be cleaned without the assistance of instruments. But when once they are cleaned, they may generally be kept so, by rubbing them with a brush of very strong bristles; washing the mouth with common water only.

When the teeth are to be *cleaned by instruments*, the operator ought, with a linen cloth, or with a glove, to press against the points of the teeth, so as to keep them firm in their sockets, with the fingers of the one hand, while he cleans them with the necessary instruments (represented in pl. IX.) held in the other; taking care not to scrape them so hard as to loosen them, or to hurt the enamel.

TEETHING. See Dentition.

TE'GULA HIBE'RNICA. See Lapis Hibernicus.

TEGUMENTS, COMMON, a term under which anatomists comprehend the cuticle, rete mucosum, skin, and adipose membrane, as forming the general covering of the body, except the nails. See Skin.

TELE'PHIUM. See Faba crassa.

TE'LA CELLULO'SA. See Cellular membrane.

TEMPERAMENT (from *tempero*, to mix together). By this is meant, a peculiar constitution of the human frame. Temperaments have been variously distinguished, as has been fully set forth under the article Medicine.

TEMPORAL ARTERY, a branch of the external carotid, which runs on the temples, and gives off the frontal artery.

TEMPORAL BONES, *Ossa temporalia*, or *Ossa temporum;* two bones of the cranium, of a very irregular figure. Each is divided into two parts, or portions, the *squamose* and the *petrose*. Three external processes arise from each of the temporal bones: on the posterior part is the *mastoid*, or *mamillary process;* a little more forward is the *zygomatic process;* it joins the os malæ; and from the inferior craggy part, the *styloid process* projects obliquely forward. A little below the mastoid process there is a cavity, whence the digastric muscle of the lower jaw arises. At the inner side of the root of the styloid process there is a cavity, where the internal jugular vein is lodged. Between the mastoid and zygomatic processes, the *meatus auditorius externus* is seated; and between the mastoid and styloid processes, is the *aquæductus Fallopii*, whence the portio dura of the seventh pair of nerves makes its exit. Before the styloid process is a glenoid cavity, for the reception of the condyle of the lower jaw; near which cavity is an eminence, upon which the condyle sometimes moves. In the pars petrosa, near the styloid process, is a canal, through which the carotid artery enters. Near the last foramen, on the anterior edge of the bone, is the *Eustachian tube.* The internal foramen forms the meatus auditorius internus.

TEMPORA'LIS, the name of a muscle; called, by Winslow, *Crotaphyte.* It arises broad from the region of the temples, particularly from the ossa frontis, parietalia, temporalis, and sphenoides, where it spreads like a quarter of a circle; after which it forms a tendon, which passes under the jugum, and is inserted into the coronoid process of the under-jaw. A ligament from the zygomatic process braces this tendon down, and imparts some of the internal fibres to it. It is covered with a strong tendinous sheath, which is lost in the epicranium. When matter is formed under this tendinous expansion, it is usually attended with so great a degree of fever, from the pain, as to occasion delirium. The thickness of this tendinous part prevents the matter from pointing outwardly, where it was first formed; and if not set at liberty, it runs in the direction of the temporal muscle, and opens into the mouth by the coronoid process of the lower-jaw. It is proper, therefore, not to wait for this matter to discharge outwardly; but, as in other instances of matter under the fasciæ of tendons, to make an opening directly to it.

TENDON (from *tendo*, to stretch); the white and glistening extremity of a muscle. See Muscles. Tendons are sometimes ruptured, by a sudden and violent action of the muscles to which they are attached. This, at least, often happens to the *tendo Achillis.* A re-union, however, is easily effected, by bringing the broken extremities into contact, and keeping them in that situation for a sufficient length of time.

TENE'SMUS (*τεινεςμος*, from *τεινω*, to *constringe;* so called from the perception of a continual constriction, or bound state of the part); a continual, but fruitless, inclination to go to stool. It is easily relieved by laxative and anodyne clysters.

TE'NSOR PALA'TI. See Circumflexus.

TE'NSOR TY'MPANI, a muscle of the ear, which pulls the malleus, and the membrane of the tympanum, towards the petrous portion of the temporal bone; rendering the membrana tympani more concave and tense.

TE'NSOR VAGI'NÆ FE'MORIS, called also *Fascialis*, and *Musculus membranosus;* the *Musculus apeuneurosis*, vel *fasciæ latæ*, of Winslow. It is situated on the outside of the thigh, and stretches its membranous fascia. It also assists in the abduction of the thigh, and somewhat in its rotation inwards. It arises, by a narrow, tendinous, and fleshy beginning, from the external part of the anterior superior spinous process of the ilium, and is inserted, a little below the great trochanter, into the membranous fascia.

TENTO'RIUM, a process of the dura mater, which separates the cerebrum from the cerebellum. It extends from the internal horizontal spine of the occipital bone, directly forwards to the sella turcica of the sphænoid bone.

TEREBI'NTHINA ARGENTORATENSIS, Strasburg turpentine; generally more transparent and less tenacious than either the Venice or Chio turpentines. It is of a yellowish brown colour, and of a more agreeable smell than any of the turpentines, except the last. It is extracted, in several parts of Germany, from the red and silver firs. In some places, a resinous juice is collected from under the bark, called *Cuchrym abregna*, and *Oleum abietinum*.

TEREBI'NTHINA CHI'A, or *Terebinthina Cypria*. See Chio Turpentine.

TEREBI'NTHINA VENE'TA, Venice turpentine; so called because originally supplied from that country. It issues spontaneously from the *Pinus larix; foliis fasciculatis mollibus obtusiusculis bracteis extra squamas strobilorum extantibus.* Hort. Kew. Class, *Monœcia.* Order, *Monadelphia.* It is usually thinner than any of the other sorts; of a clear whitish or pale yellow colour. Its virtues are the same as those of the other turpentines.

TEREBI'NTHINA VULGA'RIS, common turpentine. This flows from the *Pinus picea* Linn. *Pinus foliis solitariis plenis emarginatis pectinatis, squamis coni obtusissimis adpressis.* Hort. Kew. Class, *Monœcia.* Order, *Monadelphia.* For its medicinal uses see Turpentines.

TE'RES, a name for the round smooth worm which infests the intestines. See Lumbricoides.

TE'RES MAJOR, a muscle which arises, fleshy, from the inferior angle of the scapula, and from all that portion of its inferior costa that is rough and thicker than the rest: its fleshy fibres are continued over part of the infra-spinatus muscle, to which they firmly adhere. It is inserted, by a broad, short, and thin tendon, into the ridge at the inner side of the groove for lodging the tendon of the long head of the biceps, along with the latissimus dorsi. Its use is to roll the humerus inwards, and to draw it backwards and downwards.

TE'RES MINOR, a muscle which arises, fleshy, from all the round edge of the inferior costa of the scapula, and runs forwards along the inferior edge of the infra-spinatus muscle, and adheres to the ligament. It is inserted, tendinous, into the back-part of the large protuberance on the head of the os humeri, a little behind and below the termination of the infra-spinatus muscle. Its use is to roll the humerus outwards; to draw the humerus backwards; and to prevent the ligament from being pinched between the bones.

TERMI'NTHUS (from *τερμινθος*, the turpentine-tree), a name for the black and inflamed pustules which mostly attack the legs of women. They are so called from their resemblance to the fruit of the turpentine-tree.

TERTIA'NA (from *tertius*, third), the tertian fever, a species of intermittent; present every first and third day, whilst the second day is free. Dr. Cullen places this genus of disease in the class *pyrexiæ*, and order *febres*, which he defines, a fever, wherein similar paroxysms occur about every forty-eight hours; the accessions happening at mid-day. It begins with a remarkable shivering, increasing frequently to a kind of convulsive shaking of the limbs. The extremities are always cold, sometimes remarkably so. The cold for the most part is first perceived about the lumbar region, and from thence ascending along the spine turns towards the pit of the stomach. Sometimes it begins in the first joint of the fingers and tip of the nose. Sometimes attacks only a particular part of the body, as one of the arms, the side of the head, &c. This cold is preceded by a heavy and sleepy torpor, languor, and lassitude, which we are partly to ascribe to real weakness, and partly to mere laziness. To these symptoms succeed yawning and stretching; after which the cold comes on as above described, not unfrequently with a pain of the back and a troublesome sensation of tension in the præcordia and hypochondria. To this succeed nausea and vomiting; and the more genuine the disease, the more certainly does the vomiting come on, by which a great deal of tough mucous matter, and sometimes bilious stuff or indigested food, is evacuated during the first paroxysms. In some there is only a violent straining to vomit, without bringing up any thing: sometimes, instead of these symptoms, a diarrhœa occurs; and this chiefly in weak, phlegmatic, and aged people, or where an indigested mucous saburra has long remained in the primæ viæ.

When these symptoms have continued for an hour or two, the cold begins to go off, and is succeeded by a lassitude, languor, and flaccidity of the whole body, but chiefly in the limbs, with an uneasy soreness as if the parts had been bruised; excepting in those cases where the nausea continues for a longer time. After this languor a heat comes on, the increase of which is generally slow, but sometimes otherwise, with pain of the head, thirst, and bitterness in the mouth. The pulse is quick and unequal; sometimes beating 130 strokes in a minute. As soon as this heat has abated, a little moisture or sweat is observed to break forth; not always indeed in the first, but always in the succeeding paroxysms, and the urine lets fall a quantity of lateritious sediment. The whole paroxysm is scarcely ever over in less than six hours; more frequently eight, and in violent cases it extends to twelve hours; but that which exceeds twelve hours is to be reckoned a spurious kind, and approaching to the nature of continued fever. All these symptoms, however, are repeated every third day, in such a manner that the patient is quite free from fever for at least twenty-four hours. The paroxysms return much about the same time, though sometimes a little sooner or later.

The genuine tertian attacks men rather than women, young people rather than old; the latter being more subject to anomalous tertians. It likewise seizes the lusty and active, rather than the indolent. Those, however, who are apt to nauseate their meat, fall easily into a tertian fever. The cause, according to Dr. Cullen, is the miasma of marshes, and that only. It cannot be denied, indeed, that it is a disease almost peculiar to marshy situations; and we find it very frequent in the fenny countries of Britain, whilst in other parts of the island it rarely occurs.

The genuine simple tertian, unless improper medicines be administered, is generally very easily cured; yet the improper use of hot and stimulating medicines may change it into a continued fever, more or less dangerous according to the quantity of medicines taken and the constitution of the patient. In that case the treatment must be regulated by the particular symptoms which occur. In warm climates, however, the tertian fever may be considered as a much more dangerous disease; and unless the most powerful remedies be employed, the patient is in danger of falling a victim to every paroxysm.

A variety of theories have been proposed for explaining the phenomena of this affection: but every thing said upon the subject is highly unsatisfactory. Dr. Cullen has attempted to prove, that the remote causes of this, as well as of other fevers, operate by inducing a state of debility; that this debility giving rise to spasm, induces increased action, from which the phenomena are to be explained. But this theory is liable to no less numerous and insurmountable objections than the already exploded hypotheses.

The treatment of all genuine intermittents, whether *tertians*, quotidians, or quartans, being almost precisely the same, the general method of cure applicable to them all may be here given, to which it will be easy to refer in the other descriptions. According to Dr. Cullen, the indications of cure in intermitting fevers may be reduced to the following: 1. In the time of intermission, to prevent the return of the paroxysms. 2. In the time of paroxysms, to conduct those in such a manner, as to obtain a final solution of the disease. 3. To take off certain circumstances which might prevent the fulfilling of the first two indications.

The first indication may be answered in two ways: 1. By increasing the action of the heart and arteries some time before the period of accession, and supporting that increased action till the period of accession be over, and thus to prevent the recurrence of that atony and spasm of the extreme vessels, which are said to give occasion to the recurrence of paroxysms. 2. By supporting the tone of the vessels, and thereby preventing atony and the consequent spasm, without increasing the action of the heart and arteries, the recurrence of paroxysms may be prevented.

The action of the heart and arteries may be increased: 1. By various stimulant remedies internally given or externally applied, and that without exciting sweat. 2. By the same remedies, or others, managed in such a manner as to excite sweating, and to support that sweating till the period of accession be for some time past. 3. By emetics, supporting for the same time the tone and action of the extreme vessels.

The tone of the extreme vessels may be supported without increasing the action of the heart and arteries, by various tonic medicines; as: 1. Astringents alone. 2. Bitters alone. 3. Astringents and bitters conjoined. 4. Astringents and aromatics conjoined. 5. Certain metallic tonics; and, 6. Opiates. A good deal of exercise, and as full a diet as the condition of the patient's appetite and digestion allow of, will be proper during the time of intermission, and may be considered as belonging to this head. Although many particulars in this plan of cure are deduced from Dr. Cullen's theory, yet there can be no doubt that the object chiefly to be aimed at is to employ such remedies during the intermissions as will prevent a recurrence of the paroxysm.

Of all the remedies hitherto employed with this intention, the most celebrated, perhaps the most certainly effectual, is the Peruvian bark. But it must be observed, that good effects are only to be expected from this medicine when given in substance and in large quantity; and for its use the following instructions have been given: 1. The bark may with safety be employed at any period of intermitting fevers, provided that at the same time there be neither a phlogistic diathesis prevailing in the system, nor any considerable or fixed congestion present in the abdominal viscera. 2. The proper time for exhibiting the bark in intermittent fevers is during the time of intermission, and it is to be abstained from in the time of paroxysms. 3. In the case of genuine intermittents, while a due quantity of bark is employed, the exhibition of it ought to be brought as near to the time of accession as the condition of the patient's stomach will allow. 4. In all cases of intermittents, it is not sufficient that the recurrence of paroxysms be stopped for once by the use of the bark; a relapse is commonly to be expected, and it should be prevented by the exhibition of the bark repeated at proper intervals.

The varieties of tertian fever are those respecting the duration of the fits, the periods of their recurrence, and the unusual symptoms attending them. It is also liable to complication with other diseases. Hence the names of TERTIANA DUPLEX, DUPLICATA, &c. which see.

TERTIA'NA DUPLEX, called also *Duplicana;* that variety of tertian fever which returns every day; but the paroxysms are unequal, every other fit being alike.

TERTIA'NA DUPLICA'TA; a tertian fever returning every other day; but there are two paroxysms in one day.

TERTIA'NA TRIPLEX; a tertian fever returning every day: every other day there are two paroxysms, and but one in the intermediate day. For the general mode of treatment, and cure of these, see TERTIANA.

TERTIANA'RIA (from *tertiana*, a species of intermittent fever, said to be cured by this plant); a name in some pharmacopœias for the *Scutellaria galericulata foliis cordato-lanceolatis, crenatis; floribus axillaribus*, Linn. It is common in our hedges and ditches. It has a bitter taste and garlic smell.

TE'STES, the testicles; two small oval bodies situated within the scrotum, and covered by a strong white and dense coat, called tunica albuginea. Each testicle is composed of small vessels, bent in a serpentine direction, arising from the spermatic artery, and convoluted into little heaps, separated from one another by cellular partitions. In each partition there is a duct receiving semen from the small vessels; and all the ducts constitute a net which is attached to the tunica albuginea. From this net-work twenty or more vessels arise, all of which are variously contorted, and, being reflected, ascend to the posterior margin of the testis, where they unite into one common duct, bent into serpentine windings, and forming a hard body called the *epididymis*. The spermatic arteries are branches of the aorta. The spermatic veins empty themselves into the vena cava and emulgent vein. The nerves of the testicle are branches of the lumbar and great intercostal nerve. The use of the testicle is to secrete the semen.

TE'STES CE'REBRI. See Tubercula quadrigemina.

TESTICLE, SWELLED. See Orchitis.

TE'TANUS (*τετανος*; from *τεινω*, to *stretch*), spasm with rigidity; a genus of disease in the class *neuroses*, and order *spasmi*, of Cullen. It is characterised by a spasmodic rigidity of almost the whole body; others add, "but with sensibility remaining and sometimes increased." The varieties of tetanus are: 1. *Opisthotonos*, where the body is thrown back by spasmodic contractions of the muscles. 2. *Emprosthotonos*, the body being bent forwards. 3. *Trismus*, the locked-jaw. Tetanus is occasionally symptomatic of syphilis and worms.

There has never been any thing like a crisis observed in these frightful cases, or a favourable termination from the mere efforts of nature; and therefore all the physician's dependence must be upon art. As in cases of tetanic affection, the disease often arises from some particular irritation, the removal of this must necessarily be an important object in the cure: but where it cannot be removed, benefit may often be obtained by the prevention of its influence being communicated to the brain. When, however, that influence is communicated to the brain, a cure is to be expected only by diminishing and obviating it. This requires the use either of those means which have a general tendency to diminish action, or of those which induce a different state of action. On these grounds the operation of those remedies which are employed with greatest success in this affection may, we apprehend, be explained. Fortunately, opium is capable of giving some relief, if administered in proper time, and if the disease happens not to be in the most violent degree. The warm-bath must also be brought in aid; and the patients should lie horizontally in the bath, and while in it have the whole body extremely well rubbed; when taken out, they are not to be dried, but immediately put to bed, wrapped in blankets; and while they remain there, the belly ought either to be stuped, or two or three bladders filled with warm water kept constantly lying on it. The bowels at the same time must, if possible, be kept open, by the common means. The opium is is to be given in large and frequently repeated doses; such as a grain every second or third hour. If swallowing be difficult, or the jaws closed up, the opium must be given in clysters; for during the whole course of the disease it will be of service to order emollient clysters from time to time, since these answer not only as a relaxing fomentation, but also contribute to keep the bowels free.

When patients recover, they continue for a long time very relaxed and weak. In order to perfect the recovery, preparations of iron, the bark, and Peruvian balsam, may be tried; and the spine rubbed with spirituous liniments, such as rum and Barbadoes tar: but these and all other stimulating things, either internally or externally, during the violence of the spasms, must, in the opinion of some practitioners, be omitted, since all of them as well as blisters have been alledged to exasperate the disease. This, in general, is the plan of treatment recommended by Dr. Chalmers; but in the West Indies, mercury is used with advantage. They prefer it *early* in the disease, and apply it internally and also by unction. Thus they endeavour to excite a speedy salivation, and keep it up until the disease is overcome, or its violence at least greatly abated.

TETRADYNA'MIA (from *τεσσαϱες*, *four*, and *δυναμις*, *superiority*), in the Linnæan system, a class of plants the 15th in order. It consists of such plants as bear hermaphrodite flowers, furnished with six stamina, two of which are shorter than the rest; by which last circumstance it may be distinguished from the sixth class, whose flowers have six equal stamina.

TETRAGY'NIA (from *τεσσαϱες*, *four*, and *γυνη*, a *woman*), one of the orders in the Linnæan system. It distinguishes the plants which have four pistilla or female organs.

TETRA'NDRIA (from *τεσσαϱες*, *four*, and *ανηϱ*, a *husband*); Linnæus's fourth class, comprehending hermaphrodite flowers, with four stamina of equal lengths.

TETRAPETALOUS (from *τεσσαϱες*, *four*, and *ϖεταλον*, a *leaf*), in botany, an epithet for such flowers as consist of four leaves, as in the wall-flower.

TEU'CRIUM (*τευκϱιον*, from *Teucer*, who discovered its virtues); the herb speedwell. For the different species, see Polium montanum, Chamædrys, Chamæpitys, Polium creticum, Marum Syriacum, and Scordium.

THA'LAMI NERVORUM OPTICORUM (*θαλαμος*, a *bed*), two bodies, which form, in part, the optic nerve; placed near to each other, in appearance white, protruding at the base of the lateral ventricles, and running in their direction inwards, a little downwards, and upwards.

THALI'CTRUM (*ϑαλικτρον*, from *ϑαλλω*, to *flourish*), called *Rhabarbarum pauperum*; the *Thalictrum flavum* Linn. The root is aperient and stomachic, and in its virtues resembling rhubarb. It is a common plant in this country, but seldom used medicinally notwithstanding.

THE'A, called by the Chinese *Chaa*, the leaf of an Oriental shrub, of which it does not appear that there is more than one species. The variety of teas seems to be owing to the different states in which the leaves are gathered, or the season of gathering them. With respect to its qualities as a medicine, we might suppose it ascertained by the experience of its daily use as an article of diet; but from the universality of this use in very different conditions of the plant, and in every possible condition of the persons employing it, Dr. Cullen thinks the conclusions drawn from its effects must be very precarious. It appears, from Dr. Smith's experiments "*De Actione Musculari*," that an infusion of green tea has the effect of destroying the sensibility of the nerves, and the irritability of the muscles; and from the experiments of Dr. Lettsom, it appears, that green tea gives out, in distillation, an odorous water, which is powerfully narcotic. This last we might presume from the necessity which the Chinese find of drying it with much heat before it can be brought into use; and that, even after such preparation, they must abstain from the use of it for a year or more, that is, till its volatile parts are still further dissipated: and it is said, that without this precaution, the tea is unwholesome. Even in this country, the fine teas shew their sedative powers in weakening the nerves of the stomach, and indeed of the whole system.

From these considerations Dr. Cullen concludes, that tea is to be considered as a narcotic and sedative substance; that it is especially such in its most odorous state, and therefore less in the *bohea* than in the *green* tea. Its effects, however, differ greatly in different persons; and hence the contradictory accounts of these effects. If to this we add the fallacy arising from the condition of the tea employed, which is often inert; and if we still add to this the power of habit, which reconciles the stomach to the most powerful substances, we shall not allow the various and even contradictory reports of its effects to alter our judgment, with respect to its ordinary and more general qualities.

Dr. Cullen allows, that some of the bad effects imputed to tea are owing to the large quantity of hot water in which it is infused; but he nevertheless asserts, that wherever any considerable effects appear, they are in nine cases out of ten entirely arising from the qualities of the tea itself.

But while he thus endeavours to establish the poisonous nature of tea, Dr. Cullen does not at the same time deny, that it may sometimes shew useful qualities. In some persons, when taken in moderate quantity, it may, like other narcotics in a moderate dose, prove exhilarating, or, like these, have some effect in taking off irritability, relieving head-ach, or in quieting some other irregularities of the nervous system. And as its bad effects have been often imputed to the warm water that accompanies it, so there is no doubt but some of its good effects may also be ascribed to the same cause, and particularly its being so often grateful after a full meal.

Where tea is found, as it often is, deleterious; the leaves of the male speedwell may be tried as a substitute. See VERONICA.

THE'CA VERTEBRA'LIS (θηκη, from τιθημι, to *place)*; the vertebral canal.

THEMISON, an ancient physician, the disciple of Asclepiades, who lived not long before the time of Celsus, during the end of the reign of Augustus, or beginning of that of Tiberius. He was the founder of the *methodic sect*. He maintained, that a knowledge of the causes of diseases was not necessary, provided we have a due regard to what diseases have in common and analogous to one another. In consequence of this principle, he divided all diseases into two, or at most three, kinds. The first included diseases arising from stricture; the second, those arising from relaxation; and the third, those of a mixed nature, or such as partook both of stricture and relaxation. Themison also asserted, that diseases are sometimes acute, and sometimes chronical; that for a certain time they increase, that at a certain time they are at their height, and that at last they are observed to diminish. Acute diseases, therefore, according to him, must be treated in one way, and chronical ones in another; one method must be followed with such as are in their augmentation, another with such as are at their height, and a third with such as are in their declension. He asserted, that the whole of medicine consisted in the observation of that small number of rules which are founded upon things altogether evident. He said, that all disorders, whatever their nature was, if included under any of the kinds above mentioned, ought to be treated precisely in the same way, in whatever country and with whatever symptoms they happen to arise. Upon these principles, he defined medicine to be a method of conducting to the knowledge of what diseases have in common with each other, and which at the same time is evident.

THE'NAR. See FLEXOR BREVIS POLLICIS MANUS.

THEOBRO'MA CACAO, the systematic name of the tree which affords cocoa and chocolate. See CACOA NUT.

THERAPEU'TICA (from θεραπευω, to *cure)*, also called *Therapeia;* therapeutics, or the *methodus medendi.* This may be defined, that branch of medicine which treats of the operation of the different means employed for obviating diseases, and of the application of those means. Taken in this sense, it may be considered as delivering the general doctrines of cure, or first principles of practice. It is indeed intimately connected with the practice of medicine strictly so called, and with the materia medica. But it differs from the former, in as far as its object is not the treatment of particular diseases; and from the latter, as it does not comprehend the natural or medical history of particular substances. A knowledge of the operation of medicines is, as it were, the intermediate link between theoretical reasonings and practical conclusions. By this alone a connection can be traced between the facts of the empiric, and the rules of the dogmatist. Upon this all rational practice must be founded. While, therefore, the methodus medendi is of great utility in the exercise of the profession, it cannot, at the same time, fail to afford high entertainment to the philosophical enquirer. See MEDICINE, &c.

THERI'ACA (ϑηριακα; from ϑηρ, a *viper*, or venomous wild beast), treacle, or melasses. Also a medicine to cure the bites of venomous animals.

THERI'ACA RUSTICORUM, a name for the roots of common garlic. See Allium.

THE'RMÆ, warm-baths or springs. See Baths.

THE'SIS (of the Gr. ϑεσις), any short sentence or subject taken to discourse or dispute upon in the schools, prior to the conferring degrees in medicine, &c.

THESSALUS, a physician who lived under the emperor Nero. Themison being old when he laid the foundation of the methodict sect, it was only brought to perfection by Thessalus. Galen and Pliny accuse him of intolerable insolence and pride. They report, that, despising all other physicians, so intolerable was his vanity, that he assumed the title of *the Conqueror of Physicians*, which he caused to be put upon his tomb in the Appian way. "Never was mountebank," says Pliny, "attended by a greater number of spectators than Thessalus had generally about him; and this circumstance is less to be wondered at, if we consider that he promised to teach the whole art of medicine in less than six months." In reality, the art might be learned much sooner if it comprehended no more than what the methodists thought necessary: for they cut off the examination of the causes of diseases followed by the dogmatics; and substituted in the room of the laborious observations of the empirics, indications drawn from the analogy of diseases, and the mutual resemblance they bear to each other. The most skilful of all the methodic sect, and he who put the last hand to it, was *Soranus*, a native of Ephesus, who lived under the emperors Trajan and Adrian.

THIRST (*Sitis*, Lat.) that sensation by which we are prompted to drink. The seat of it appears to be both in the fauces and stomach. It is a symptom in fevers, &c.

THLA'SPI (θλαψι; from θλαω, to *break*, because its seed appears as if it were broken or bruised); penny-cress. Two species are directed in some pharmacopœias; the *Thlaspi arvense* Linn. or treacle-mustard, and the *Thlaspi campestre* Linn. or mithridate-mustard. The seeds of both have an acrid biting taste, much like common mustard, with which they agree nearly in their qualities. They have also an unpleasant flavour, somewhat like that of garlic.

THORACIC DUCT, *Ductus thoracicus*, or *Ductus Pecquettii* as it has been called; the trunk of the absorbents. This is of a serpentine form, and about the diameter of a crow-quill. It lies upon the dorsal vertebræ, between the aorta and vena azygos, and extends from the posterior opening of the diaphragm to the angle formed by the union of the subclavian and jugular veins, into which it evacuates its contents. In this course the thoracic duct receives the absorbent vessels from every part of the body.

In pl. XVI. this trunk is shewn, so prepared as to exhibit the thoracic duct and lymphatics. 1, 2, 3, The neck, shoulder, and arm. 4, The outer end of the clavicle. 5, The extremity of the first rib. 6, The subclavian muscle. 7, The rib. 8, The trachea. 9, The aorta ascendens. 10, The spine. 11, Vena azygos. 12, The aorta decendens. 13, The cœliac artery. 14, The superior mesenteric artery. 15, The right crus diaphragmatis. 16, The kidney. 17, The right emulgent artery. 18, The common iliac artery. 19, The division of the common iliac into the external and internal iliac arteries. 20, The cavity of the pelvis. 21, The spine of the os ilium. 22, The groin. 23, A lymphatic gland in the groin, into which lymphatic vessels from the lower extremity are seen to enter. 26, The psoas muscle with lymphatic vessels lying upon its inside. 27, A plexus of lymphatics which, having passed over the brim of the pelvis at 25, having entered the cavity of the pelvis, and received the lymphatic vessels belonging to the viscera contained in that cavity, next ascends, and passes behind the iliac artery to 29. 29, The right psoas, with a large plexus of lymphatics lying on its inside. 30, 30, The plexus lying on each side of the spine. 31, 31, 31, Spaces occupied by the lymphatic glands; which are not here represented, not having been injected in the subject. 32, The trunk of the lacteals lying on the under side of the superior mesenteric artery. 33, The same dividing into two branches; one of which passes on each side of the aorta, that of the right side being seen to enter the thoracic duct at 34. 34, The thoracic duct beginning from the large lymphatics. 38, The thoracic duct passing under the curvature of the aorta to get to the left subclavian vein. 39, A plexus of lymphatic vessels passing upon the trachea from the thyroid gland to the thoracic duct. 40, The upper part of the thoracic duct lying between the left carotid and the left jugular vein, and passing behind that vein downwards and outwards towards the angle between the left jugular and the left subclavian. 41, The extremity of the thoracic duct entering the angle between the left jugular and the left subclavian vein. 46, That net-work passing under the right subclavian vein, and under the subclavian muscle; the clavicle being removed.

THO'RAX (ϑωραξ, from ϑωρεω, to *leap*, because in it the heart pulsates), the chest; or that part of the body situated between the neck and the abdomen. The external parts of the thorax are, the common integuments, the breasts, various muscles, and the bones of the thorax. See Bones, Mammæ, Respiration, &c. The parts within the chest are the pleura and its productions, the lungs, heart, thymus gland, œsophagus, thoracic duct, arch of the aorta, part of the vena cava, vena azygos, the eighth pair of nerves, and part of the great intercostal nerve. These are described under their several names.

THRO'MBUS (ϑρομβος; from ϑοεω, to *disturb*), a small tumor that sometimes takes place after bleeding. It is caused by the blood escaping laterally into the cellular membrane. See Bleeding.

THU'S, common frankincense; resin which exudes from fir-trees. It is a solid brittle resin, in little masses of a brownish or yellowish colour on the outside; internally whitish, or variegated with whitish specks; of a bitterish, acrid, not agreeable, taste; without any considerable smell. It is used externally in a variety of stimulating plasters. Its officinal preparations are: *Emp. lad. comp.* Lond. *Emp. thuris comp.* Lond. *Emp. lith. comp.* Lond.

THY'MBRA (*ϑυμϐϱα*; from *θυμος*, *thyme)*. See SATUREJA. It is also the name given by Tournefort to the common herb mastich. See MARUM VULGARE.

THYMELŒ'A (from *ϑυμα*, an *odour)*, spurge-flax, or flax-leaved daphne: *Daphne gnidium; panicula terminali foliis lineari-lanceolatis accuminatis*, Linn. This plant affords the *Garou bark*, which resembles that of our mezereum; and when steeped in vinegar and applied to the arm, produces exudation from the skin without blistering. It is frequently used in this way, in France, for diseases of the eyes.

THYMIA'MA (from *ϑυμα*, an *odour*, so called from its odoriferous smell), or *Thus judæorum*, musk-wood; a kind of bark, in small brownish-grey pieces, brought from Syria, and supposed to be the produce of the liquid-storax tree, of which it has the agreeable balsamic smell, and a sub-acrid bitterish taste, with a slight astringency.

THY'MUS, a gland of considerable size in the fœtus, situated in the anterior duplicature or space of the mediastinum, under the superior part of the sternum. An excretory duct has not yet been detected, but lymphatic vessels have been seen going from it to the thoracic duct. Its use is unknown to us at present.

THY'MUS (from *ϑυμα*, an *odour*, because of its fragrant smell), thyme; the *Thymus vulgaris* Linn. *Thymus erectus foliis revolutis ovatis, floribus verticillato spicatis.* Class, *Didynamia.* Order, *Gymnospermia.* This plant is said to be resolvent, emmenagogue, tonic, and stomachic; yet it is little used for those purposes.

THY'MUS CITRA'TUS. See SERPYLLUM CITRATUM.

THY'MUS CRE'TICUS, a name given, in some pharmacopœias, to the *Satureja capitata* of Linnæus, which is similar to our thyme.

THY'MUS MASTICHI'NA, the systematic name of the herb mastich. See MARUM VULGARE.

THY'MUS SERPY'LLUM, the systematic name of the mother-of-thyme. See SERPYLLUM.

THYREO-PHARYNGE'US. See CONSTRICTOR PHARYNGIS INFERIOR.

THY'RO. Anatomical names compounded with this word, belong to muscles which are attached to the thyroid cartilage; as in the following:

THYRO-ARYTENOIDE'US, a muscle situated about the glottis, which pulls the arytenoid cartilage forwards nearer to the middle of the thyroid, and consequently shortens and relaxes the ligament of the larynx.

THYRO-HYOIDE'US, a muscle, situated between the os hyoides and trunk, which pulls the os hyoides downwards, and the thyroid cartilage upwards.

THYRO-PHARYNGO-STAPHILI'NUS. See PALATO-PHARYNGEUS.

THYRO-STAPHILI'NUS. See PALATO PHARYNGEUS.

THYROID CARTILAGE. See CARTILAGO THYROIDÆA.

THYROIDÆ'A GLA'NDULA, a large gland, situated upon the cricoid cartilage, trachea, and horns of the thyroid cartilage. Anatomists are uncertain whether it be conglobate, or conglomerate; nor has its excretory duct yet been detected. Its use is consequently unknown.

TI'BIA, the inner and larger bone of the leg. It is one of the cylindrical bones, of a shape almost triangular; its fore and sharp edge being called the *Shin.* In its upper extremity it has two large sinuses, tipt with a soft and elastic cartilage, which runs in between the extremities of the two bones, and becomes very thin at its edge. Like those in the articulation of the lower jaw, this facilitates a small side motion in the knee. The sinuses receive the two protuberances of the thigh-bone; and the production which is between the sinuses of the tibia, is received in the sinus that divides these two protuberances of the femur. By bending the knee, we bring the leg, in walking, in a straight line forwards, which, without this articulation, we could not do; but, like those who walk with a wooden leg, we must have brought the foot about in a semi-circle, in going even upon a plane, but more evidently upon an ascent. On the side of this superior end the tibia has a small process, which is received into a corresponding sinus of the fibula; and on its fore part, a little below the patella, it has another, into which the tendons of the extensors of the leg are inserted. Its lower extremity, which is much the smallest, has a remarkable process, which forms the inner ankle; and a pretty large sinus, divided in the middle by a small protuberance. The sinus receives the convex head of the astragalus, and the protuberance is received into the sinus in the convex head of the same bone. It has another shallow sinus in the side of its lower end, which receives the fibula. In the fœtus both ends of the tibia are cartilaginous, and become afterwards epiphyses.

TIBIA'LES ARTE'RIÆ, the arteries of the tibia. These are two principal branches of the popliteal artery. One proceeds forwards, and is called the anterior tibial; the other backwards, and is called the posterior tibial; of which the external tibial, the fibular, the external and internal plantar, and the plantal arch, severally are branches.

TIBIA'LIS ANTI'CUS, a flexor muscle of the foot, situated on the leg. It bends the foot upwards and at the same time turns the toes inwards.

TIBIA'LIS GRA'CILIS. See PLANTARIS.

TIBIA'LIS POSTI'CUS, a flexor muscle of the foot, situated on the leg. It extends the foot, and turns the toes inwards.

TIC DOLOUREUX, the French name for the *Dolor faciei* of Fothergill, and *Trismus Dolorificus* of Sauvages. This painful affection of the face is the fourteenth species of trismus, in the *Nosologia Methodica;* described as a very great and extremely painful difficulty of opening and moving the mouth, attended with copious ptyalism, pervigilium, and continued convulsive agitation of the adjacent muscles. In the Medical Researches, for 1798, Dr. Haighton has given an account of a variety of this disease successfully treated by an entire division of the suborbitar nerves. He was led to this operation by observing, that some temporary advantage was gained by pressure made on that nerve against the bone. But André, a surgeon of Versailles, had before cured this complaint by burning the infra-orbitar nerve, and by excision; and shewn that this disease was greatly alleviated even by the ulcers formed by cauterising, though these did not reach the nerve affected. In Dr. Haighton's patient, the pain was very moderate at first, but became more violent; and at length acquired a degree of acuteness, which no words can describe. The seat of it was confined to the ala nasi, and part of the right upper lip. It was transient, exceedingly acute, and lancinating, during the attack: in the intervals of its recurrence, the patient enjoyed a state of perfect ease. The pain always began in the ala nasi and upper lip, and darted upwards towards the orbit; but when the attack was more than common, it extended to the adjacent parts. The patient was worse in severe or windy weather, yet not altogether free from it in the mildest. The duration of each pain seldom exceeded half a minute; but more frequently less. The painful fits varied much in their accession and violence, having five or six on some days, and double the number on others; and sometimes so moderate as only to suspend the movement of the upper lip; sometimes so pungent as to extort the most violent screams. Notwithstanding these, neither swelling nor discoloration could be perceived, except such as were occasioned from time to time by external applications. Till the operation took place, this disease withstood all the effect of medical power, except some temporary alleviation from opiates; but these advantages were never lasting, so that the operation of dividing the suborbitar nerves seems to be the only remedy. Dr. Haighton's drawing shews the exit of the suborbitar nerve and its branches, and it is accompanied with precise directions where the incision is to be made.

TI'GLIA GRA'NA, or *Grana tiglii*. These are seeds of a dark grey colour, produced by the *Troton tylium* Linn. In shape they are very like the seeds of the *ricinus communis;* and they abound with an oil, which is far more acrid and purgative than castor-oil.

TI'LIA (πτελεα, *ulmus*, the *elm-tree);* the lime or linden tree: *Tilia Europea* Linn. Its flowers are supposed to possess anodyne and antispasmodic virtues. They have a moderately strong smell, and abound with a strong mucilage. They are in high esteem in France as a medicine.

TI'LLI GRA'NA. See TIGLIA GRANA.

TIMAC; a root imported from the East Indies, which is said to possess diuretic virtues, and has been therefore exhibited in dropsies. It is not known from what plant this is obtained.

TIN *(Stannum*, Lat.); the *Jupiter* of the alchemists; an imperfect metal, of a whiter colour than lead, but not quite so white as silver. It is obtained in great quantities from the mines in Cornwall. This metal is much used for culinary utensils. Some have supposed it poisonous; and Count Rumford has fallen into this error. Where injury has happened to any person, it must have arisen, either from the tin containing a proportion of arsenic, or from its admixture with lead; for the tin employed in this country is, of all metals, the most innocent for the purposes of cookery. Tin-filings, *limatura stanni*, are exhibited by many physicians for the cure of worms. Others give it in a granulated form; but as it acts mechanically by dragging off the mucus of the intestines, in which the worms lodge and are generated, the filings are most likely to be efficacious. From two drachms to half an ounce, or more, should be given for a dose; and continued daily, interposing a calomel purge occasionally.

TI'NCÆ OS (from *Tinca*, a tench). The mouth of the uterus has heretofore been so called by anatomists, from its resemblance to a tench's mouth.

TI'NCAL. See BORAX.

TINCTU'RA (from *tingo*, to dye), a tincture. A solution or liquid extract of any substance in common wine, alcohol, or proof spirit, is so termed. Rectified spirit of wine is the direct menstruum of the resins, and essential oils of vegetables, and totally extracts their active principles from substances, which yield them to water, either not at all, or only in part. It dissolves, likewise, the sweet saccharine matter of vegetables; and generally those parts of animal bodies in which their peculiar smell and taste reside.

The virtues of many vegetables are extracted almost equally by water and rectified spirit; but in the watery and spirituous tinctures of them there is this difference, that the active parts in the watery extractions are blended with a large proportion of inert gummy matter, on which their solubility in this menstruum in a great measure depends; while rectified spirit extracts them almost pure from gum. Hence, when the spirituous tinctures are mixed with watery liquors, a part of what the spirit had taken up from the subject generally separates and subsides, on account of its having been freed from that matter, which, being blended with it in the original vegetable, made it soluble in water. This, however, is not universal; for active parts of some vegetables, when extracted by rectified spirits, are not precipitated by water, being almost equally soluble in both menstrua.

Alkaline salts deepen the colour of spirituous tinctures; and hence have been erroneously supposed to promote the dissolving power of the menstruum. Volatile alkali, in many cases, promotes the action of the alcohol. Acids generally weaken it; unless when the acid has been previously combined with the vinous spirit into a compound of new qualities, called dulcified spirit.

The action of tinctures on the living system, is always compounded of the action of the menstruum, and of the matters dissolved in it. Now, these actions may either coincide with, or oppose, each other; and as alcohol is at all times a powerful agent, it is evident that no substance should be exhibited in the form of a tincture, whose action is different from that of alcohol; unless it be capable of operating in so small a dose, that the quantity of alcohol taken along with it is inconsiderable.

TI'NEA (from *teneo*, to hold), or *Tinea capitis*, the scald-head; a genus of disease in the class *locales*, and order *dialyses*, of Cullen. It is characterised by small ulcers at the root of the hairs of the head, which produce a friable white crust. This is the *Porrigo* of Dr. Willan; a disease often very difficult of cure. It resembles the crusta lactea of infants (see Crusta Lactea), except in being confined chiefly to the hairy scalp. Mr. Bell considers it the same as the *herpes pustulosus* (see that article), and that it requires a similar treatment. In the early state, a cure may be obtained by shaving the head, washing daily with soap-suds, and wearing a close-fitted oil-silk cap. In the advanced state, tar and sulphur ointments, and the ung. hydr. nitr. are applied; and these are assisted by the exhibition of mercurial and alterative remedies internally.

TITHY'MALUS (from τιθος, a *dug*, and μαλος, *tender;* so called from its smooth leaves and milky juice); spurge. Two plants are used as medicine under this name, viz. the *Tithymalus paralias*, and *Tithymalus cyparissius*, or *Esula minor*. See Esula minor. The first is the sea-spurge, *Euphorbia paralias* Linn. This is violently cathartic and irritating, inflaming the mouth and fauces. It is therefore hardly ever employed in this country.

TOAD-FLAX. See Linaria.

TOBACCO. See Nicotiana.

TOES; *digiti pedis*. Each toe consists of three distinct bones, which, collectively, are disposed in rows called phalanges. The great toe has but two phalanges; the others have three. These have nothing particular, but the joints, which are made round and free, by a round head on one bone, and a pretty deep hollow for receiving it, in the one above it.

TOLU BALSAM. See Balsamum tolutanum.

TOLUI'FERA BA'LSAMUM; the systematic name of the tree which affords the tolu balsam. See Balsamum tolutanum.

TOME'NTUM CE'REBRI (*Tomentum*, a fleece of wool). The small vessels that penetrate the cortical substance of the brain, from the pia mater: these, when separated from the brain, and adhering to the pia mater, give it a flocky appearance.

TONGUE (*Lingua*, Lat.), a soft fleshy member, very moveable in every direction, situated inferiorly in the cavity of the mouth, and constituting the organ of taste. It is divided into a base, body, and back, an inferior surface, and two lateral parts. It is composed of muscular fibres, covered by a nervous membrane, on which are a great number of nervous papillæ, particularly at the apex and lateral parts; the rete mucosum, and epidermis. The arteries of the tongue are branches of the ranine and labial. The veins empty themselves into the great lingual, which proceed to the external jugular. The nerves come from the eighth, ninth, and fifth pair. The use of this organ is for language, chewing, swallowing, sucking, and tasting. See Taste.

Physicians, in almost every disease, but especially in fevers, enquire into the state of the tongue; not, indeed, without the greatest reason: for from this they can judge of the condition of the stomach; of the thirst, or rather the occasion the patient has for drink, when, on account of his delirium or stupor, he neither feels his thirst nor is able to call for drink. And, lastly, from an inspection of the tongue, physicians endeavour to form some judgment concerning the nature, increase, and remission, of the fever.

TO'NICA (from τονεω, to *strengthen*), tonics; or those medicines which increase the tone of the muscular fibres. Stimulants, astringents, &c. as bark, the preparations of iron, zinc, &c. are of this description.

TO'NICUS SPA'SMUS (τονικος, from τεινω, to *pull* or *draw*), *Contractura à spasmo*, tonic spasm; a rigid contraction of the muscles, without relaxation, as in Trismus, Tetanus, &c. See those articles.

People are rendered liable to spasm by too sensible a habit of body, or too great mobility; and hence it is a disease common in women, in infants, and in weak, luxurious, lazy, and plethoric people. It is brought on those already predisposed to it, by any kind of stimulus applied to the brain, or to any nerve, muscle, or nervous part, connected with it. Of this we have examples in dentition; worms lodged in the intestines, and irritating them; any acrid matter infecting the blood, or much affecting the stomach and intestines; the irritation of any nerve, or of the brain itself, by an exostosis, swelling, too great fulness of the vessels, pain, vehement affections of the mind, sudden evacuation, or poisons admitted into the body. Frequently, however, the malady originates from slight causes, little known, and not easily observed. Spasm is both the cause and effect, and frequently constitutes the greatest part, of most diseases. It is often very difficult either to be known or cured; because it is so multiform, and produces as many different symptoms as there are organs affected; of which it surprisingly disturbs, impedes, or increases, the functions. It is a disease seated in the original stamina of the constitution; and neither to be removed by slight remedies, nor in a short time.

TONSI'LLÆ, or *Amygdalæ*, the tonsils; two oblong, suboval glands, situated one on each side of the fauces, and opening into the cavity of the mouth by several large excretory ducts. These are sometimes enlarged, and otherwise so diseased, as to require extirpation.

TOOTH-ACH. See Odontalgia.

TO'PHUS, a small swelling of a bone, or its periosteum. See Lues Venerea.

TOPICS (*topica*, from τοπος, *locus*, a *place* or *part*); such remedies as are externally applied to any particular part, as liniments, ointments, &c.

TO'RCULAR HERO'PHILI (from *torqueo*, to twist), the press of Herophilus; that place where the four sinuses of the dura mater meet. It was first accurately described by Herophilus.

TORDY'LIUM OFFICINA'LE, the systematic name of the officinal *seseli creticum*. See Seseli creticum.

TORMENTI'LLA (from *tormentum*, pain; as relieving pain in the teeth), also called *Heptaphyllum;* common tormentil, or upright septfoil: the *Tormentilla erecta* Linn. *Tormentilla caule erectiusculo, foliis sessilibus*. Class, *Icosondria*. Order, *Polyginia*. The root is the only part used medicinally. This has a strong styptic taste, but imparts no peculiar sapid flavour. It is a powerful astringent; and has been substituted for oak bark in the tanning of skins for leather. Tormentil is ordered in the *pulvis è creta compositus* of the London pharmacopœias, but employed in no other way.

TO'RMINA, gripes, or pains in the bowels.

TO'RPOR, numbness, or a deficient sensation.

TO'TA BO'NA. See Bonus Henricus.

TOUCH (*Tactus*, Lat.), the sensation by which we perceive any impression made on the skin. The organ of touch is formed by the nervous papillæ extended all over the skin.

The sense of feeling, or touch, is therefore common to every part of the nervous system. In some places, however, it is much more acute than in others; in certain parts of the skin, for instance, and especially in the points of the fingers. These are found to have nervous papillæ, which, by the influx of the blood, are somewhat erected in the action of contact, in order to give a more acute sensation; though indeed this opinion seems rather to be founded on a conjecture derived from the structure of the tongue, which is not only the organ of taste, but also a most delicate organ of touch, than upon any certain observations.

From the sense of feeling, as well as all the other senses, either pain or pleasure may arise; nay, to this sense we commonly refer both pain and almost all other troublesome sensations, though in truth pain may arise from every vehement sensation. It is brought on by any great force applied to the sentient part; whether this force comes from within or from without. Whatever, therefore, pricks, cuts, lacerates, distends, compresses, bruises, strikes, gnaws, burns, or in any manner of way stimulates, may create pain. Hence it is so frequently conjoined with so many diseases, and is often more intolerable even than the disease itself. A moderate degree of pain stimulates the affected part, and by degrees the whole body; produces a greater flux of blood and nervous power to the part affected; and often stimulates to such motions as are both necessary and healthful. Hence, pain is sometimes to be reckoned among those things which guard our life. When very violent, however, it produces too great irritation, inflammation and its consequences, fever and all those evils which flow from too great force of the circulation; it disorders the whole nervous system, and produces spasms, watching, convulsions, delirium, debility, and fainting. Neither the mind nor body can long bear very vehement pain; and indeed Nature has appointed certain limits, beyond which she will not permit pain to be carried, without bringing on delirium, convulsions, syncope, or even death, to rescue the miserable sufferer from his torments.

Long-continued pain, even though in a more gentle degree, often brings on debility, torpor, palsy, and rigidity of the affected part. But if not too violent, nor accompanied with fever, sickness, or anxiety, it sometimes seems to contribute to the clearness and acuteness of the judgment, as some people testify who have been afflicted with the gout.

TOXICOLO'GIA (from τοξον, an *arrow* or *bow*; because darts are besmeared with poisons; and λογος, *a discourse*), toxicology; or a dissertation on poisons. See Poisons.

TRABE'CULÆ (from *Trabecula*, a small beam). Small medullary fibres of the brain, which constitute the commissures, are thus called by anatomists.

TRA'CHEA (τραχεια; so called from its roughness; from τραχυς, *rough*), the wind-pipe. The trachea is a cartilaginous and membranous canal, through which the air passes into the lungs. It is situated anteriorly, in the lower part of the neck, from whence it runs down into the thorax through the upper space left between the duplicature of the mediastinum, behind the thymus. Having reached as low as the curvature of the aorta, it divides into two lateral parts, one toward the right, and the other toward the left, which enter the lungs, and are distributed through them in the manner of the blood-vessels. These two branches are called *bronchia;* and that on the right side is shorter than that of the left, whereas the right pulmonary artery is the longest.

The trachea consists of segments of circles or cartilaginous hoops, disposed in such a manner as to form a canal open on the back part, the cartilages not going quite round; but this opening is filled by a soft glandular membrane, which completes the circumference of the canal; but this cannot be to give way to the œsophagus, for, instead of descending immediately upon the middle of that canal, the trachea inclines a little to the right side, and the same structure is found in the back part of the great bronchial vessels, which are at some distance from the œsophagus. Each circle is about the twelfth part of an inch in breadth, and about a quarter of that space in thickness. Their extremities are round; and they are situated horizontally above each other, small interstices being left between them, and the lower edge of the superior segment being turned towards the upper edge of those next below them. They are all connected by a very strong elastic membranous ligament fixed to their edges.

The trachea is covered externally with a quantity of cellular substance, which unites it to the neighbouring parts, and it is lined on the inside by a particular membrane, which appears to be partly fleshy or muscular, and partly ligamentary, perforated by an infinite number of small holes, more or less imperceptible, through which a mucilaginous fluid continually passes, to defend the inner surface of the trachea against the action of the air in breathing. The internal membrane of the trachea is subject to inflammation, which constitutes the disease called *croup.* See Cynanche trachealis. It is often slightly affected too, with catarrhal inflammation, in common colds.

TRACHE'LO (from τραχηλος, the *neck*). Names compounded of this word belong to muscles which are attached to the neck, as in the following:

TRACHE'LO-MASTOIDE'US, a muscle, situated on the neck, which assists the complexus, but draws the head more to one side.

TRACHEOTO'MIA (from τραχυς, *rough*, and *τεμνω*, to *cut)*, a synonyme of bronchotomy. See Bronchotomy.

TRACHO'MA (*τραχωμα*; from *τραχυς*, *rough)*, an asperity in the internal superficies of the eyelid, producing ophthalmia. The species are: 1. *Trachoma sabulosum*, from sand getting between the eye and the eyelid. 2. *Trachoma carunculosum*, which arises from fleshy verrucæ, growing in the internal superficies of the eyelid. This species of the trachoma is called morum palpebræ internæ, because the tuberculous internal superficies appears of a livid red like a mulberry. 3. *Trachoma herpeticum*, are hard pustules in the internal superficies of the eyelids; also called *fycosis*, from its resemblance to the granulated substances in a cut fig. Mr. Ware recommends the application of ung. hydr. nitrat. to the edges of the eyelids in this disease.

TRAGACA'NTHA (of *τραγος*, a *goat*, and *ακανθα*, a *thorn*; from its pods resembling the goat's beard), the herb goat's-thorn, or milk-vetch. It is the *Astragalus tragacantha caudice arborescente, petiolis spinescentibus*, Linn. Class, *Diadelphia*. Order, *Decandria*. The substance called gum tragacanth is forced from this plant by the intensity of the solar rays about Mount Ida, where it is concreted into irregular vermicular pieces, bent into a variety of shapes, according to the size of the fissure from which it issues. It differs from all other known gums in imparting to a very large quantity of water a thick and glutinous consistence. The demulcent qualities of this gum are very similar to those of gum arabic. It is seldom given alone, but frequently in combination with more powerful medicines, especially in the form of troches, for which it is peculiarly well adapted. It gives name to an officinal powder, *Pulv. trag. comp.* Lond. and is an ingredient in the *Pulv. cerus. comp.* Lond. *Mucil. gum. trag.* Edin. Lond. Dubl. *Troch. glycyr.* Lond. Dubl. *Troch. nitri* Lond.

TRA'GICUS; a proper muscle of the ear, which pulls the point of the tragus a little forward.

TRAGOPO'GON (from *τραγος*, a *goat*, and *πωγων*, a *beard;* from its downy seed resembling a goat's beard), the herb goat's-beard: *Tragopogon pratense* Linn. The young stems are eaten like asparagus, and are a pleasant and wholesome food. The root is also excellent, and was formerly used medicinally as a diuretic, but is now neglected.

TRAGOSELI'NUM (from *τραγος*, a *goat*, and *σελινον*, *parsley;* from its hairy coat like a goat's beard). The burnet-saxifrage was so called. See Rapinella.

TRA'GUS (from *τραγος*, a *goat;* being hairy like the goat); a small cartilaginous eminence of the auricula or external ear, placed anteriorly, and connected to the anterior extremity of the helix. It is beset with numerous little hairs in the entrance of the external auditory passage, so as to give the alarm in case of the instrusion of insects, or the accidental admission of foreign bodies.

TRANSFUSION (from *trans*, through, and *fundo*, to pour), is chiefly used for the letting the blood of one animal out, so as to be immediately received by another; but this is found not reducible to any good purpose in the practice of physic, notwithstanding what may have been said, even by some late writers, in its favour.

TRANSPIRATION (from *trans*, through, and *spiro*, to breathe), a synonyme of perspiration. See Perspiration.

TRANSVERSA'LIS ABDO'MINIS, a muscle, situated on the anterior part of the abdomen, which supports and compresses the abdominal viscera.

TRANSVERSA'LIS ANTI'CUS PRIMUS. See Rectus capitis lateralis.

TRANSVERSA'LIS CE'RVICIS. See Longissimus dorsi.

TRANSVERSA'LIS COLLI, a muscle, situated on the posterior part of the neck. It turns the neck obliquely backwards, and a little to one side.

TRANSVERSA'LIS DORSI. See Multifidus spinæ.

TRANSVERSA'LIS MAJOR COLLI. See Longissimus dorsi.

TRANSVERSA'LIS PEDIS, a muscle of the foot, which it contracts by bringing the great toe and the two outermost toes nearer to each other.

TRANSVERSA'LIS SUTU'RA, the transverse suture. This suture runs across the face, and sinks into the orbits. It joins the bones of the skull to those of the face; but with many irregularities and interruptions.

TRANSVERSO-SPINA'LES. See Multifidus spinæ.

TRANSVE'RSUS AURIS, a muscle of the external ear, which draws the upper part of the concha towards the helix.

TRANSVE'RSUS PERINÆ'I, a muscle of the organs of generation, which sustains and keeps the perinæum in its proper place. See Perinæum.

TRANSVE'RSUS PERINÆ'I ALTER, the *Inferior prostate* of Winslow; a small muscle which is occasionally found to accompany the former.

TRA'PA NA'TANS, the systematic name of the plant which affords the nux aquatica. See Tribulus aquaticus.

TRAPE'ZIUM OS (from *τραπεζιον*, a *four-sided figure;* so called from its shape), the first bone of the second row of the carpus. See Carpus.

TRAPE'ZIUS (from *τραπεζιος*, *four-square;* so named from its shape), or *Cucullaris;* a muscle, situated immediately under the integuments of the posterior part of the neck and back. It arises, by a strong round tendon, from the lower part of the protuberance in the middle of the os occipitis behind; and, by a thin membranous tendon, which covers part of the splenius and complexus muscles, from the rough curved line that extends from the protuberance towards the mastoid process of the temporal bone; runs down along the nape of the neck, where it seems to arise from its fellow, and covers the spinous processes of the superior vertebræ of the neck; but rises from the spinous processes of the two inferior, and from the spinous processes of all the vertebræ of the back; adhering, tendinous, to its fellow, the whole length of its origin. It is inserted, fleshy, into the posterior half of the clavicle; tendinous and fleshy, into the acromion, and into almost all the spine of the scapula. This muscle moves the scapula according to the three different directions of its fibres; for the upper descending fibres draw it obliquely upwards, the middle transverse straight fibres draw it directly backwards, and the inferior ascending fibres draw it obliquely downwards and backwards. Where it is inseparably united to its fellow in the nape of the neck, it is named *Ligamentum Nuchæ* or *Ligamentum Colli.*

TRAPEZOI'DES OS, the second bone of the second row of the carpus. See Carpus. It is so called from its resemblance to the quadrilateral figure.

TRAUMA'TICA (from *τραυμα*, a *wound)*, traumatics; or remedies proper for wounds.

TRE'MOR, an involuntary trembling of muscular parts.

TREPAN (of the Gr. *τροϖανον*), an instrument like a joiner's centre-bit, used for sawing out pieces of the skull, in order to elevate depressions of the adjoining parts. The part called the *crown*, is cylindrical, with teeth round its lower edge.

TREPHINE, an instrument used for the same purposes as the trepan, but preferable, because of the great convenience of holding it, and leaning on one side or other of the saw, as we find it necessary. A representation of it is given in pl. VII. fig. 1. Its application is to be managed in the following way: The first thing to be done is, after shaving the head, to make an incision as deep as the bone, and directly upon the course of the fracture. The patient ought to be laid on a table, with a mattress under him, while his head is placed on a pillow, and secured by an assistant. In a fracture of the skull, when its extent has been determined, and the bleeding from the incision stopped, the depressed bone is to be elevated; but previous to this it is necessary to search for detached pieces. Should any be found, they ought to be removed by the proper forceps. By the same instrument any splinters of bone which may have been beaten in may be removed; but when a part of the bone is beaten in beyond the level of the rest of the cranium, as much of the pericranium is then to be removed by a raspatory as will allow the trephine to be applied. This part of the work is begun by making a hole with the perforator deep enough to fix the central pin of the trephine, in order to prevent the saw from slipping out of its central course, till it has formed a groove sufficiently deep to be worked steadily in; and then the pin is to be removed. If the bone be thick, the teeth of the saw must be cleaned now and then by a brush dipped in oil.

After having made some progress in the operation, the groove ought to be frequently examined with a tooth-pick, or some such instrument, in order to discover its depth; and if one side happen to be deeper than the other, the operator ought to press more on that side which is shallowest. Precautions are more particularly necessary when the operation is performed upon a part of the skull which is of an unequal thickness, especially after the instrument has passed the diploe. It ought likewise to be remembered, that the skulls of children are very thin. When the piece begins to vacillate, it ought to be snapped off with the forceps or levator; for the sawing ought by no means to be continued till the bone be cut quite through, otherwise the instrument may plunge in upon the brain, or at least injure the dura mater. If the inner edge of the perforation be left ragged, it is to be smoothed with the lenticular, to prevent it from irritating the dura mater. Particular care is to be taken in using the instrument, lest it should press too much upon the brain.

The next step is to raise the depressed part of the bone with the elevator, or to extract the fragments of bone, grumous blood, or any extraneous body. After this, if there appear reason to apprehend that blood, lymph, or matter, is contained under the dura mater, it ought to be cautiously opened with a lancet, endeavouring to avoid the blood-vessels running upon it, or immediately under it.

When the trepan is to be used on account of a fissure in which the bone will not yield, the instrument should be applied so as to include part of it, if not directly over it, as it is most probable that the extravasated fluid will be found directly under it. And when the fissure is of great extent, it may be proper to make a perforation at each end, if the whole can be conveniently brought into view: and in some cases several perforations may become necessary. When it is proposed to make several perforations to remove depressed fragments of the bone which are firmly fixed, and having the internal surface larger than the external, or to raise them sufficiently, it is necessary to apply the trepan as near the fractured parts as possible; making the perforations join each other, to prevent the trouble of cutting the intermediate spaces.

When the skull is injured over a suture, and it is not thought advisable to use the trepan, a perforation ought to be made on each side of the suture, especially in young subjects, in whom the dura mater adheres more strongly than in adults; because there cannot be a free communication between the one side and the other, on account of the attachment of that membrane to the suture.

After the elevation of the depressed pieces, or the removal of those which are quite loose, the extraction of extraneous bodies, and the evacuation of extravasated fluids, &c. the sore is to be dressed in the lightest and easiest manner; all that is necessary being to apply a pledget of fine scraped lint, covered with simple ointment, to that part of the dura mater which is laid bare by the trepan, or otherwise; after which the edges of the scalp are to be brought together, or nearly so, and another pledget laid along the whole course of the wound; a piece of fine soft linen is to be laid over all, and the dressings may be retained in their place by a a common night-cap applied close to the head, and properly fixed.

TRIA'NDRIA (from *τρεις*, *tres*, *three*, and *ανηρ*, a *husband)*, in botany, Linnæus's third class, consisting of those plants which produce hermaphrodite flowers, with three stamina.

TRIANGULA'RIS. See Sternocostalis; and Depressor anguli oris.

TRI'BULUS AQUA'TICUS (τριβυλος, from τριβω, to *vex*, as resembling an instrument of war to annoy the enemy's horse), or *Nux aquatica*; the fruit of the *Trapa nata* Linn. It is of a quadrangular and somewhat oval shape, and includes a nut of a sweet farinaceous flavour, somewhat like that of the chesnut. But it is apt to constipate the bowels, and produce disease. A poultice of these nuts is said to be useful in resolving indolent tumors.

TRI'CEPS ADDU'CTOR FE'MORIS (*triceps*, from *tres*, three, and *caput*, a head; three-headed). Under this appellation are comprehended three distinct muscles. See ADDUCTOR BREVIS, LONGUS, and MAGNUS FEMORIS.

TRI'CEPS EXTE'NSOR CU'BITI, a muscle of the humerus, which arises by three heads. The first, called *longus*, somewhat broad and tendinous, from the inferior costa of the scapula, near its cervix. The second head, called *brevis*, arises, by an acute, tendinous, and fleshy beginning, from the back-part of the os humeri, and a little below its head, outwardly. The third, called *brachialis externus*, arises, by an acute beginning, from the back-part of the os humeri. These three heads unite lower than the insertion of the teres major, and cover the whole posterior part of the humerus, from which they receive addition in their descent. It is inserted into the upper and external part of the process of the ulna, called *olecranon*, and partly into the condyles of the os humeri, adhering firmly to the ligament. This muscle is the *Anconeus major*, *externus* and *internus*, of Winslow, and the *Biceps externus*, and *Brachialis externus*, of Douglas. Its use is to extend the fore-arm.

TRICHI'ASIS (τριχιασις, from τριξ, a *hair*), or *Trichosis*, a disease of the eye-lids, in which they are turned inwards, towards the bulb of the eye. For an ophthalmia thus produced, present and temporary relief may be given, by taking out the lashes with forceps. But while the lids retain this inverted state, no sooner do the hairs grow again, than the disorder will again return; nor can the patient be ever properly said to be cured of the complaint, till the edges of the lids are restored to their natural position, and can be kept in it.

The upper lid and its ciliary edge, both in motion and at rest, are preserved in their natural situation by the equal, though contrary, actions of the musculus orbicularis, and levator palpebræ superioris. But the lower lid, whose motion is very small in comparison with that of the former, has no muscle correspondent to the levator of the upper; and is preserved in its natural state by the equal action of the orbicular fibres spread over it, and the counteraction of the skin which covers it: in which last respect it differs materially from the upper lid, the skin of which, on the contrary, being always very thin and flaccid, is incapable of any such counteracting power.

Thus, it is manifest, that when the *trichiasis affects the upper lid* it must be owing to a relaxation of the levator palpebræ superioris, and a contraction of the superior part of the orbicularis; whereas, in the case of a trichiasis affecting the lower lid, it can only arise from a relaxation of the skin, and a contraction of the inferior part of the orbicularis. And as in these two cases the causes of the disorder are very different, so they will of consequence require a very different treatment. In the trichiasis of the lower lid, it will be necessary to increase the counteracting power of the skin which covers that lid, so as to prevent the contraction of the musculus orbicularis: whereas, in the trichiasis of the upper lid, it is plain that the sole object of attention must be, to give an additional stimulus to the levator palpebræ superioris, for the purpose of exciting it to proper action.

The trichiasis of the upper lid happens but seldom. But in an instance of this kind, published by Mr. Ware, a cure was produced by making an incision through the integuments, from the inner angle of the eye to the outer; and after separating the fibres of the orbicularis, so as to denudate the expanded fibres of the elevator muscle, as near to their termination in the edge of the lid as possible, applying a small cauterising iron, adapted to the convexity of the globe of the eye and made pretty hot, passing it two or three times over the tendino-carnous fibres. The cicatrix afterwards produced a permanent contraction of the relaxed parts, and the cure was complete, though the eyelid was kept constantly higher than could have been wished.

The *trichiasis of the lower lid* is a more common complaint. When it is recent, a cure has sometimes been accomplished, by making a fold in the skin below the inverted lid, to draw its edge from the eye. In some cases, nothing more will be requisite to preserve the fold than to cover it with a piece of sticking-plaster. But at other times, when the plaster cannot be made to fasten, Mr. Ware advises the removing, by an operation, a transverse fold of the skin, below the edge of the lid; and then, by the sutures, confining the sides of the wound close to each other, so as to produce their union.

TRICHO'MA (from τριχες, the *hair*); the plaited hair. See PLICA POLONICA.

TRICHO'MANES (from τριχες, *hair*, and μανος, *thin* or *lax*; because it resembles fine hair), the common maiden-hair, or spleen-wort; *Asplenium trichomanes* Linn. *Asplenium frondibus pinnatis, pinnis subrotundis crenatis.* Class, *Cryptogamia*. Order, *Filices*. This plant had a place in the late Edinburgh Pharmacopœia. Its leaves have a mucilaginous, sweetish, subastringent taste, without any particular flavour. They are esteemed useful in disorders of the breast.

TRICHU'RIS (from τριξ, a *hair*); the long hair-worm. See WORMS.

TRICO'CCÆ (from τρεις, *three*, and κοκκος, a *grain*); the 38th order of plants in Linnæus's Natural Method. It consists of those with a single three-cornered capsule, having three cells or internal divisions, each containing a single seed. The single seed-vessel of these plants is of a singular form, and resembles three capsules, which adhere to one common foot-stalk as a center, but are divided externally into three pretty deep partitions. The genera are many; but this family is not completely natural; yet the title is a striking one; and though the plants which possess it are not connected by such numerous relations as to form a true natural assemblage, yet they are by that circumstance distinguished from all other plants with great facility. All the genera of this order have not the striking character just mentioned.

TRICU'SPIDES VA'LVULÆ (*tricuspides*, from *tres*, three, and *cuspis*, a point; being three-pointed); the name of the three valves situated at the origin of the aorta and pulmonary artery. See HEART.

TRIFO'LIUM ACETO'SUM, a name for the wood-sorrel. See LUJULA.

TRIFO'LIUM AQUA'TICUM, or *Trifolium Fibrinum*. See TRIFOLIUM PALUDOSUM.

TRIFO'LIUM HEPA'TICUM. See HEPATICA NOBILIS.

TRIFO'LIUM MELILO'TUS, or *Trifolium odoratum;* the systematic name of the officinal melilot. See MELILOTUS.

TRIFO'LIUM PALUDO'SUM (*Trifolium*, from *tres*, three, and *folium*, a leaf; because it has three leaves on each stalk), *Trifolium aquaticum*, *Trifolium fibrinum*, or *Menyanthes;* the water-trefoil, or buck-bean: *Menyanthes trifoliata* Linn. *Menyanthes foliis ternatis.* Class, *Pentandria.* Order, *Monogynia.* This plant is so bitter, that in some countries it is substituted for hops, in the preparation of malt-liquor. It is sometimes employed by the vulgar as an active eccoprotic bitter in hydropic and rheumatic affections; and cases have been related of its good effects in some cutaneous diseases.

TRIGE'MINI (from *tres*, three, and *geminus*, double; three times double), the fifth pair of nerves. These arise from the crura of the cerebellum, and are divided, within the cavity of the cranium, into the *orbital superior*, and *inferior maxillary* branches. The first is divided into the frontal, lachrymal, and nasal nerves; the superior maxillary into the sphæno-palatine, posterior alveolar, and infra-orbital nerves; and the inferior maxillary into two branches, the internal lingual, and one more properly called the inferior maxillary.

TRIGONE'LLA FŒNUM GRÆCUM; the systematic name of the fœnugreek.

TRIGY'NIA (from the Gr. τρεις, *three*, and γυνη, a *woman*), in botany, the third order of several classes in the Linnæan system. It includes those plants which in their fructification have three styli, which are considered, in the sexual system, as the female organs of generation.

TRINITA'TIS HERBA. See HEPATICA NOBILIS.

TRIHILA'TÆ (from *tres*, three, and *hilum*, an external mark on the seed), in botany, the 23d class in Linnæus's natural method. It consists of plants with three seeds, which are marked distinctly with an external cicatrix or scar, where they are fastened within to the fruit. The genera are: Melia; Trichilia; Acer; Æsculus; Banisteria; Malpighia; Triopteris; Cardiospermum; Paullinia; Sapindus; Staphylæa; and Tropæolum.

TRIŒ'CIA (from τρεις, *tres*, *three*, and οικος, a *house*), in botany, the third order in the class *Polygamia* of Linnæus.

TRIPETALOIDE'Æ (from *tres*, three, and *petalum*, a petal), in botany, the 5th class in Linnæus's natural method. These plants have no very striking characters, and are nearly allied to the grasses. All the genera of this order, however, are not tripetaloid. The genera are: Alisma; Aphyllanthes; Butomus; Calamus; Flagellaria; Juncus; Sagittaria; Scheuchzeria; and Triglochin.

TRIQUE'TRA OSSI'CULA (*Triquetrus*, from *tres*, three), or *Ossicula Wormiana;* the triangular bones which are found mostly in the course of the lambdoidal suture.

TRI'SMUS (τρισμος, from τριζω, to *gnash*), the locked-jaw. See TETANUS.

TRI'SMUS NASCE'NTIUM, commonly, but improperly, called by nurses the *falling of the jaw.* It is a tetanic complaint which attacks infants in the course of the second week after their birth. Its chief symptom is a locked jaw, but the disorder does not appear to differ from the *Tetanus*, which see. It is generally fatal in two or three days; and is never expected after the child is a fortnight old.

TRISSA'GO (*quasi tristago*, from *tristis*, sad; because it dispels sadness), a name for the common germander. See CHAMÆDRYS.

TRISSA'GO PALU'STRIS; a name for the water-germander. See SCORDIUM.

TRITÆO'PHYA (τριταιοφυης, from τριταιος, *tertian*, and φυω, *of a like nature*), an epithet applied to a fever which is much of the same nature with a tertian, or that takes its rise from it. Some call it a *continued tertian.* It is either remittent or intermittent.

TRITÆO'PHYA CAU'SUS; the *Causus* of Hippocrates. See CAUSUS.

TRITÆ'US (of the Gr. τριταιος), the same as TRITÆOPHYA.

TRI'TICUM (from *tero*, to thresh from the husk), wheat. See WHEAT.

TRITURATION (from *tereo*, to wear, or grind), in pharmacy, the reducing substances to powder, upon a stone with a muller, as colours are ground: it is also called LEVIGATION.

TROCA'R (corrupted from *trois quart*, Fr.), the name of an instrument used in tapping for the dropsy. See INSTRUMENTS.

TROCHANTERS (τροχαντηρ, from τρεχω, to *run;* because the muscles inserted into them perform the office of running), two processes of the thigh-bone; which are distinguished into the greater and lesser. See FEMUR.

TROCHI'SCUS (τροχισκος, dim. of τροχος, a *wheel*), a troch or round tablet. Troches and lozenges are composed of powders made up with glutinous substances into little cakes, and afterwards dried. This form is principally used for the more commodious exhibition of certain medicines, by fitting them to dissolve slowly in the mouth, so as to pass by degrees into the stomach; and hence these preparations have generally a considerable portion of sugar, or other materials grateful to the palate. Some powders have likewise been reduced into troches, with a view to their preparation; though the moistening them and afterwards drying them in the air, must be of greater injury than any advantage accruing from this form can counterbalance.

TRO'CHLEA (*τροχλεα*, a *pulley*, from *τρεχω*, to *run)*, a kind of cartilaginous pulley, through which the tendon of one of the muscles of the eye passes.

TROCHLEA'RIS. See OBLIQUUS SUPERIOR OCCULI.

TROCHLEATO'RES; the fourth pair of nerves. These are so called, because they are inserted into the musculus trochlearis of the eye. See PATHETICI.

TROCHOI'DES (from *τροχος*, a *wheel*, and *ειδος*, *resemblance);* a species of diarthrosis, or moveable connection of bones. In this, one bone rotates upon another; as the first cervical vertebra upon the odontoid process of the second.

TROPE'OLUM MAJUS, the systematic name of the Indian cress. See NASTURTIUM INDICUM.

TROUGH, PNEUMATIC; a kind of cistern, employed by chemists in the separation, collection, or admixture, of different gases. See CHEMICAL APPARATUS. This contrivance is shewn in pl. XIX, vol. I. It may be made either of wood or of sheet-iron tinned and japanned. If about two feet long, sixteen inches wide, and fifteen high, it will be found sufficient for most experiments. Two or three inches below its brim, a horizontal shelf is fastened, in dimension about half or one-third part of the width of the trough. In this shelf are several holes: these holes should be made in the centre of a small excavation shaped like a funnel, previously formed in the lower part of the shelf.

This trough is filled with water sufficient to cover the shelf to the height of an inch. The shelf is to support jars, or bell-glasses, which, being previously filled with water, are placed invertedly; their open end turned down upon the above-mentioned holes, through which the gases, conveyed there and directed by means of the funnel-shaped excavations, rise, in the form of air-bubbles, into the receiver.

When the gases are capable of being absorbed by water, the trough must be made smaller and filled with mercury. A mercurial trough cut in marble, free-stone, or out of a block of wood, twelve inches long, three inches wide, and four deep, is sufficient for most experiments.

TRUFFLE; the *Lycoperdon tuber* of Linnæus: a solid fungus of a globular figure, which grows under the surface of the ground, so as to be totally hidden. It is found in the woods both in England and Scotland; growing generally in clusters three or four inches under ground, without any visible root. The figure of it is nearly spherical, the size that of a potatoe: the exterior coat at first white, afterwards black, and studded with pyramidical or polyhedrous tubercles: the internal substance solid and callous, of a dirty-white or pale-brown colour, grained like a nutmeg with serpentine lines; in which, according to Micheli, are imbedded minute oval capsules, containing each from two to four round warted seeds. The truffles of this country seldom exceed three or four ounces in weight; but in some parts of the Continent, they are said to have been found of the enormous size of eight and even fourteen pounds. They are eaten either fresh and roasted like potatoes, or dried and sliced into ragouts. They have a volatile and somewhat urinous smell, and are reputed to be aphrodisiacal.

TRUNK, the main stem or body of any thing, as distinguished from the limbs or branches, which spring from thence. A trunk, in the Linnæan system of botany, is that part of a vegetable which produces the leaves and fructification, and is of seven kinds, viz. 1. *Caulis*, or stem. 2. *Culmus*, a straw, the stem or trunk of grass. 3. *Scapus*, a stalk. 4. *Pedunculus*, a peduncle or foot-stalk of a flower, being a partial trunk which raises the fructification but not the leaves. 5. *Petiolus*, a petiole or foot-stalk of a leaf. 6. *Frons*, a species of trunk, composed of a branch and leaf blended together, as in palms and ferns. 7. *Stipes*, the base of a frons. Former botanists applied the word *Truncus* to trees only.

TU'BA EUSTACHIA'NA, the Eustachian tube; so called from Eustachius, who first discovered it. It is the auditory tube, which arises in each ear from the anterior extremity of the tympanum. This bony canal runs forwards and inwards, at the same time becoming gradually smaller; and after perforating the petrous portion of the temporal bone, it terminates in a passage, partly cartilaginous and partly membranous, narrow at the beginning but becoming gradually larger, and ending in a pouch behind the soft palate. It is through this orifice that the pituitary membrane of the nose enters the tympanum. It is always open, and affords a free passage for the air into the tympanum; hence it is that persons hear better with the mouth open, and hence the temporary deafness when any accidental obstruction occurs, as in gulping water by the mouth in bathing. Scrophulous tumors, catarrhal affections, or a thickened secretion from the inner surface of this canal, have been severally the cause of deafness.

TU'BÆ FALLOPIA'NÆ, the Fallopian tubes, so named from Fallopius, who first described them. These are two flaccid, conical, and vermiform canals, situated transversely on each side of the uterus, between the fundus and the lateral parts of the pelvis, and included in the anterior duplicatures of the ligamenta lata. Each of them is fixed by its narrow extremities in the corner of the fundus uteri, into which it opens, though by so narrow a duct as hardly to admit a large bristle. From thence their diameter augments by degrees all the way to the other extremity, where it is about one-third of an inch. The body of each tube goes in a winding course, and its large extremity is bent towards the ovaria. These large extremities terminate by a narrow orifice, a little plaited and turned toward the ovarium, where it presently expands in form of a membranous fringe called *fimbriæ*, whose office is to receive the ovum in the time of coition, and convey it into the uterus through the Fallopian tube. See UTERUS.

TUBE'RCULA QUADRIGE'MINA, *Corpora quadrigemina*, or *Eminentiæ quadrigeminæ;* four white oval tubercles of the brain, two of which are situated on each side, over the posterior orifice of the third ventricle, and the aqueduct of Sylvius. The ancients called them nates and testes, from their supposed resemblance.

TUBE'RCULUM, a tubercle, or hard superficial tumor; circumscribed and permanent, or proceeding very slowly to suppuration. Tubercles are found upon the lungs of persons who die of phthisis.

TUBE'RCULUM LOWE'RI, the name of an eminence in the right auricle of the heart, where the two venæ cavæ meet. It was so called from Lower, the anatomist who first described it.

TUMO'RES (from *tumeo*, to swell), tumors; an order in the class *locales* of Cullen's nosology, comprehending partial swellings without inflammation. Mr. Abernethy, surgeon of St. Bartholomew's Hospital, has attempted a classification of tumors. In his work on this subject he restricts the surgical signification of tumors to "such swellings as arise from any new production which made no part of the original composition of the body." But if the definitions of former writers have been too vague, this surely is too limited. It excludes all simple enlargements, and hence many glandular swellings, universally considered as tumors, and demanding the same treatment and operations as those comprehended in the definition. There are glandular tumors, in which it would be difficult to say what was original, or what the new growth; although indeed, in many cases, "the disease of the gland seems to produce an entire alteration of structure in the part, the natural organisation being removed, and a new-formed diseased structure substituted in its place." Osseous tumors, it has been well observed, sometimes spring from bone, and fat ones are found imbedded in the adipose membrane. Here, then, are tumors, new productions, but similar to the composition of the part whence they originate. Every tumor may be said perhaps to be a new production; but this may be either the same or different from the original composition of the body. Many tumors, especially those beginning in glandular parts, owe their very first formation to a diseased action of the neighbouring vessels; the gland is enlarged, its natural functions are deranged, and new parts are secreted. In every case of diseased structure, much more is to be attributed to vascular action, than to the mere organisation of effused lymph; and it is much more probable, that tumors owe their origin to the same actions by which they are continued and increased, than to the simple organisation of effused lymph. Mr. Abernethy does indeed acknowledge, that when tumors form and grow, there exists an increased action in the adjacent vessels; and therefore he observes, that our first curative indication will be to repress as much as possible this unusual exertion of the vessels. And there are no means, he continues, more rational in theory, or more efficacious in practice, than those of taking away the two great causes of animal actions, the blood and heat of the disordered part, by leeches, and by the application of folded linen, wetted with sedative lotions. If the growth of the tumor be by these means suspended, the next indication will be, to promote the absorption of the new-formed substance, by stimulating applications, by frictions, pressure, electricity, rubefacients, &c.

TUNBRIDGE WATER, a ferruginous water, the analysis of which shews it to be a very pure water, as to the quantity of solid matter; and the saline contents (the iron excepted) are such as may be found in almost any other water. It is only as a chalybeate, and in the quantity of carbonic acid, that it differs from common water. The proportion of this acid is shewn in the table annexed to the article Mineral Waters. The general operation of the Tunbridge water is to increase the power of the secretory system in a gradual, uniform manner, and to impart tone and strength to all the viscera. It is recommended in a variety of complaints incident to the female sex; in menorrhagia, leucorrhœa, chlorosis, &c.

TUNGSTATES, or *Tungstats*, salts formed by the combination of the tungstic acid with different bases, as *tungstate of ammonia*. See Tungsten.

TUNGSTEN (*Tungsten*, Swed. ponderous stone), a true earthy salt, composed of calcareous earth and a peculiar acid, called acid of tungsten. It is usually in small slightly adherent globules of a slate grey, its specific gravity 17·5. It is very infusible; oxidizable in the air by heat, and afterwards acidifiable. Its oxid is yellow, pulverulent, and colours glass of a blue or brown colour. It forms a white harsh powder, of the specific gravity 6·12. The tungstates are as yet little known.

TUNGSTIC ACID, a white powder, of a rough, metalic, and feebly acid taste. See Tungsten. Its specific gravity is 3·600. It is soluble at 212° in twenty waters. Exposed to heat it becomes yellow, brown, and lastly black; emits no smoke, and is not fused; but loses its solubility in water. The sulphuric acid changes its colour to blue; and the nitric and muriatic acids, to a fine yellow colour.

TU'NICA (*à tuendo corpore*, because it defends the body), a coat, membrane, or covering; as the *Tunica Albuginea oculi* (see Conjunctiva), *Tunica albuginea testis* (see Albuginea). See also Arachnoidea, Choroidea, Conjunctiva, &c.

TU'NICA VAGINA'LIS TE'STIS, a continuation of the peritonæum through the inguinal ring, which loosely invests the testicle and spermatic cord. See Testes.

TURBETH ROOT. See Turpethum.

TURBINA'TA OSSA (from *turbino*, to sharpen at the top; shaped like a sugar-loaf), the turbinated bones. The superior spongy portion of the ethmoid bone, and the inferior spongy bones, are so called by some anatomists.

TURMERIC. See Curcuma.

TURPE'THUM (from *Turpeth*, Ind.), turbeth, a name given to the cortical part of the root of the *Convolvulus turpethum* Linn. This is brought from the East Indies, in oblong pieces, of a brown or ash colour on the outside and whitish within. The best is ponderous, not wrinkled, easy to break, and discovering a large quantity of resinous matter. When chewed, it at first imparts a sweetish taste, which is followed by a nauseous acrimony. It is considered as a purgative, but very uncertain, and liable to much irregularity of action.

TURPENTINE (*Terebinthina*, Lat.). The different turpentines employed medicinally are, the Chian, Chio, or Cyprus turpentine (see Chio Turpentine), the common turpentine (see Terebinthina vulgaris), and the Venice turpentine (see Terebinthina Veneta). To these might not improperly be added, the Canada balsam; produced from the *Pinus balsamea* et *Canadensis.* All these turpentines have been considered as hot, stimulating corroborants and detergents; qualities which they possess in common; if we except the last, which Dr. Cullen thinks certainly the mildest. They stimulate the primæ viæ, and prove laxative; when carried into the blood-vessels they excite the whole system, and thus prove serviceable in chronic rheumatism and paralysis. Turpentine readily passes off by urine, which it imbues with a peculiar odour; also by perspiration and by exhalation from the lungs; and to these respective effects are ascribed the virtues it possesses in gravelly complaints, scurvy, and chronic disorders of the lungs. Turpentine is much used in gleets and leucorrhœa, and in general with much success. The essential oil, in which the virtues of turpentine reside, is not only preferred for external use as a rubefacient, but also internally as a diuretic and styptic; the latter of which qualities it possesses in a very high degree. Formerly turpentine was much used as a digestive application to ulcers, &c. but in the modern practice of surgery its use is seldom resorted to.

TUSSILA'GO (from *tussis*, a cough; because it relieves coughs), also called *Farfara*, *Farfara bechiam*, and *Ungula caballina ;* colts-foot: the *Tussilago farfara scapo unifloro imbricato, foliis subcordatis angulatis denticulatis* Linn. Class, *Syngenesia.* Order, *Polygamia superflua.* The sensible qualities of this plant are inconsiderable. It has a rough mucilaginous taste, but no remarkable smell. The leaves, as possessing demulcent and pectoral virtues, have been exhibited in pulmonary consumptions, coughs, asthmas, and catarrhal affections. It is used as tea, or given in the form of infusion, with liquorice-root, honey, and gum-arabic.

TUSSILA'GO PETASI'TES (πετασιτης, from πετασος, a *hat ;* so named because its leaves are shaped like a hat); the systematic name of the butter-bur. See Petasites.

TU'SSIS, a cough or sonorous concussion of the breast, produced by violent, and, for the most part, involuntary motions of the muscles of respiration. See Cough.

TU'SSIS CONVULSI'VA. See Pertussis.

TU'SSIS EXANTHEMA'TICA, a cough which is attendant on an eruption.

TU'SSIS FERI'NA. See Pertussis.

TU'TIA (*Tutia*, Pers.) also called *Pompholyx*, and *Cadmia*, tutty; an impure oxid of zinc. It is moderately hard and ponderous; of a brownish colour, and full of small protuberances on the outside, smooth and yellowish within: some pieces have a bluish cast from minute globules of zinc in its metallic form. Tutty has been long celebrated as an ophthalmic application, and frequently employed as such in unguents and collyria. Its officinal preparations are: *Oxidum zinci imp. ppt.* Edin. Lond. *Ung. oxid. zinc. impur.* Edin. Lond. Dubl.

TYLO'SIS (τυλωσις, from τυλος, a *callus)*, an indurated or callous state of the margin of the eyelids.

TY'MPANI MEMBRA'NA. See Membrana tympani.

TYMPANI'TES (τυμπανιτης, from τυμπανον, a *drum ;* so called because the belly is distended with wind), tympany; an elastic distension of the abdomen not readily yielding to pressure, and sounding like a drum, with costiveness and atrophy, but no fluctuation. The species are: 1. *Tympanites intestinalis,* a lodgment of wind in the intestines; known by the discharge of wind giving relief. 2. *Tympanites abdominalis,* when the wind is in the cavity of the abdomen. Of these two, however, the former disease is by much the most common; insomuch, that many, even extensively engaged in practice, have never met with an instance of true abdominal tympanites. In both cases the rest of the body falls away. The tympany sometimes takes place in those who have been long troubled with flatulencies in the stomach and intestines. It happens frequently to women after abortion; to both sexes after the suppression of the hæmorrhoids; and sometimes from tedious febrile disorders injudiciously treated. This disease is generally very obstinate, and for the most part proves fatal, by degenerating into an ascites. Sometimes, if the patient be healthy and strong, the disease may terminate favourably, and that the more readily if it has followed another disorder. A hectic consumption, dry cough, and emaciated countenance, in a tympany, with a swelling of the feet, denote approaching death in a very short time. With a view to the preventing of this affection, it is necessary, in the first place, to avoid, as far as it can be done, causes giving rise to an uncommon extrication of air, by preserving the proper tone of the alimentary canal. After this affection has taken place, the indications are, first, to expel the air already extricated and confined in different cavities; and, secondly, to prevent further accumulation. On these grounds different remedies are employed. The cure, however, is principally attempted by carminative, resolvent, and stomachic medicines, gentle laxatives, and at last tonics, especially chalybeates. In the Edinburgh Medical Essays, vol. I. there is a very remarkable history of a tympany, given by Dr. Monro, senior, in the case of a young woman, twenty-two years of age, who fell into the disease after having a tertian ague, in which she had been improperly treated.

TY'MPANUM (of the Gr. τυμπανον), the drum, barrel, or hollow part of the ear, in which are lodged the small bones of that organ. It begins behind the membrana tympani, which terminates the external auditory passage, and is surrounded by the petrous portion of the temporal bone. It terminates at the cochlea of the labyrinth, and has opening into it four foramina, viz. the orifice of the Eustachian tube and mastoid sinus, the fenestra ovalis, and rotunda. It contains the four ossicula auditus.

TY'PHUS (from τυφος, *stupor)*, a contagious fever; in which the heat is not greatly above the natural degree; the pulse small, weak, and for the most part frequent; the urine little changed; the functions of the sensorium very much disturbed, and the strength greatly diminished. According to Dr.

Cullen, the species are: 1. The *Typhus petechialis;* for the most part with petechiæ, but varying in degree, and constituting Typhus mitior and Typhus gravior. 2. *Typhus icterodes,* or typhus with a yellowishness of the skin, constituting the yellow fever of the West Indies.

TY'PHUS GRA'VIOR, the putrid, malignant, or jail, fever. This species of fever generally proceeds from the same causes that produce the plague, only not applied in so great a degree. It attacks the patient with violent symptoms of the first stage; particularly with languor, weariness, weakness, insensibility of the extremities, blindness and insensibility in the other organs of sensation, cold and trembling, pain in the back. The cold often returns alternately with the heat, for the first twenty-four hours; the signs indicating strong action of the vessels sometimes appear, but seldom to any great degree; the fever increases greatly every evening, so that delirium, either from fulness or contraction of the vessels of the brain, with affection of the breast, or hæmorrhage from putrefaction, often comes on about the beginning of the second week, and with the other symptoms of the first stage kills the patient: otherwise each exacerbation becomes less towards the end of the second week; and afterwards, the delirium, especially when it arises from relaxation of the vessels of the brain, is converted into a stupor. The crisis happens from the beginning of the second to the end of the third week; or the disease gradually leaves the patient with very imperfect critical symptoms. From the middle of the second week, and sometimes sooner, the symptoms indicating putrid blood begin to appear, especially if bleeding and stimulants have been used, and sometimes arise to such a height as to prove fatal. From the violence of the disease, the patient is often so much weakened, as to be cut off in the third week. Sometimes, although seldom, an inflammation arises at the beginning, alleviating, but seldom entirely terminating, the disease.

When putrid or infectious vapour is applied, it sometimes produces at first only some of the symptoms of the first stage, which continue several days; at last a strong attack comes on at once, followed by a hot fit, and the fever proceeds as above.

In this fever, the air is frequently to be changed in places where it is liable to stagnate, and the putrid matter that has been generated is to be destroyed by acids converted into vapour; as recommended under the article FUMIGATION, NITROUS.

If some few symptoms only arise from putrid or infectious vapour, they are readily carried off by an antimonial emetic, followed by an opiate draught, keeping up a diaphoresis by relaxants. Such symptoms, however, ought never to be neglected, although ever so slight.

No blood should be taken away, unless the symptoms indicating strong action of the vessels be severe, or the patient be very plethoric, and even then with the utmost caution; and the bleeding hardly ever requires to be repeated. But though we are thus to endeavour to lessen the fever at the beginning by an emetic, yet profuse sweating is not to be attempted.

If the fever continue, in the evenings following that in which the emetic was given, until the fifth day, Dr. G. Fordyce directs the following;

℞ Sacch. alb. gr. xx.
Antim. Tart. gr. ß. ad gr. j.
Divid. in pulv. ij. Cap. unum hora viij. alterum hora xj. vesp.

At the beginning, through the whole periods, gentle sedatives may be used; as

℞ Aq. Menth. sativ. ℥jß.
Succ. Limon. vel Acid. vitr. vel mur. q. s. ad gratam acedin.
Syr. Violar. ʒj.
Ft. Haust. quartâ quâque horâ sumend.

If the belly be not sufficiently open, to one of the draughts may be added some vitriolated natron and tincture of senna. Small doses of neutral salts have been exhibited at this time of the disease, but, Dr. Fordyce thinks, for the most part, without any sensible advantage. He says delirium, from fulness of the vessels of the brain, is to be taken off by applying leeches to the temples. If the symptoms of the first stage should increase with great violence in the second week, particularly delirium, blisters are often applied to the head and back with advantage; but blistering the patient from head to foot, from this time to the end of the disease, exhausts his strength, quickens the pulse, produces petechiæ, renders the system extremely irritable, and sometimes produces *subsultus tendinum,* and convulsions. If the head be more affected than the rest of the system, the blister should be applied to it; if the breast, it should be applied there.

Acids may be continued, provided the patient be not much affected with flatulency; and the belly is to be kept open, if necessary, by clysters, from this time to the end of the disease. In these, the greater the patient's weakness, the less of the purgative is to be employed.

As the symptoms indicating weakness appear, the strength is to be supported by occasional draughts of wine. But the simple stimulants, Dr. Fordyce apprehends, are to be avoided; although it has been much the practice to employ them, as well as camphor and other antispasmodics, and by men of great eminence.

If in the latter part of the disease, with great weakness, there be considerable remission without stupor; or if there be general relaxation of the secretories; the bark is to be exhibited in substance, or decoction, to some extent.

If the symptoms of weakness be considerable, it will of course be improper to use antimonials, or continue them to this time of the disease. The food, at the beginning of the disease, is to be of those articles recommended in typhus mitior, in the first instance, and when the symptoms of weakness appear, those more substantial may be added; with native vegetable acids, if the patient be not affected with much flatulency.

In the foregoing account of typhus, no notice has been taken of the treatment of it by *cold affusion*, as first practised by Dr. Currie of Liverpool, and afterwards pretty generally adopted by practitioners. A full account of this method, with some interesting observations on the theory of the contagious typhus, will be found under the article Cold affusion. It may be proper further to observe, that the most decided success has attended the exhibition of mercury, with a view to its full effect, in this fever, particularly in military practice.

TY'PHUS ICTERO'DES. See Yellow Fever.

TY'PHUS MI'TIOR, the low nervous fever. In this kind of fever the irritability of the body is very great; in consequence of which, the periods throughout the whole disease are often irregular. It attacks people of phlegmatic temperaments; or those weakened by using food not sufficiently nourishing for their exercise, by great evacuations, long-continued use of stimuli; also persons living in an impure air, &c. It may be produced by all the causes of fever; but it arises commonly from affections of the mind, and from cold.

For most part at the first attack, and in some of the following exacerbations, the symptoms of the first stage are few, and those not violent, and they are followed by very slight hot fits: the periods, however, increase gradually; but it is often the end of the first week before the disease is completely formed, or gives the patient so much uneasiness as to make him apply for relief. From this time it continues to increase considerably, and is attended with the symptoms of weakness, particularly those indicating great irritability, which often arise to such a height, as of themselves, or with the fever, to destroy the patient. It happens too, that delirium from irritability takes place, the eyes are moist and quick in their motions, the patient is anxious and restless and without sleep, his replies to questions are quick and with agitation; and this delirium is often fatal. The crises happen generally in the third week, or later; or if there be no complete crisis, the exacerbations become irregular, sometimes increasing for two or three days, sometimes diminishing, sometimes coming on at various times in the day: in this case the disease is often drawn out to a great length.

Partial secretions, irregular affection of the various parts, and irregularity in the types and progress, are frequent throughout the whole progress of this fever. If the patient be very weak at the first attack, both the symptoms of weakness and fever are sensibly greater at the beginning, and the disease is much shortened.

In treating this disease, the patient is to be strengthened, and the causes of fever are to be avoided. The fever at the beginning may often be removed, or so much lessened as to be of little consequence; by an antimonial emetic, by the exhibition of neutral salts with gentle diaphoretics, or by the use of relaxants so managed as not to excite any of the secretions partially. See the antimonial formula under Typhus gravior.

If the head should be much affected towards the beginning, a blister applied to it, or to the back, often diminishes the whole fever, and relieves this symptom. If by any of these means the fever is carried off, it should be prevented from recurring by the Peruvian bark.

If the fever be not carried off at the beginning, attempts to carry it off afterwards by relaxants, by using blisters, or any other remedies, are seldom successful. It is therefore necessary to let the disease go through its natural progress. If there should be delirium, from irritability, about a fourth or fifth part of a grain of opium is to be exhibited every six or eight hours. If there be partial purging, it is to be stopped as in dysenteric purging; partial sweating, by acids; and hysteric urine or tears, &c. by Peruvian bark. Stools, if necessary, should be procured by gentle laxatives at the beginning; and afterwards by clysters.

When the weakness begins to appear in any great degree, the patient is to be supported in the same manner as in the typhus gravior: but simple stimulants are to be given with still greater caution, on account of the irritability. If at this time any considerable remission should appear, the bark may be given every three or four hours, during such remission, with advantage; the same medicine may be employed if the symptoms of irritability be great, and the secretory organs tolerably free. If the fever, instead of wearing itself out by a regular progress, increase sometimes for some days, and diminish alternately but irregularly, Quere, May not an attempt be made to prevent the returns of the exacerbations by the use of the bark?

The proper substances for food are, decoctions of rice, barley, oats, &c.: barley, oats, rice, &c. shelled, and afterwards boiled; or fermented, baked into bread, and afterwards toasted: fruits which are not acescent or flatulent; whether recent or dried, roasted, baked, or boiled: milk; broths made of pullets, lean mutton, or beef. The first, if the stomach will bear it, ought likewise to be acidulated.

Lastly, it is necessary to be remarked, that these fevers are all of the same species, and are only varied by the violence of the first stage, and by the strength or weakness of the patient, which, as they differ under different circumstances in a great many ways, so they produce an almost inconceivable variety in the disease.

TYRI'ASIS (of the Gr. *τυριασις*); a species of leprosy, in which the skin may be easily withdrawn from the flesh.

U.

ULCER *(Ulcus,* Lat. from *ελκος, a sore),* a purulent solution of continuity of the soft parts of the body. Ulcers have been variously denominated by surgeons; the following, however, is the most frequent division: 1. The *simple ulcer,* which takes place generally from a superficial wound. 2. The *sinuous,* which runs under the integuments, and whose orifice is narrow, but not callous. 3. The *fistulous ulcer,* or *fistula,* a deep ulcer, whose orifice is narrow and callous. 4. The *fungous ulcer,* whose surface is covered with fungous flesh. 5. The *gangrenous,* which is livid, fetid, and gangrenous. 6. The *scorbutic,* which depends on a scorbutic acrimony. 7. The *venereal,* arising from the venereal disease. 8. The *cancerous ulcer,* or open cancer. 9. The *carious ulcer,* depending upon a carious bone. 10. The *inveterate ulcer,* which is of long continuance, and resists the ordinary applications. 11. The *scrofulous ulcer,* known by its having arisen from indolent tumors, its discharging a viscid, glairy matter, and its indolent nature. Mr. Bell indeed divides them into two general classes; in the first of which he comprehends all such as are *merely local,* and in the second, those that are the consequence of, or are connected with, any *disorder of the constitution.* The importance of this distinction is of great utility in practice; for without it, the cure of ulcers is not only rendered extremely tedious and uncertain, but by treating such as are merely topical affections, with remedies directed to some disorder of the general system, many patients are consequently obliged to undergo very unnecessary courses of medicine, by which their constitutions are often irrecoverably injured.

Mr. Bell observes that the causes which, in different circumstances, may give occasion to ulcers, are exceedingly various, but in general they arise from one or other of the following.—1. From such as may be termed occasional or exciting causes; of which kinds are, wounds in general, bruises ending in suppuration, burns, and inflammation, whencesoever derived, when terminating either in gangrene or suppuration. 2. From such as may with propriety be termed predisposing causes; of which kind are considered all disorders of the system in general, accompanied with determinations to, or affections of, particular parts; such as fevers of all kinds that terminate in critical abscesses; also lues venerea, scrofula, and scurvy. 3. Ulcers may proceed from a combination of the two foregoing causes. Thus a slight scratch, or excoriation, that a sound constitution would have healed without any of the abovementioned disorders, produces a very disagreeable and tedious ulcer. The proximate or immediate cause is an increased action of the absorbents, and a specific action of the arteries, by which a fluid is separated from the blood upon the ulcerated surface.

Respecting the treatment of ulcers, the first circumstance to be determined, is the propriety of attempting a cure or not. Such ulcers as have afforded a copious discharge, and have been of very long standing, it has been supposed extremely imprudent to heal up all at once; as the system may suffer from the sudden retention of a considerable quantity of fluids, which it has been accustomed for a long while to throw off, by means of such drains. It has even been said, that many cases have proved fatal, upon such ulcers drying up suddenly, whether of their own accord, or by the imprudent use of astringent applications.

On the other hand, the inconvenience of a constant running sore, and that too for life, and perhaps in a very disagreeable situation, is such as no one can be supposed willingly to submit to. And in fact, a more extended examination of this question has shewn, that the healing of ulcers may, with a little caution, be always safely accomplished; the only requisite precaution before attempting the cure in such cases, being the substitution of some other drain, by means either of a pea-issue or seton. The latter is somewhat uneasy and troublesome, but the former of these is managed with the greatest ease; and by increasing or diminishing the size and number of peas made use of, or employing some larger seed, the quantity of discharge may be regulated at pleasure. If the ulcer, however, has been of very long continuance, and especially if it seems to have been instrumental in preventing any other formidable complaint, occasional purging or alterative remedies should be resorted to, and the issue should undoubtedly be continued of a proper size for life.

When the cure of an ulcer is determined upon, the next object of consideration is the method to be pursued for its accomplishment. Authors enumerate four different states of an ulcer in its progress towards a cure, viz. digestion, detersion, incarnation, and cicatrisation. Such a number of divisions, however, with the remedies appropriated to each, have tended to render this branch of the chirurgical art more complicated than is necessary, and the improvements of modern surgery have very much simplified the treatment of ulcers. Of the two classes of ulcers mentioned above, those only which are merely local demand our consideration here, since those connected with any disorder of the system, must of course depend for their cure on the removal of the original disease. To ulcers of no unfavourable aspect it has been usual to apply pledgets of lint spread with some ointment that agrees with them, to use a moderate bandage, and keep the part at rest, till Nature, by her own efforts, restores it to health. It frequently happens, however, that a simple ulcer will degenerate into a *vitiated* condition, from some constitutional or other cause, and give the surgeon no little trouble in the cure.

Vitiated ulcers differ from the simple, chiefly in the appearance and nature of the discharge afforded. The most common of these deviations consists in the matter afforded, being either—1. A thin, limpid, sometimes greenish, discharge, termed *sanies*. 2. A somewhat red-coloured, thin, and generally very acrid, matter, termed *ichor*. 3. A more viscid, glutinous kind of matter, called *sordes;* which is also frequently of a brownish-red appearance, somewhat resembling the grounds of coffee, or grumous blood mixed with water. They are all much more fetid than purulent matter, and none of them is entirely free from acrimony. But that which has generally been termed ichor, is by much the most acrid of them, being frequently so sharp and corrosive, as to destroy large portions of the neighbouring parts.

In every ulcer discharging any of the abovementioned acrid matters, the parts, instead of filling up with granulations, gradually waste away, and in place of a red healthy colour, have either a dark brown, or sometimes a black, tough, sloughy appearance. In all of them the pain is considerable, and generally more or less so in proportion to the corrosiveness of the matter.

In general, vitiated matter in ulcers proceeds from some particular affection of the solids, or secreting organs in the parts diseased; whereby such kinds of fluids are separated from the blood, as cannot be converted into good pus. This affection seems to consist in different degrees of increased action or inflammation of the parts diseased, occasioned by one or more of the exciting causes which give rise to ulcers. It is indeed in the due regulation of this action, or inflammation, in ulcers, that the art of the surgeon, in effecting their cure, principally consists, as Mr. Hunter has fully shewn in his Treatise on Inflammation.

The most proper method of treating ill-conditioned ulcers, in the first instance, is to foment them three or four times a-day, for half an hour at least each time, with some emollient decoction; and then to apply pledgets of the wax-ointment, with warm poultices over all, to be renewed at proper intervals. When the pain is considerable, opiates may be administered with great advantage, and should always be given in such doses, and as frequently repeated, as circumstances seem to indicate. If, after a time, the true disposition of the ulcer shall have been ascertained, such topical remedies must be resorted to as are adapted to its state. The languid must be stimulated, the inflamed ulcer, or its surrounding boundaries, must be soothed, and the irritable must be counteracted, either by sedative substances, or by such as, by their extraordinary activity, excite a new action in the part, and thus put an end to the morbid action. The whole class of terebinthinate remedies, with red nitrated mercury, verdigrise, acetated ceruse, the active metallic and mercurial solutions, &c. are in the hands of every surgeon, to be applied as his judgment shall direct; nor are these means to be undervalued, whatever refinements in the treatment of ulcers may have been latterly introduced.

The habit of the body, however, must, in the mean time, be well attended to, and particular directions, with respect to it, given according to the patient's immediate situation. Thus, when from a long continuance of an ulcer, or from any other cause, the constitution has been much reduced, we ought, by a full allowance in point of diet, to endeavour to repair it; and when, on the contrary, the patient is of a full plethoric habit, and liable to inflammatory affections, it becomes proper to advise a low regimen. In the former of these situations, the Peruvian bark proves highly serviceable. It frequently acts as a sovereign remedy, and particularly in effecting a change for the better in the nature of the discharge. In order to produce such an effect, however, Mr Bell remarks, that it ought to be given in much larger quantities than are usually prescribed. In any complaint of this kind, it is seldom given to a greater extent than three or four doses a day, of a scruple or half a drachm each; whereas, when any considerable advantages are expected from it, six or eight doses of a drachm each, should always be given in that space of time; and, in such quantities, it seldom fails of proving an effectual remedy. But when ulcers occur in inflammatory constitutions, and in plethoric habits, the bark must be used with great caution; indeed it never ought to be given to any extent in such circumstances, till the inflammatory tendency is abated.

In many cases, the internal use of cicuta has been of service; and also mercurial alteratives, as the solution of hydrarg. muriat. in small doses and long continued, have been of the greatest advantage. It is plain, however, that these means more properly apply to the treatment of ulcers of a specific character.

While the methods above mentioned are used, and the part is kept at rest, and in a proper posture, it mostly happens, that the discharge is gradually converted into good pus; and when once this is thoroughly accomplished, every other appearance of the sore must have undergone a manifest change for the better. This at least is commonly the case, unless the ulcer happens to be connected with some general disorder of the system not yet overcome. New granulations being now at liberty to form, any loss of substance which occurred, is as far as possible supplied, in a shorter or longer space of time, according to the depth and size of the ulcer, situation of the part affected, age and habit of the patient, &c. When sores of this kind are happily reduced to the state of simple purulent ulcers, they are to be treated, during the remainder of the cure, with very mild dressings, at the same time paying due attention to the preservation of a proper degree of heat in the parts, and the use of due compression, from the time of the inflammatory symptoms having been thoroughly removed.

It frequently happens, however, that although the parts, by proper management, may have been brought to put on a very healthy appearance, and although the discharge has, from a very bad sort of matter, been converted into the best kind of pus, yet still the sore cannot be got to cicatrise, but continues to discharge as plentifully as ever. In such a situation, finely legated astringent powders may be applied, or the metallic solutions, with lint, and a proper bandage. Yet when these means do not succeed, as may often be the case, an issue, in any convenient situation, will frequently do more towards the cure, than any thing else. For though, by the use of drying applications, the sores may be covered with a thin cicatrix, yet such cures are not always permanent.

Some ulcers become more difficult of cure in consequence of their unfavourable situation. This is peculiarly the case with *ulcers on the legs*, which, till the method of treatment discovered by Mr. Baynton, of Bristol, which we shall now describe, was a most frequent affliction to the labouring classes of the community, a nuisance to the public hospitals, and an opprobrium to surgery.

Mr. Baynton's method of cure, which every day's experience tends to confirm the propriety of, consists in *bringing the edges of old ulcers gradually together by the mechanical operation of strips of adhesive plaster.* By this mode of treatment, Mr. Baynton found that the discharge was lessened, the offensive smell removed, and the pain abated in a very short time. But, besides these advantages, he also found, that the callous edges were in a few days level with the surface of the sore; that the growth of fungus was prevented, and the necessity of applying painful escharotics much lessened, if not wholly done away.

He first directs the leg to be shaven, in order that none of the discharges, by being retained, may become acrid, and inflame the skin, and that the dressings may be removed with ease at each time of their renewal, which, in some cases, where the discharges are very profuse, and the ulcers very irritable, may, perhaps, be necessary twice in the twenty-four hours, but usually once in that space of time. The plaster must be cut into slips about two inches in breadth, of a length that will, after being passed round the limb, leave an end about four or five inches. The middle of the piece so prepared, is to be applied to the sound part of the limb, opposite to the inferior part of the ulcer, so that the lower edge of the plaster may be placed about an inch below the lower edge of the sore, and the ends drawn over the ulcer with as much gradual extension as the patient can well bear; other slips are to be secured in the same way, each above and in contact with the other, until the whole surface of the sore and the limb are completely covered, at least one inch below and two or three above the diseased part.

The whole of the leg should then be equally defended with pieces of soft calico three or four times doubled; and a bandage of the same about three inches in breadth, and four or five yards in length, or rather, as much as will be sufficient to support the limb from the toes to the knee, should be applied as smoothly as can possibly be performed by the surgeon, and with as much firmness as can be borne by the patient, being first passed round the leg, at the ankle-joint, then as many times round the foot as will cover and support every part of it, except the toes, and aftrewards up the limb till it reaches the knee, observing that each turn of the bandage should have its lower edge so placed as to be about an inch above the lower edge of the fold next below.

If the parts be much inflamed, or the discharge very profuse, they should be well moistened, and kept cool, with cold spring-water poured upon them as often as the heat may indicate to be necessary, or, perhaps, at least, once every hour. The patient may take what exercise he pleases, and it will be always found, that an alleviation of his pain and the promotion of his cure will follow as its consequence; though, under other modes of treating the disease, it aggravates the pain, and prevents the cure.

These means, when it can be made convenient, should be applied soon after rising in the morning, as the legs of persons affected with this disease are then found most free from tumefaction, and the advantages will be greater than when they are applied to limbs in a swollen state. But at whatever time the applications be made, or in whatever condition the parts be found, it will almost always happen, that cures may be obtained by these means alone, except in one species of the disease, which seldom occurs, but that will hereafter be described. The first application will sometimes occasion pain, which, however, subsides in a short time, and is felt less sensibly at every succeeding dressing. The force with which the ends are drawn over the limb must then be gradually increased, and when the parts are restored to their natural state of ease and sensibility, which will soon happen, as much may be applied as the callico will bear, or the surgeon can exert; especially if the limb be in that enlarged and incompressible state which has been denominated the scorbutic, or if the edges of the wound be widely separated from each other.

Of the action produced by the plaster, Mr. B. gives the following summary description:—"In recent ulcers, it forms an uniting bandage, which enables us immediately to approximate retracted parts, and affords a temporary substitute for the healthy integuments, not liable to the inconveniences incident to those when weakened by a long-continued course of disease. When it is applied so as to afford support to the whole of the diseased limb, persons may walk great distances, or even indulge in irregularities, without obstructing their cures, as it subjects every part to the effects of the natural actions of the contiguous parts, and assists essentially the individual actions of each part concerned in the business of repair; and whether slough is to be removed, pus to be secreted, granulations to be formed, or skin to be reproduced, it happens that each of these actions commences and proceeds in the natural order of their succession, whether the disease be recent, or in that state of habitual ulceration which has been termed the irritable; or whether, after long continuance, and the expenditure of the powers of the parts, it has fallen into a state of inactivity, and acquired the characteristic of deficient absorption, the callous edge."

Ulcers have taken the name of *fungous*, *sinuous*, *carious*, *scorbutic*, &c. from circumstances which sufficiently indicate the peculiarity of management required in each case. Those which arise from causes existing in the habit of the patient, of course, can only be cured by such remedies as are calculated to remove the primary affection, the consideration of which the reader will find under the respective heads.

ULCERATED SORE-THROAT. See CYNANCHE.

ULMA'RIA (from *ulmus*, the elm; because it has leaves like the elm), also called *Regina prati*, and *Barba capræ;* meadow-sweet, or Queen of the meadows; the *Spiræa ulmaria* Linn. The leaves of this plant are mildly astringent. The flowers smell like the haw-thorn blossoms. They are supposed to possess antispasmodic and diaphoretic virtues, but as they are very rarely used in medicine, Linnæus suspects that the neglect of them has arisen from the plant being supposed to be possessed of some noxious qualities, which it seems to betray, by its being left untouched by cattle. It may be observed, however, that the cattle also refuse the angelica and other herbs, whose innocence is notorious.

U'LMUS, the common elm; *Ulmus campestris foliis duplicato-serratis, basi inæqualibus*, Linn. Class, *Pentandria.* Order, *Digynia.* The inner tough bark of this tree is directed for use in the pharmacopœias. It has no remarkable smell, but a bitterish taste, and abounds with a slimy juice, which has been used internally in nephritic cases, and externally as an application to burns. It is also of service in some cutaneous affections allied to herpes and lepra. It is mostly exhibited in the form of decoction, by boiling four ounces in four pints of water, to two pints; of which from four to eight ounces are given two or three times a-day.

U'LNA (from *ωλενη*, the *ulna* or *cubit)*, also called *Cubitus;* one of the bones of the fore-arm. At its upper extremity it has two processes; of which the posterior, called *olecranon*, is the larger. Its concave surface moves upon the trochlea of the os humeri. Into its upper part all the extensors of the cubit are inserted. The anterior process is not so large, nor does it reach so high, but is sharper at its extremity, and therefore named coronoid. Between these two processes a large sigmoid cavity is left, adapted to the trochlea of the os humeri: on the other part is a cavity, where the extremity of the radius moves. The lower extremity of the ulna terminates in a very small head, which internally is received into the semilunar cavity of the radius, whilst from its external side a process juts out called the styliform, from which a strong ligament is extended to the os pisiforme and unciforme of the carpus. The ulnar artery and nerve are described under CUBITALIS.

ULNA'RIS EXTERNUS. See EXTENSOR CARPI ULNARIS.

ULNA'RIS INTERNUS. See FLEXOR CARPI ULNARIS.

UMBE'LLA, an umbel, in botany, is so called from its general resemblance to an umbrella. It is formed by the peduncles or flower-stems arising from one common centre, in the form of an umbrella, and this is called an *universal umbel.* When an universal umbel sustains other less umbels, each of these lesser umbels is called a *partial umbel.*

UMBELLIFEROUS, in botany, an epithet applied to those plants whose flowers are disposed in umbels; as in fennel, hemlock, and various other instances.

UMBILICAL CORD, *Funis*, or *Funiculus, umbilicalis;* the navel-string: a long vascular rope, composed of two arteries and a vein, covered with coats derived from the membranes, and distended with a quantity of viscid gelatinous substance, to which the bulk of the cord is chiefly owing. It always arises from the centre of the child's belly, but its point of insertion in the cake is variable. If the placenta adhere to the fundus, or is fixed over the mouth of the uterus, it is then of a round form, and the cord arises from its middle; but if the placenta adhere elsewhere, the cord is inserted nearer its edge. Its shape is seldom quite cylindrical; and its vessels are sometimes twisted or coiled, sometimes formed into longitudinal sulci. Its diameter is commonly about the thickness of an ordinary finger, and its length sufficient to admit the birth of the child with safety, though the placenta should adhere at the fundus uteri. In length and thickness, however, it is liable to considerable variation. The extremity next the fœtus is generally strongest; and somewhat weaker and more slender next the placenta, according to its place of insertion; which, though commonly not far from the centre, is sometimes very near the edge. This suggests an important advice to practitioners, to be cautious of pulling the cord, to extract the placenta, when they feel the sensation of its splitting as it were into two divisions, which will proportionally weaken its resistance, and render it liable to be ruptured with a very slight degree of force in pulling. The use of the cord is to connect the fœtus to the cake, to convey the nutritious fluid from the mother to the child, and to return what is not employed. The accidents to which the cord is liable are noticed under the article LABOUR.

UMBILICAL HERNIA, a protrusion of part of any of the abdominal viscera at the navel. See HERNIA.

UMBILICAL REGION. Anatomists have placed this, in adult subjects, about two fingers' breadth above the navel, at a transverse line, supposed to be drawn between the last false ribs on each side, and ending below the navel, at another transverse line, supposed to be drawn parallel to the former, between the two cristæ of the ossa ilium. This region is divided into three parts: one middle, which is properly the umbilical, and two lateral, called ilia, or the flanks; and they comprehend the space between the false ribs and the upper part of the os ilium on each side.

UMBI'LICUS, the navel; derived from a collection of vessels wrapped up in a production of the chorion and amnion, which is generally about a foot and a half long, that the motion of the fœtus may not detach the placenta from the womb. See UMBILICAL CORD.

UMBI'LICUS MARI'NUS, also called *Cotyledon marina*, *Acetabulum marinum*, *Androsace mathioli*, *Fungus petræus marinus*, &c. A submarine production found on rocks and the shells of fishes, about the coast of Montpellier, &c. It has been given in powder as a diuretic.

UNCIFO'RME OS (from *uncus*, a hook, and *forma*, likeness); the unciform bone. It is the last bone of the second row of the carpus; so named from its hook-like process, which projects towards the palm of the hand, and gives origin to the great ligament by which the tendons of the wrist are kept down.

UNGUE'NTUM (from *ungo*, to anoint), an ointment; a form of medicine differing from a plaster and liniment only in being of a consistence thinner than the former and thicker than the latter. Our pharmacopœias exhibit a great variety of formulæ for ointments, which are not necessary to be specified here.

U'NGUES (from ονυξ, a *hook)*; the nails. See Nails.

U'NGUIS (from its resemblance to the lunated portion of the nail of the finger), or *Onyx*, the name of an abscess or collection of pus between the lamellæ of the transparent cornea of the eye.

U'NGUIS OS. The lachrymal bone is so named, from its resemblance to the finger-nail. See Lachrymal bone.

U'NGULA CABALLI'NA. See Tussilago.

URE'DO (from *uro*, to burn), that itching or burning sensation of the skin which accompanies many diseases. The nettle-rash is also called *uredo*.

U'RETER (ȣρητηρ, from ȣρον, *urine)*, a membranous canal which conveys the urine from the kidney to the bladder. The superior part of it is considerably the largest, occupying the greatest portion of the pelvis of the kidney; it then contracts to the size of a goose-quill, and decends over the great psoas muscle, and large crural vessels, into the pelvis, in which it perforates the urinary bladder very obliquely. Its internal surface is lubricated with mucus to defend it from the irritation of the urine which passes through it.

URE'THRA (ȣρηθρα, from ȣρον, the *urine*, because through it the urine is expelled), a membranous canal running from the neck of the bladder, through the penis, to the extremity of the glans, in which it opens by a longitudinal orifice. In this course it first passes through the prostate gland, which portion is distinguished by the name of the *prostatical urethra*; it then becomes much dilated, and is known by the name of the *bulbous part*, in which is situated a cutaneous eminence called the *caput gallinaginis*, or *verumontanum*, around which are ten or twelve orifices of the excretory ducts of the prostate gland, and two of the spermatic vessels. The remaining part of the urethra contains a number of triangular mouths, which are those of the *lacunæ*, or excretory ducts of the mucous glands of the urethra.

Diseases of this part are attended with the most serious effects, in consequence of the necessary transmission of the urine. An inflammation of its mucous covering constitutes gonorrhœa (see Gonorrhœa), but the most formidable of the diseases affecting this canal is *stricture*.

Of the permanent stricture, Mr. Hunter observes, that in most of the cases of this kind which he has seen, the disease extends no further in breadth than if the part had been surrounded with a piece of pack-thread. He has, however, seen the urethra irregularly contracted for above an inch in length, owing to its coats or internal membrane being irregularly thickened, and forming a winding canal. He further observes, that a stricture does not arise, in all cases, from an equal contraction of the urethra all round; but in some, from a contraction of one side, which throws the passage to the opposite side, and often makes it difficult to pass the bougie. In some few cases, he says, there are more strictures than one; he has seen half a dozen in one urethra, and finds that the bulbous part is much more subject to strictures than the whole of the urethra besides; that they are sometimes on this side of the bulb, but very seldom beyond it; and that they are often slow in forming, it being frequently years from the time they are perceived before they become very troublesome. Contrary to the opinion of some, Mr. Hunter doubts very much if the stricture commonly, or even ever, arises from the effects of the venereal disease, or the method of cure; for strictures are common to other passages, and sometimes happen in the urethra where no venereal complaint had ever been.

The remedy which has long been employed in strictures of the urethra is the bougie. See Bougie. This acts in a manner which is purely mechanical, as a wedge or plug, which is gradually enlarged as the obstructed parts recede, till at length the natural uniformity of the canal is restored. One general rule is observed in the cure by bougies, which is, neither to continue them so long, nor repeat them so often, as to cause great irritation, which invariably brings on spasm and impedes or frustrates the cure. But Mr. Hunter found that, even under the best management, cures produced by the bougie were seldom permanent, and this induced him to resort to the use of lunar caustic (described under Bougie). Some inconveniences, however, may, and now and then do, arise from this method; and Mr. Home has, in his "Practical Observations on the Treatment of Strictures," considered them in a very candid manner, and at the same time given what we think decisive reasons why, at least in cases that do not yield to dilatation by the common bougie, the *caustic* ought to be resorted to. In his section "On the effects of the caustic on strictures," he says, "against this practice objections have been formed, and many bad consequences have been attributed to it, which it certainly does not produce: for whatever, *à priori*, might be supposed the effects of so violent an application to a membrane so sensible and irritable as the urethra, and I will admit that it is very natural to conceive they would be very severe, the result of experience, the only thing to be relied on, evinces the contrary. The pain that is brought on is by no means violent; and neither irritation nor inflammation is found to take place.

"That cases do occur, in which strictures have produced so much mischief, and rendered so great an extent of the canal diseased, that the use of the caustic has proved unsuccessful, is certainly true; and several of these cases have fallen within my own knowledge. But when it is stated, that none, even of these, were made worse by its use; that no bad consequences attend it; and that no other mode, at present known, is equally efficacious; any occasional want of success cannot be considered as an objection to this mode of practice.

"But if the apprehension of violent effects from the caustic, however ill-founded, cannot be removed, let the alternative be considered; namely, the only operation previously in use, where a stricture cannot be dilated by the bougie. In those cases we are obliged to have recourse to means certainly more severe and violent, laying open with a knife the diseased urethra, and passing, through the divided parts, a flexible gum catheter into the bladder," which always succeeds, nor does it bring on so much inflammation as might be expected, nor is it always attended with any symptoms of irritation.

When obstructions are occasioned by *caruncles* in the urethra, a bougie should be introduced until resistance is met with. When the bougie cannot be passed far enough, one with a smaller point is to be used, but not till the day following, lest the part be too much irritated. They ought not to be allowed to remain long at first, particularly when they occasion much pain.

When suppression of urine arises from *swellings in or about the urethra*, in consequence of inflammation, an attempt should be made to discuss these immediately, or bring them into a state of suppuration, and discharge the pus, as soon as it is formed, by a puncture. But when the nature of the tumor is such as not to terminate in either of these ways, extirpation of the diseased parts, when this is found practicable, is the only probable means of relief. Bougies should at the same time be used to assist in the cure.

When *spasmodic affections* are present in the urethra, the remedies to be employed are, warm emollients, as rubbing the part with warm oil; anodynes, as opium given by the mouth, but more especially by the anus; blood-letting, in plethoric habits, and this both generally and locally; blisters to the perinæum; the warm-bath; and electricity, after plethora has been removed. Some cases may be treated with bougies; but where the disease is purely spasmodic, these are generally found to be hurtful; though in other cases, when the violence of the disease is so far removed that they can be introduced, they are of service, by removing any obstructions which may remain after the remedies above mentioned have been exhibited. Costiveness ought likewise to be guarded against.

Small *stones* impacted in the urethra are often productive of great inconvenience. For the treatment on these occasions, see CALCULUS.

URI'NA (*ȣρον*, from *ορȣω*, to *rush out)*, the urine; a saline liquid, secreted in the kidneys, and conveyed through the ureters, into the cavity of the urinary bladder. The secretory organ is composed of the arterious vessels of the cortical substance of the kidneys, from which the urine passes, through the uriniferous tubuli and renal papillæ, into the renal pelvis; whence it flows, drop by drop, through the ureters. In the cavity of the bladder it is detained some hours, and at length, when *abundant*, it is eliminated through the urethra. The urine of a healthy man is a transparent yellowish fluid, which, upon cooling, has a mucilaginous matter separated, capable of being redissolved in heat; this Dr. G. Fordyce calls the separating mucilage. This is generally in such quantity as to remain suspended in the urine, forming what has been called the *cloud*. It is sometimes totally absent in health, but much more frequently in diseases. Sometimes it is in quantity sufficient to carry the cloud to the bottom, and form a mucous sediment; and sometimes it falls down in a flaky powder, and forms what has been called a lateritious sediment, which is commonly of a brick colour, and now and then white. The lateritious sediment often takes place on the going off of acute diseases; but it also happens in health, and while diseases subsist in their full force, particularly when they affect the urinary passages, or parts near them.

Sometimes the separating mucilage is separated in a powder, remains suspended in the urine, and renders it turbid: and after this separation, if the urine be filtrated from it, it is transparent, consisting of water which contains a mucilage, and salts. 1. A *mucilage*, similar to that formed by the first stage of putrefaction; which is of a brownish colour, and gives the greatest part of the colour to the urine. Its quantity varies considerably; but the proportion of it in the urine is always small. If the water be evaporated from it, it will redissolve, and it may be diffused through any quantity of water in any heat. It is not coagulable. 2. The *salts* of the urine are, common salt, common sal ammoniac, phosphoric ammonia, vitriolic selenites, and muriatic selenites. Common salt is contained in the urine, in consequence of its being used in the food, or drink; and it is, in some degree, in proportion to the quantity used. The other salts are contained in the urine, independent of any saline substance taken into the body, except perhaps the vitriolic selenites.

The quantity of selenitic salts is commonly very small; but sometimes the urine is saturated with vitriolic selenites, which separates, and crystallises, upon the urine's standing to cool. The proportion of the salts varies considerably, but is always so small as to form a diluted solution; and this solution is generally sufficiently concentrated to stimulate a very irritable part, but not always. The dilution depends on the quantity of superfluous water in the blood-vessels, and on the quantity evacuated by the kidneys: so that, when the secretion is large, the solution is generally diluted; when small, more concentrated. Watery fluids may pass through the blood-vessels, and by the kidneys, hardly carrying off any thing with them, especially if large quantities be drunk at a time, and the external vessels be contracted.

Sometimes calcareous earth is found in the urine, suspended by mechanical mixture, or at least not combined with an acid. Any extraneous substance, soluble in water, that may get into the blood-vessels, may be evacuated along with the urine; such as acids, alkalies, neutral and other saline substances; infusion of rhubarb, and other mucilaginous vegetable juices; bile, pus, and other fluids formed in the body.

If the kidneys be relaxed, or stimulated; chyle, serum, coagulable lymph, and even the red part of the blood, may be thrown out. The red part may also be broken down by putrefaction, and pass off by the kidneys, of a very dark colour, disturbing the transparency, and sometimes forming a sediment. If the heart and arteries act more strongly, or frequently, than they do in their natural state, a quantity of expressed oil comes away with the urine, and forms a film on the surface, or a ring round the vessel into which it is received. The urine always contains a portion of the essential oil of the urinary passages, and sometimes a portion of their mucus.

In what is called a *retention of urine*, there is none secreted: in a *suppression*, the urine is secreted but cannot be voided. See Ischuria.

URINA'RIA, a plant so called from producing a copious evacuation of urine. See Linaria.

URSI'NA RADIX; the root of the plant called baldmoney. See Meum athamanticum.

U'RTICA *(ab urendo*, because it excites an itching, and pustules like those produced by fire), the common nettle; *Urtica dioica* Linn. This is a well-known plant, and though generally despised as a noxious weed, has been long used for medical and culinary purposes. The young shoots in the spring are thought to possess diuretic and antiscorbutic properties, and with these intentions are boiled and eaten as greens, or sometimes formed into a kind of porridge.

U'RTICA MO'RTUA. See Lamium album.

U'RTICA ROMA'NA. The plant which bears this name in the pharmacopœias is the *Urtica pilulifera* Linn. The seeds were formerly given in diseases of the chest, but to little purpose. To raise an irritation in paralytic limbs the fresh plant may be employed, as producing a more permanent sting than the common nettle.

U'RTICA U'RENS, the systematic name of a lesser nettle than the dioica, and possessing similar virtues.

URTICA'RIA (from *urtica*, a nettle), called by the various names of *Febris urticata*, *Uredo*, *Purpura urticata*, and *Scarlatina urticata;* the nettle-rash. It is a species of exanthematous fever, known by pyrexia, and an eruption on the skin like that produced by the sting of the nettle. The little elevations, called the nettle-rash, often appear instantaneously, especially if the skin be rubbed or scratched, and seldom stay many hours in the same place, and sometimes not many minutes. No part of the body is exempt from them; and where many of them rise together, and continue an hour or two, the parts are often considerably swelled: lumps, or wheals, being formed irregularly, and this particularly happens on the arms, hands, and face. These eruptions will continue to infest the skin, sometimes in one place and sometimes in another, for one or two hours together, two or three times a-day, or perhaps for the greatest part of twenty-four hours. In some constitutions they last only a few days, in others many months. Dr. Heberden is inclined to ascribe this disease to some mechanical cause outwardly applied to the skin. He observes, that most people suffer in a similar manner from the real stinging of nettles. Cowhage, a sort of *phaselus*, the pod of which is covered over with a kind of down or hair, has an effect upon the skin which is much the same, giving great uneasiness; and it is also a considerable time before the skin can be cleared of the finer particles when once strewed upon it. Reaumur thinks the most efficacious remedy for this complaint is, to rub the parts strongly with bruised parsley. This has lessened the itching sensations, and after two or three hours, entirely freed the patient from them. It is well known, however, to be very difficult of cure. Bathing the part with camphorated vinegar, æther, or a solution of opium, will generally be of service; and the general irritability may be lessened by exhibiting the bark internally.

U'SNEA. *Muscus cranii humani.* This moss, *Lichen saxatilis* of Linnæus, when growing on the human skull, was formerly in high estimation, but is now deservedly forgotten.

UTERI'NUS, FUROR. See Nymphomania.

U'TERUS (of the Gr. *ητϱον*), or *Matrix*, the womb; a spongy receptacle resembling a compressed pear, situated in the cavity of the pelvis, above the vagina, and between the urinary bladder and rectum. The form of the uterus resembles that of an oblong pear flattened, with the depressed sides placed towards the ossa pubis and sacrum; but in the impregnated state it becomes more oval, according to the degree of its distension. For the convenience of description, and for some practical purposes, the uterus is distinguished into three parts. The fundus, the body, and the cervix: the upper part is called the fundus, the lower the cervix, the space between them, the extent of which is undefined, the body. The uterus is about three inches in length, about two in breadth at the fundus and one at the cervix. Its thickness is different at the fundus and cervix, being at the former usually rather less than half an inch, and at the latter somewhat more; and this thickness is preserved throughout pregnancy, chiefly by the enlargement of the veins and lymphatics; there being a smaller change in the size of the arteries. But there is so great a variety in the size and dimensions of the uterus in different women, independent of the states of virginity, marriage, or pregnancy, as to prevent any very accurate mensuration. The cavity of the uterus corresponds with the external form; that of the cervix leads from the os uteri, where it is very small, in a straight direction, to the fundus, where it is expanded into a triangular form, with two of the angles opposed to the entrance into the Fallopian tubes; and at the place of junction between the cervix and the body of the uterus, the cavity is smaller than it is in any other part. There is a swell, or fulness, of all the parts towards the cavity, which is sometimes distinguished by a prominent line running longitudinally through its middle. The villous coat of the vagina is reflected over the os uteri, and is continued into the membrane which lines the cavity of the uterus. The internal surface of the uterus is corrugated in a beautiful manner, but the rugæ, or wrinkles, which are longitudinal, lessen as they advance into the uterus, the fundus of which is smooth. In the intervals between the rugæ are small orifices, like those in the vagina, which discharge a mucus, serving, besides other purposes, that of closing the os uteri very curiously and perfectly during pregnancy. The substance of the uterus, which is very firm, is composed of arteries, veins, lymphatics, nerves, and muscular fibres, curiously interwoven and connected together by cellular membrane. The muscular fibres are of a pale colour, and appear also in their texture somewhat different from muscular fibres in other parts of the body. The arteries of the uterus are the spermatic and hypogastric. The spermatic arteries arise from the anterior part of the aorta, a little below the emulgents, and sometimes from the emulgents. They pass over the psoæ muscles behind the peritonæum, enter between the two laminæ or duplicatures of the peritonæum which form the broad ligaments of the uterus, and proceed to the uterus, near the fundus of which they insinuate themselves, giving branches in their passage to the ovaria and Fallopian tubes. The hypogastric arteries are, on each side, a considerable branch of the internal iliacs. They pass to the sides of the body of the uterus, sending off a number of smaller branches, which dip into its substance. Some branches also are reflected upwards to the fundus uteri, which anastomose with the spermatic arteries, and others are reflected downwards, supplying the vagina. The veins which reconduct the blood from the uterus are very numerous, and their size in the unimpregnated state is proportioned to that of the arteries; but their enlargement during pregnancy is such, that the orifices of some of them, when divided, will admit even of the end of a small finger. The veins anastomose in the manner of the arteries which they accompany out of the uterus, and then, having the same names with the arteries, spermatic and hypogastric, the former proceeds to the vena cava on the right side, and on the left to the emulgent vein; and the latter to the internal iliac.

From the substance and surfaces of the uterus an infinite number of lymphatics arise, which follow the course of the hypogastric and spermatic blood-vessels. The first pass into the gland of the internal iliac plexus, and the other into the glands which are situated near the origin of the spermatic arteries. Of these, Nuck first gave a delineation in his anatomical works.

The uterus is supplied with nerves from the lower mesocolic plexus, and from two small flat circular ganglions, which are situated behind the rectum. These ganglions are joined by a number of small branches from the third and fourth sacral nerves. The ovaria derive their nerves from the renal plexus. By the great number of nerves these parts are rendered very irritable, but it is by those branches which the uterus receives from the intercostal, that the intimate consent between it and various other parts is chiefly preserved. From the angles at the fundus of the uterus two processes, of an irregular round form, originate, called, from the name of the first describer, the Fallopian tubes. See Tubæ Fallopianæ. They are wrapped in duplicatures of the peritonæum, which are called the *broad ligaments* of the uterus; but a portion of their extremities thus folded hangs loose on each side of the pelvis. From each lateral angle of the uterus, a little before and below the Fallopian tubes, the *round ligaments* arise, which are composed of arteries, veins, lymphatics, nerves, and a fibrous structure. These are connected together by cellular membrane, and the whole is much enlarged during pregnancy. They receive their outward covering from the peritonæum, and pass out of the pelvis through the ring of the external oblique muscle to the groin, where the vessels subdivide into small branches, and terminate in the mons Veneris and contiguous parts. The broad ligaments prevent the entanglement of the parts, and are conductors of the vessels and nerves; as the mesentery is of those of the intestines. Both the round and broad ligaments alter their position during pregnancy, appearing to rise lower and more forward than in the unimpregnated state. Their use is supposed to be that of preventing the descent of the uterus, and to regulate its direction when it ascends into the cavity of the abdomen; but whether they answer these purposes may be justly doubted. In pl. XXXII. fig. 1. shews the uterus in its unimpregnated state. *a*, The body of the uterus. *b*, *b*, The Fallopian tubes. *c*, *c*, The fimbriæ. *d*, *d*, Ovaries. *e*, *e*, The os uteri. *f*, *f*, Portions of the round ligaments. *g*, *g*, The broad ligaments.

The use of the womb is for menstruation, conception, nutrition of the fœtus, and parturition. The uterus is liable to many diseases, the principal of which are, *prolapsus uteri*, *procidentia uteri*, hydatids, dropsy of the uterus or tympanites uteri, polypi, ulceration, &c. but one of the most formidable affections of this organ is the *Cancer of the uterus*. Except, however, in the peculiar kind of pain which distinguishes the cancer from other local affections, and, alas! we may add, the too uniformly fatal event, there is little in this disease in which it resembles the cancer of other parts. It is indeed preceded by the scirrhous state, but when advanced, it exhibits appearances far from similar, nay, indeed, totally opposite to the open cancer of the breast; and various reasons have been assigned by late writers, but particularly by Dr. Adams in his Treatise on Morbid Poisons, for considering this disease altogether as a distinct one. With those who tread in the beaten track, and rely on the common remedies employed in other cancerous affections (see Cancer), a successful treatment of this disease seems scarcely within our reach in any instance. The progressive steps of the disease have been fully shewn in an account of *certain morbid affections of the uterus*, by Dr. Lettsom, published in the Memoirs of the Medical Society of London. Arsenic, muriate of iron, hemlock, and other narcotic vegetables, were tried, without success, by Mr. Justamond. The utmost that was accomplished, in the cases treated by that experienced and enterprising surgeon, was a degree of palliation and temporary ease to the patient, procured chiefly by the hemlock-bath.

UTERUS, DOUBLE; a lusus naturæ, in which these parts are more or less duplicated. An instance of a complete *double uterus and vagina*, is described in the Trans. of the Med. Soc. of London, by Mr. Pole. One Fallopian tube and ovarium were affixed laterally to the fundus of each uterus in the usual way. The fundi receded from each other so as to form a considerable depression between them, which was gradually lost as it advanced toward the cervix. That part where the ora tincæ were situated, was considerably larger than usual externally. A septum of considerable thickness ran between the organs which formed two distinct and complete vaginæ as well as uterine cavities: the septum became thin as it approached the ora externa, between which it formed a projection considerably anterior to the verge of the vaginæ in other parts. Just below each os externum, were two large lacunæ, or blind pouches, in depth about the sixth of an inch; and of sufficient diameter to admit the round end of a very large probe: the mouths of these were naturally so distended by a firmness of structure, and so large as almost to persuade an observer, that Nature had hesitated in forming two other vaginæ. The Fallopian tubes admitted the passage of quicksilver into their respective cavities freely.

For a general view of the parts, see pl. XXXII. fig. 2. *a. a.* The two uteri. *b.* The cervices of the uteri. *c.* Superior part of the vaginæ expanded by the two ora uteri. *d. d.* The ovaria. *e. e.* The tubæ Fallopianæ. *f. f.* The fimbriæ. *g. g.* The ligamenta rotunda. *h. h.* The vesica urinaria, partly distended. *i. i.* The ureters. *k.* The ossa externa. *l.* The two lacunæ. *m.* The meatus urinarius. *n. n.* The labia pudendi. *o. o.* The nymphæ. *p.* The præputium clitoridis. *q.* The anus. *r.* The rectum.

UTERUS, GRAVID; that state of the uterus in which it undergoes distension in consequence of conception. See Pregnancy. At the time of conception, and for some time after, the parts which form the small fœtus are so blended together, that one cannot be distinguished from another. The whole mass is then called an *ovum.* This ovum consists of four membranes; the placenta, or after-birth; the funis umbilicalis, or navel-string, leading to the child; and the surrounding watery fluid in which it floats. Before the child acquires a distinct and regular form, it is called *embryo*, and afterwards retains the name of *fœtus* till its birth. The increase and nutrition of the fœtus depend on its connection with the uterus, and are explained elsewhere. See the articles Fœtus, Ovum, and Abortion, with the plates annexed to the latter.

During the progress of impregnation the uterus suffers considerable changes; but, though it enlarges as the ovum increases, yet, in regard to its contents, it is never full; for, in early gestation, these are confined to the fundus only: and though the capacity of the uterus increases, yet it is not mechanically stretched, for the thickness of its sides do not diminish; there is a proportional increase of the quantity of fluids, and therefore pretty much the same thickness remains as before impregnation.

The gravid uterus is of different sizes in different women; and must vary according to the bulk of the fœtus and involucra. As the fœtus grows larger, so the uterus increases proportionally. The general figure of the uterus is oviform; the fundus answering to the largest extremity of the egg, and the cervix and os uteri to the small end: but the fundus is larger and more flat, or less pointed, in proportion to the lower extremity of the uterus, than one end of an egg is to the other; and the whole uterus seems more or less compressed, so as to be broader from right to left, than it is from the fore-part backwards. Besides these more constant deviations, the figure of the uterus differs from the regular oviform, from a variety of accidental causes, as it adapts itself to the neighbouring parts, to the attitude of the body, and to the position of the contained child. In order to conceive these varieties more easily, we must remember, that in most cases the uterus is not so completely filled as to be upon the full stretch. Were it out of the body, and filled artificially, it would easily contain more than it actually does. Thus the uterus, like a bladder of water not quite full, is plastic, and moulds itself into various shapes from accidental circumstances.

As the surrounding parts resist the pressure or weight of the uterus unequally, according to their different natures, the uterus swells out in some places while in others it is pressed inwards. Thence it is, that the brim of the bony pelvis has commonly the effect of a belt girding that part of the uterus, and the projections of the spine, and of the psoæ and iliac vessels, mould the outside of the uterus into corresponding cavities. That the different attitudes of the mother's body should produce alterations in the figure of the uterus, needs not a particular explanation or proof. The weight of the uterus itself, and of the adjacent viscera, being differently directed, must produce some change in its form corresponding to every change of posture, especially as the parts against which the uterus will rest its weight, in the different postures of the body, are of such different natures.

The same plastic state of the uterus makes it adapt its figure to the circumstances of the child within, and vary as those change. We not only in dead bodies see the parts of the child making a variety of different projections on the outside of the uterus; but, in the living body, all the same variety is frequently manifest to the touch, on examining the outside of the abdomen. The round projecting ball made by the child's head or buttocks is commonly very perceptible, and in many instances smaller projecting parts are so distinctly felt through the containing parts of the abdomen, as to leave no room to doubt of their being knees or elbows.

From Dr. Hunter's great work on this subject, we have given a front view of the Pregnant Uterus at its full time, with the containing parts turned back, so as to shew the external coat and vessels of the womb, and parts contiguous. See pl. XXXII. fig. 3. *a a*, The fore-part of the chest, just below the breasts, where the trunk was cut through. *b b*, The two upper angles of the integuments, muscles, and peritonæum turned back over the cartilaginous margin of the chest. *c c*, The two inferior angles, turned down over the groin, thigh, and anterior spine of the os ilium, on each side. *d*, The upper end of the longitudinal incision, at the pit of the stomach. *e*, The lower end of the same incision carried down to the symphysis of the ossa pubis. *f*, The umbilical or falciform ligament of the liver, which runs upwards on the inside of the abdominal muscles. *gg*, The epigastric artery and vein, projecting through the peritonæum. *h*, The small lobe of the liver, situated in the highest part of the epigastric region. *i*, The omentum, spread over the small intestines in the epigastric region. *k*, The lower and middle part of the omentum, which had been pushed up by the womb, and lay in numerous small folds pressed together. *l*, The omentum in the right side. *m*, The omentum in the left side, which came down before the Fallopian tube, &c. *n n*, Two turns of the small intestines. *o*, The womb, possessing all the umbilical and hypogastric regions: its surface is interspersed with a number of small vessels, the greatest part of which are veins; they were filled with blood only, and therefore gradually disappeared after the subject had been preserved some time: its situation is a little oblique, and towards the right side: the navel was a little higher than the part upon which the letter *o* is placed. The form of the womb is a little irregular, at some places projecting more than at others; this seemed partly owing to its being moulded upon the neighbouring bowels, particularly at its fundus, and partly to its contents; whence *p*, A swelling towards the left side of the womb, where the middle of the placenta adhered; and *q*, A swelling on the right side, where the buttocks of the child lay, and where the child could be distinctly felt through its substance. *r r*, The round ligaments: the left is longer than the right, because of the oblique situation of the womb. *s s*, The Fallopian tubes: in the right side, little more than the beginning of the tube is seen, the rest running down behind the womb.

The small or lower end of the uterus is placed in the cavity of the pelvis. This generally contains the greater part of the child's head, and fills up the cavity of the pelvis so completely, as to press the vesica urinaria against the symphysis pubis, and the rectum against the hollow of the sacrum. The os uteri is directed against the coccyx, or the lower part of the sacrum. The body and fundus of the uterus, which for the most part contains all the rest of the child and the placenta, is so placed in the anterior part of the abdomen, from the brim of the pelvis upwards to the epigastric region, as to be under and before all the other bowels in immediate contact with the parietes abdominis, occupying the whole space from one hip-bone to the other, and a proportionable space from these bones upwards as far as the epigastric region. When the uterus rises up from the cavity of the pelvis into the hypogastric and umbilical regions of the abdomen by its increasing bulk, it is no wonder that it should instantly mount up before the small intestines. Their attachment to the loins by the mesentery, would seem to render this necessary; but there is another cause which co-operates towards this effect, and which almost as certainly prevents the epiploon from falling down before the uterus, though that membrane is naturally so loose, that we might conceive it to be spread out indifferently either before or behind the body of the uterus. Yet in fact this fatty membrane is commonly found pushed up by the uterus, and crowded all round the fundus uteri, with the small intestines in the epigastric and adjacent parts of the hypochondriac regions. The cause of all this would appear to be the specific lightness of those parts in comparison of that of the uterus. The intestines contain some air, and the epiploon a good deal of oil, which gives them lightness and buoys them up above the uterus.

Whoever has any tolerable notion of the shape of the abdomen, and situation of the cavity of the pelvis, must understand, that the axis of the uterus is very far from the perpendicular line, its lower end being turned backwards, and its upper end in proportion turned forwards. This obliquity changes with the attitude of body, and from many other causes. When erect, the weight of the uterus presses the fore-part of the abdomen into a greater rotundity, and then the axis of the uterus approaches nearest to the transverse or horizontal line; and, in a recumbent posture, the contrary happens from a similar cause. In the case of a first pregnancy, the uterus stretches itself higher up in the epigastric region, and its axis comes nearer to the longitudinal or vertical direction, because the parietes of the abdomen do not easily give way, and do not swell forwards in any great degree; but in a woman who has had many children there is a more loose and pendulous abdomen, and thence the uterus does not shoot upwards, but rather forwards, and takes more of the transverse situation. This oblique direction of the uterus, approaching to the transverse, is more remarkable in very short women; because in them the chest is so near the pelvis, that the uterus is stopped in its ascent, and forced to shoot forwards. The same thing happens, and for a like reason, when the pelvis is very narrow. For in this case the uterus must be higher, as no part of it can be lodged in the cavity of the pelvis. In a very short and crooked woman, with a very narrow pelvis, upon whom Dr. Hunter saw the Cæsarian section performed, the fundus uteri was turned not only forwards, but even a little downwards. As she lay upon the table, the navel and hypogastrium could not be seen: the navel being situated on what might have been called the posterior and inferior part of the abdominal tumor. And to expose that part of the abdomen to the surgeon, it was necessary, with two assisting hands, to lift up the fundus uteri, or the most prominent part of the abdomen; without which the hypograstric region would have been inaccessible. Indeed it was an appearance which, without having seen, it was almost impossible to have conceived.

The obliquity of the uterus towards the right or left side is not commonly, indeed cannot be, very considerable. A small degree of lateral obliquity is very common; and it is natural to suppose, that in a reclined posture, the middle projection of the lumbar vertebræ will throw a little more than one half of the uterus into the lateral cavity between the spine and one hip-bone. In fact, we know that in all the last months of uterogestation the abdomen is often more full on one side than on the other. Women say, in such a case, that the child lies in one side; and they judge rightly. Where the child lies, the bulk must both be more considerable and more permanent; but where there is only uterus, placenta, and water, the swelling will be softer, and project less. When the child lies more in one side than in the other, the limb of that side is weaker, more benumbed, and more liable to cramps and œdomatous swellings. That an awkward position of the child will occasion spasms in the limb, experience testifies with the clearest evidence. Many women feel that the one depends upon the other; and from particular motions of the child, can certainly prognosticate ease or pain till it shall alter its situation again.

It is a common observation, that the ligaments and tubes of the pregnant uterus are attached lower upon the side of the uterus than they were before pregnancy. If the reason of this has not been so generally known, it is nevertheless evident. The peritonæal coat of the uterus makes the broad ligament on each side, much in the same manner as the analogous membrane of the intestinal tube makes the mesentery. When a woman is not pregnant, this ligament is of considerable breadth, the spermatic vessels pass between its two laminæ, the round ligament runs downwards and outwards, on its anterior surface, and the tube runs in loose serpentine turns upon its upper edge. But, in proportion as the circumference of the uterus grows larger, the broad ligaments grow narrower, their posterior lamella covering the posterior surface, and their anterior lamella covering the anterior surface of the uterus itself. As a proof of what has been said, we observe that the round ligaments do not now run down on the fore-part of the broad ligaments, but upon the fore-part of the body of the uterus itself; a proof that the peritonæum, which covers the uterus at this part, is the very membrane which before pregnancy made the anterior lamella of the broad ligament. Further, in proportion as the fundus uteri rises upwards, and increases in size, the upper part of the broad ligament is so stretched, that it clings close to the side of the uterus, so that in reality the broad ligament disappears, no more of it remaining than its very root; viz. its upper and outer corner, where the group of spermatic vessels pass over the iliacs immediately to the side of the uterus. In this state, though the small end of the tube opens into the same part of the uterus as before impregnation, yet the tube has a very different direction; instead of running outwards in the horizontal direction, it runs downward, clinging to the side of the uterus. And behind the fimbriæ lies the ovarium, for the same reason, clinging close to the side of the uterus. The fimbriæ and ovarium are commonly placed upon the iliac vessels, or fleshy brim of the pelvis, behind the group of spermatic vessels.

The round ligaments run almost perpendicularly downwards from the fundus uteri to their passage through the muscles; they are considerably enlarged in thickness, and are so vascular, that when injected, they seem to be little more than a bundle of arteries and veins. Their arteries are all convoluted. Both their arteries and veins are branches principally of the spermatics, and both evidently anastomose with their respective external vessels in the groin, or upper part of the labia. Even in this enlarged state of the round ligaments, it is very difficult to say how they terminate in the groin; they appear to be insensibly lost.

The ovaria seem to have undergone no remarkable change, except that one which contains the corpus luteum; which for the most part can be distinguished by a rounded fulness, and frequently a considerable prominence, sensible both to the sight and touch, upon the middle of which there is a small pointed cavity or indentation like a cicatrix. Upon slitting the ovarium at this part, the corpus luteum appears a round body, of a very distinct nature from the rest of the ovarium. Sometimes it is oblong or oval, but more generally round. Its centre is white, with some degree of tran parency; the rest of its substance has a yellowish c is very vascular, tender, and friable, like glandu flesh. Its larger vessels cling round its circumferen and thence send their smaller branches inwards throug their substance. A few of these larger vessels are situated at the cicatrix or indentation on the outer surface of the ovarium; and are there so little covered, as to give that part the appearance of being bloody when seen at a little distance. When there is only one child, there is only one corpus luteum; and two in case of twins. Dr. Hunter, who had frequent opportunities of examining the ovaria, with care, in cases of twins, always found two corpora lutea. In some of these cases there were two distinct corpora lutea in one ovarium; in others, there was a distinct corpus luteum in each ovarium. In a variety of different cases, it has been found, that the sex of the fœtus has no relation to the corpus luteum being in the right or left ovarium.

Those who say that the uterus grows thicker in the same proportion that its bulk is increased, have probably been deceived by examining the uterus of a woman who died some hours or days after delivery. In that contracted state the uterus is often found even two inches thick; but in all those Dr. Hunter examined, in the natural distended state, though there was some difference, the thickness of the uterus was but a little more considerable than before impregnation. When not injected, its more common thickness is from one to two thirds of an inch; when its vessels, and particularly its veins, are pretty well filled with wax, its thickness is thereby considerably increased, more especially where the placenta is fixed, on account of the number and size of the vessels at that part. For this reason only, perhaps, the uterus is thickest at that part, and for this reason too it is commonly thicker towards the fundus than the cervix.

There is no circumstance in which the gravid uterus differs more from the unimpregnated state, than in the size and termination of its vessels; the arteries, both spermatic and hypogastric, being very much enlarged, and the veins still more so. The substance of the uterus is also rendered remarkably soft and loose in its texture by pregnancy; so that, when an incision is made into it the wound can easily be made to open wide; or if a narrow piece of the uterus be cut quite out through and through, it is so loose and ductile, that it can be readily drawn out to at least double its natural thickness. This laxity appears to depend on two causes, viz. the great quantity of large vessels in its composition, and the loose connection between the fasciculi of its fibres. It would seem probable that utero-gestation enlarges the cellular connecting membrane, as well as the vessels of the uterus. When we speak of the muscular fibres, it is difficult to treat the subject with precision. We neither know their external appearance, nor their internal composition. They only manifest themselves to our senses, when numbers of them are collected into bundles, and make what we commonly call muscular fasciculi. In living bodies they manifest themselves by motion in the part, which we suppose is produced by a contraction or accurtation of the fibres themselves; but that change in the nature of a muscular fibre, which is the cause of its contraction, is not certainly known. This contraction in some parts is voluntary, in others involuntary, and in some it is both. In some parts it is quick, and in others very slow. The motion which is actually observed in the uterus of living women, is involuntary and slow. It is commonly believed to be muscular motion, and the fibres peculiar to the substance of the uterus are believed to be muscles. Dr. Hunter took considerable pains to trace the arrangement of the uterine fasciculi; but, except upon its inner surface, he observed nothing but irregularity and confusion. On the inner surface itself he observed some variety, and always, where the placenta adheres, a good deal of irregularity.

The mouth of the uterus differs considerably in the different times of utero-gestation. For the greatest part of the nine months, that is, till the cervix uteri be fully distended, there is a projection of both the anterior and posterior lips of the os tincæ; and in some women this continues to the very time of labour. But in most women, when they are at their full time, or very near it, the os uteri is flat, and makes only a small rugous hole, often not readily discoverable by the touch on the lower or posterior part of the rounded lower edge of the uterus. The border of this orifice, and the internal surface of the uterus, for an inch or more all around, is full of little irregular cavities. These contain a tough gluten, which shoots across, and plugs up the inner part of the orifice. This gluten is commonly squeezed out from all the lacunæ, by the dilatation of the os uteri in the beginning and progress of the labour; and so, losing its hold, it falls out. In the dead body, when the part is kept some days in water, the gluten swells out more and more from all these cavities, and then separates entirely. Then the innumerable lucunæ which contained it, being empty, are very visible. And if the gluten has been thus carefully taken away, and be floated in water, its external surface is seen beautifully ornamented with all the processes which were drawn out of the innumerable lacunæ.

The gravid uterus may be said to contain the secundines, liquor amnii, and the fœtus. The secundines make the lining of the uterus, and the immediate covering of the child; they form the chain of connection and communication between the bodies of the mother and child, and carry on that wonderful influence upon which the life and health of the child depend. The *Amnios*, *Chorion*, *Decidua*, *Fœtus*, *Placenta*, &c. are described under those articles. The size and weight of a child's body at birth is generally over-rated, insomuch that we are often told of children weighing from fifteen to twenty pounds. So far is this from being true, that Dr. Hunter declares, he never knew an instance of a child that weighed twelve pounds, and the greatest number are but little above half that weight. Dr. Macaulay was at great pains to ascertain the ordinary bulk of new-born children, by weighing several thousands that were born in the British lying-in hospital; the result was, that the smallest weighed a little above four pounds, the largest eleven pounds two ounces, but the greatest number weighed from five to eight pounds avoirdupois. The general as well as preternatural positions of the child in the womb, at or about its full time, may be seen in the plates annexed to the article LABOUR.

UTERUS, INVERTED; an accident that sometimes occurs in consequence of rudely pulling at the funis to hasten the separation of the placenta. It is, in general, very easily returned, by moderate pressure; but instances have happened of a complete inversion, attended with very alarming appearances.

UTERUS, RETROVERTED. See PREGNANCY.

U'VA PASSA MAJOR, or *Passula major;* the common raisin. The dried fruit of the *Vitis vinifera* of Linnæus. *Vitis foliis lobatis sinuatis nudis.* Class, *Pentandria.* Order, *Monogynia.* Raisins are used in pectoral decoctions, and for rendering other medicines grateful to the palate and stomach. They are directed in the *Decoctum hordei comp. Tinctura sennæ,* and *Tinctura cardamomi comp.* of the pharmacopœias.

U'VA PASSA MINOR, or *Passa corinthiaca,* currants; the dried fruit of the *Vitis corinthiaca* Linn. Their virtues are similar to those of the *uva passa major.*

U'VA U'RSI, the trailing arbutus, or bear-berry; *Arbutus uva ursi* Linn. *Arbutus caulibus procumbentibus, foliis integerrimis.* Class, *Decandria.* Order, *Monogynia.* This plant, though employed by the ancients in several diseases requiring astringent medicines, had almost entirely fallen into disuse until the middle of the present century, when it again drew the attention of physicians as a useful remedy in calculous and nephritic complaints. In these diseases the leaves of the *uva ursi* were strongly recommended by De Haen; and, whatever its way of operating may be, these seem to have been productive of good effects in some instances. There is no reason indeed to believe, that it has any influence in dissolving a calculus. Experience shews it to be chiefly useful in those instances where ulceration has taken place in the urinary passages, in which cases ʒss. of the powder was taken fasting, or two or three times in a day. Dr. Cullen also found it very powerful for relieving the symptoms of calculus; but it has also been recommended in cistorrhœa, diabetes, &c. and almost every other complaint to which the urinary organs are liable. In powder it is commonly given from fifteen grains to thirty, two or three times a-day; in decoction, or infusion, one to two drachms, in a pint of water, daily.

U'VEA (from *uva*, an unripe grape), the posterior lamina of the iris; so called, because, in brute animals, which the ancients chiefly dissected, it is of the colour of an unripe grape.

U'VULA (dim. of *uva*, a grape), also called *Columella*, that small conical fleshy substance which hangs in the middle of the *velum pendulum palati*, over the root of the tongue. It is composed of the common membrane of the mouth, and a small worm-like muscle, which arises from the union of the palatal bone, and descends to the tip of the uvula. It was named *Palato-staphilinus* by Douglas, and *Staphilinus epistaphilinus* by Winslow. The contraction of this muscle raises up the uvula.

UVULA'RIA (from *uvula*, because reckoned useful in diseases of the uvula). The plant that bears this epithet in some pharmacopœias is the *Ruscus hypoglossum* Linn. It was formerly used against relaxation of the uvula, but is now laid aside for more effectual remedies, of which camphor is the chief.

V.

VACCI'NIUM *(quasi baccinium*, from its berry); the moor-berry. The principal species are: 1. *Vaccinium Myrtillus;* the myrtle-berry. See MYRTILLUS. 2. *Vaccinium Oxycoccos*, the cranberry plant. See OXYCOCCOS. 3. *Vaccinium vitis idæa*, or red whortleberry. See VITIS IDÆA.

VAGI'NA, or *Vagina uteri*, that canal which leads from the pudendum, or external orifice, to the uterus in women. Its form is somewhat conical, the narrowest part being downwards. It is five or six inches in length and about two in diameter, or rather it is capable of being extended to those dimensions; for in its common state, the os uteri is seldom more than three inches from the external orifice, and the vagina is contracted as well as shortened. The vagina is composed of two coats. The first or innermost is villous, interspersed with many excretory ducts, and contracted into plicæ, or small transverse folds, particularly at the fore and back parts, but by child-bearing these diminish or are wholly obliterated. The second coat is composed of a firm membrane, in which muscular fibres are not distinctly observable, but which are endowed, to a certain degree, with contractile powers like a muscle. This is surrounded by cellular membrane, which connects it to the neighbouring parts. A portion of the upper and posterior part of the vagina is also covered by the peritonæum. The entrance of the vagina is constricted by muscular fibres, originating from the rami of the pubis, which run, for the like purpose, on each side of the pudendum, surrounding the posterior part, though they cannot be said to form a true sphincter.

The upper part of the vagina is connected to the circumference of the os uteri, but not in a straight line, so as to render the cavity of the uterus a continuation of that of the vagina. For the latter stretches beyond the former, and, being joined to the cervix, is reflected over the os uteri, which, by this sort of union, is suspended with projecting lips in the vagina, and permitted to change its position in various directions. When, therefore, these parts are quite distended by the child's head in time of labour, they are continued into each other in a direct line, or nearly so.

The diseases of the vagina are: 1. Such a stricture and contraction as render it unfit for the uses of propagation, &c. 2. The cohesion of its sides in consequence of preceding ulceration. 3. Cicatrices after an ulceration of the parts. 4. Excrescences. 5. Leucorrhœa or fluor albus. The first may be produced by original defective formation; the second by adhesive inflammation; and the third a natural consequence of the corrugated state of the parts when healed. These are seldom discovered before the time of marriage, the consummation of which they sometimes prevent. The curative intentions are, to relax the parts by the use of emollient applications, and to dilate them to their proper size by sponge or other tents, by repeated applications of caustic, or, by bougies gradually enlarged. The circumstances which attend this disorder, however, are sometimes such as might lead us to form an erroneous opinion of the disease. Dr. Denman mentions a case of this kind, in which strangury, great heat of the parts, and the profuse and inflammatory discharge, taking place, it was suspected to proceed from venereal infection; but on examination, the vagina was found rigid, and so much contracted as not to exceed half an inch in diameter, and not more than one inch and a half in length. The fruitless attempts which had been made by her husband to complete the act of coition, had occasioned all the suspicious appearances mentioned. The inflammation, however, being conquered, tents of various sizes were introduced into the vagina, by which it was distended, though not very amply. She then returned to her husband, and in a few months became pregnant. Her labour, though slow, was not attended with any extraordinary difficulty. She was delivered of a full-sized child, and afterwards suffered no inconvenience. Another kind of constriction of the external parts sometimes occurs, and which seems to be a mere spasm.

Cicatrices in the vagina very seldom become an impediment to the connection between the sexes; when they do, the same kind of assistance is required as was recommended in the preter-natural contraction or abbreviation of the part. They always give way to the pressure of the head of the child in the time of labour, though in many cases with great difficulty. Sometimes the appearences may mislead our judgment; for Dr. Denman was called to a woman in labour, who was thought to have become pregnant, though the hymen remained unbroken: but, on making very particular enquiry, he discovered that this was her second labour, and that the part which, from its form and situation, was supposed to be the hymen, with a small aperture, was a cicatrix, consequent to an ulceration of the part after her former labour.

Fungous excrescences arising from any part of the vagina or uterus have been distinguished, though not very properly, by the general term polypi. See the article Polypus.

The name of *vagina* is also given to the outer covering of the nerves, and tendons. By some the former is said to be a production of the pia mater only, and by others of the dura mater, because it agrees with it in tenacity, colour, and texture. The *vagina of the tendons*, is a loose membranous sheath formed of cellular membrane, investing the tendons, and containing an unctuous juice, which is secreted by the vessels of its internal surface. The tumor called a ganglion is nothing more than an accumulation of this juice.

VA'GUM, PAR. See Par vagum.

VALERIA'NA CE'LTICA; the systematic name of the celtic nard. See Nardus celtica.

VALERIA'NA MAJOR, the garden valerian; *Valeriana phu* of Linnæus. The root is said to be efficacious in some rheumatisms, especially the sciatica; and also in the epilepsy.

VALERIA'NA MINOR. See Valeriana sylvestris.

VALERIA'NA OFFICINA'LIS; the systematic name of the wild valerian. See Valeriana sylvestris.

VALERIA'NA PHU; the systematic name of the garden valerian. See Valeriana major.

VALERIA'NA SYLVE'STRIS (from *Valerius*, who first described it), or *Valeriana minor*, the officinal valerian; *Valeriana officinalis* Linn. *Valeriana floribus triandris, foliis omnibus pinnatis.* Class, *Triandria.* Order, *Monogynia.* The root of this plant has been long extolled as an efficacious remedy in epilepsy, which caused it to be exhibited in a variety of other complaints termed nervous, in which it has been found highly serviceable. It is also in very general use, as an antispasmodic, and is exhibited in convulsive hysterical diseases. Some recommend it as useful in procuring sleep, particularly in fever, even when opium fails. The common dose is from a scruple to a drachm in powder; and in infusion, from one to two drachms. Its unpleasant flavour is most effectually concealed by a suitable addition of mace. As its virtues reside entirely in an essential oil, the docoction and watery extract are improper forms for exhibiting it. The officinal preparations of valerian are:—*Tinct. Valer.* Lond. *Tinct. Valerian. ammon.* Lond. Dubl. *Extract. Valerian.* Dubl.

VA'LVA (from *valvo*, to fold up), a thin transparent membrane, situated within certain vessels, as arteries, veins, and absorbents; whose office appears to be, to prevent the contents of the vessel from flowing back.

VA'LVULA (dim. of *valva)*, a little valve.

VA'LVULA COLI, the valve of the Colon. The end of the iliac portion of the small intestine enters the large one obliquely, and projects somewhat within it, so as to form a kind of valve, called formerly, from its discoverer, the valve of Tulpius. It is also named the valve of the cœcum in some books of anatomy.

VA'LVULA TU'LPII. See Valvula coli.

VA'LVULA EUSTA'CHII; a membranous semilunar valve, which separates the right auricle from the inferior vena cava. It was first described by Eustachius.

VA'LVULÆ CONNIVE'NTES, those semilunar folds which are formed of the villous coat of the intestinum duodenum, and jejunum. Their use appears to be, to increase the surface of the intestines for the purpose of greater absorption.

VA'LVULÆ MITRA'LES. See Mitral valves.

VA'LVULÆ SEMILUNA'RES. See Semilunar valves.

VA'LVULÆ TRICUSPIDA'LES. See Tricuspid valves.

VA'LVULÆ TRIGLOCHI'NES. See Tricuspid valves.

VANELLOE, a long flattish pod, containing, under a wrinkled brittle shell, a reddish-brown pulp, with small shining black seeds. The plant which affords this fruit is the *Epidendrum vanilla; scandens, foliis ovato-oblongis nervosis sessilibus caulinis, cirrhis spiralibus,* Linn. Vanelloes have an unctuous aromatic taste, and a fragrant smell like that of the finer balsams heightened with musk. They are chiefly used as perfumes, but said to possess aphrodisiac virtues.

VAPOUR-BATH, a species of warm-bath, the general objects of which are noticed under the article Steam-bath. An invention under the name of an *Air-pump Vapour-bath*, however, deserves to be particularly mentioned. The peculiar construction of the machine is such as to unite the operation of cupping with that of fomentation. That which has been described by the inventor is adapted to the leg or arm only, but the principle extends much further, and can be applied to any part of the body by the intervention of glasses, or otherwise. One indeed has been made that includes half of the body; and when we consider that, by its means, the pressure of the atmosphere can be removed from so large a surface, every square inch of which sustains a weight of 15lb. the effects on the vessels circulating the fluids in such parts, are too evident to need insisting on. One very obvious effect is, that the consequent temporary expansion of them from so great a pressure being removed, must tend not only to remove local affections of the extremities, but may also afford relief in other parts of the body, where obstructions may have taken place. There are some complaints which would often be greatly migitated, if not always removed, by its power in producing a general and copious sweat over the whole frame; such as in the diabetes, dropsy, and other maladies where the skin is parched and dry. The following explanation of the figure of this machine in pl. XXXI, will make its operations better understood.

A view is given of that end of the machine to which the exhauster, &c. are fixed. *a*, The body of the machine. *b*, The boiler, containing the fluid, the fumes of which are thrown into the machine through the stop-cock *h*, and heated by means of *c*, a spirit lamp. *d*, The valve in the boiler for the escape of the fumes when prevented entering into the machine by turning the stop-cock, *h*. *e*, A thermometer, shewing the temperature of the fumigation. *f*, The exhauster, for exhausting the machine after the fumigation has continued a proper time; 40 strokes of which are as many as any person can bear at once. *g*, The escape-valve of the exhauster; to which a flexible pipe is adapted to convey the air from the chamber, if vitiated by the nature of the affection for which the application is made. *h*, The stop-cock. *i*, Another, to prevent the valves of the exhauster from being injured by the hot fumes as they enter the machine during the fumigation.

Mr. Smith, of Brighton, claims the merit of this invention, which originated in the idea of sucking poison from wounds, as in the bite of a mad dog, &c.

VA'RI. See Jonthi.

VARICE'LLA (a dim. of *varia*, the small-pox; so called from its being changeable), also called *Variola lymphatica*; the chicken-pox. It is a genus of disease in the class *pyrexiæ*, and order *exanthemata*, of Cullen; known by moderate synocha; pimples bearing some resemblance to small-pox, quickly forming pustules, which contain a fluid matter, and after three or four days from their first appearance, desquamate. It is a trivial disease, scarcely ever requiring medical assistance.

VARICOCE'LE (from *varix*, a distended vein, and κηλη, a *tumor)*, a swelling of the veins of the scrotum or spermatic cord. It is divided into the *scrotal varicocele*, known by the appearance of livid and tumid veins on the scrotum; and *varicocele of the spermatic cord*, which is known by hard vermiform vessels felt in the course of the spermatic cord. This disease arises from excessive walking, running, jumping, wearing of trusses, &c. producing at first a slight uneasiness in the part, which if not remedied continues advancing towards the loins. The cure consists first in removing the obstruction, if any, to the veinous blood; and secondly, in restoring or supporting the relaxed veins. When tumors, or the pressure of a truss, have been the cause, a proper attention to these ought to be first paid. But when a relaxed state of the veins is suspected, we ought to recommend a suspensory bandage, an horizontal posture of the body, the cold-bath, and the application of ice-cold water, or the solutions of muriated ammonia, alum, or other astringents. By a proper application of these, the disease may at least be prevented from increasing, so as to render any operation unnecessary.

VARICOSE ANEURISM. See Aneurism.

VARI'OLA (from *varius*, change of colour, because it disfigures the skin), the small-pox; a genus of disease in the class *pyrexiæ*, and order *exanthemata*, of Cullen: distinguished by synocha, eruption of red pimples on the third day, which on the eighth day contain pus, and drying, fall off in crusts.

This disease is highly contagious, and is supposed to have been introduced into Europe from Arabia. There arises a fever, that is succeeded by a number of little inflammatory pimples on the skin, which proceed to suppuration, and the matter formed is capable of producing the disorder in another person, either by the noxious effluvia entering the lungs, or by the application of matter taken from a pustula to a part deprived of the cuticle, as in the case of inoculation.

Four different stages are to be observed in the small-pox: viz. the febrile; the eruptive; the maturative; and lastly, the declination or scabbing, which is usually accompanied with secondary fever. When the disease has arisen naturally, and is of the distinct kind, the eruption is commonly preceded by a redness in the eyes, soreness in the throat, pains in the head, back, and loins, weariness and faintness, alternate fits of chillness and heat, thirst, nausea, inclination to vomit, and a quick pulse. In some instances, these symptoms prevail in a high degree, and in others they are very moderate and trifling. In very young children, startings and convulsions are apt to take place a short time previous to the appearance of the eruption, always giving great alarm to those not conversant with the frequency of the occurrence.

About the third or fourth day from the first seizure, the eruption shews itself in little red spots (similar to flea-bites) on the face, neck, and breast, and these continue to increase in number and size for three or four longer, at the end of which time, they are to be observed dispersed over several parts of the body. If the pustules are not very numerous, the febrile symptoms will generally go off on the appearance of the eruption, or at least become very moderate. It sometimes happens, that a number of little spots of an erysipelatous nature are interspersed amongst the pustules; but these generally go in again as soon as the suppuration commences, which is usually about the fifth or sixth day, at which period, a small vesicle, containing an almost colourless fluid, may be observed upon the top of each pimple. Should the pustules be perfectly distinct and separate from each other, the suppuration will probably be completed about the eighth or ninth day, and they will then be filled with a thick yellow matter; but should they run much into each other, it will not be completed till some days later.

When the pustules are very numerous on the face, about this time it becomes much swelled, and the eyelids are closed up, previous to which, there usually arises a hoarseness, and difficulty of swallowing, accompanied with a considerable discharge of viscid saliva.

About the eleventh day, the swelling of the face usually subsides, together with the affection of the fauces, and is succeeded by the same in the hands and feet, after which the pustules break, and discharge their contents; and then becoming dry, they fall in crusts, leaving the skin which they covered of a brown-red colour, which appearance continues for some weeks. In those cases where the pustules are large, and are late in becoming dry and falling off, they are very apt to leave pits behind them; but where they are small, suppurate quickly, and are few in number, they neither leave any marks behind them, nor do they occasion much affection of the constitution.

In that species of the disease which is called *confluent*, the eruptive fever is much more violent than in the distinct, being attended usually with great anxiety, heat, thirst, nausea, vomiting, and a frequent and contracted pulse, and often with coma or delirium. In infants, convulsive fits are apt to occur, which either prove fatal before any eruption appears, or they usher in a malignant species of the disease. The eruption usually makes its appearance about the third day, being frequently preceded or attended with a rosy efflorescence, similar to what takes place in the measles; but the fever, although it suffers some slight remission on the coming out of the eruption, does not go off as in the distinct kind; on the contrary, it becomes increased after the fifth or sixth day, and continues throughout the remainder of the disease.

As the eruption advances, the face being thickly beset with pustules, becomes very much swelled, the eyelids are closed up, so as to deprive the patient of sight, and a gentle salivation ensues, which towards the eleventh day is so viscid as to be spit up with great difficulty. In children, a diarrhœa usually attends this stage of the disease, instead of a salivation, which is to be met with only in adults. The vesicles on the top of the pimples are to be perceived sooner in the confluent small-pox than in the distinct; but they never rise to an eminence, being usually flatted in: neither do they arrive at a proper suppuration, as the fluid contained in them, instead of becoming yellow, turns to a brown colour.

About the tenth or eleventh day, the swelling of the face usually subsides, and then the hands and feet begin to puff up and swell; and about the same time the vesicles break, and pour out a liquor that forms into brown or black crusts, which, upon falling off, leave deep pits behind them that continue for life, and where the pustules have run much into each other, they then disfigure and scar the face very considerably. Sometimes it happens, that a putrescency of the fluids takes place at an early period of the disease, and shews itself in livid spots interspersed amongst the pustules, and by a discharge of blood by urine, stool, and from various parts of the body.

In the confluent small-pox, the fever, which, perhaps, had suffered some slight remission from the time the eruption made its appearance to that of maturation, is often renewed with considerable violence at this last-mentioned period. This secondary fever is the most dangerous stage of the disease.

It has been observed, that the small-pox is apt to appear immediately before or after the prevalence of the measles. Another curious observation has been made by Mr. Hunter relating to the symptoms of these complaints, namely, that if, while a patient labours under the small-pox, he is seized with the measles, the course of the former is retarded till the eruption of the measles is finished. Some cases are, however, recorded, in which a concurrence of the small-pox and measles took place, without the progress of the former being retarded.

The distinct small-pox is not attended with danger, except when it attacks pregnant women, or approaches nearly in its nature to that of the confluent; but this last is always accompanied with considerable risk, the degree of which is ever in proportion to the violence and permanence of the fever, the number of pustules on the face, and the disposition to putrescency which prevails. When there is a great tendency this way, the disease usually proves fatal between the eighth and eleventh day, but in some cases, death is protracted till the fourteenth or sixteenth. The confluent small-pox, although it may not prove immediately mortal, is very apt to induce various morbid affections.

A variety of opinions have been entertained respecting the effect of the variolous infection on the fœtus in utero; a sufficient number of instances, however, has been recorded, to ascertain that the disease may be communicated from the mother to the child. In some cases, the body of the child at its birth has been covered with pustules, and the nature of the disease has been most satisfactorily ascertained, by inoculating with matter taken from the pustules. In other cases, there has been no appearance of the disease at the time of the birth; but an eruption and other symptoms of the disease have appeared so early, as to ascertain that the infection must have been received previously to the child's birth.

Both kinds of small-pox leave behind them a predisposition to inflammatory complaints, particularly to ophthalmia, and visceral inflammations, more especially of the thorax; and they not unfrequently bring scrofula into action, which might otherwise have lain dormant in the system.

The treatment of this disease, on the antiphlogistic plan, is too well known to require a particular detail. The regular swelling of the hands and feet upon that of the face subsiding, and its continuance for the proper time, are regarded as favourable; and if due attention is paid to keep the body moderately open, whilst opiates are given to allay irritation and procure sleep, the patient's recovery, notwithstanding the great danger sometimes attending this complaint, may be reasonably expected.

The dissections which have been made of confluent small-pox, have never discovered any pustules internally on the viscera. From them it also appears, that variolous pustules never attack the cavities of the body, except those to which the air has free access, as the nose, mouth, trachea, the larger branches of the bronchiæ, and the outermost part of the meatus auditorius. In cases of prolapsus ani, they likewise frequently attack that part of the gut which is exposed to the air. They have usually shewn the same morbid appearances inwardly, as are met with in putrid fever, where the disease has been of the malignant kind.

VARI'OLA VACCINA; the cow-pox. See Inoculation.

VA'RIX (from *varus*, i. e. *obtortus)*, a morbid dilatation of a vein. It is a genus of disease in the class *locales*, and order *tumores*, of Cullen; known by a soft tumor on a vein which does not pulsate. Varicose veins mostly become serpentine, and often form a plexus of knots, especially in the groins and scrotum. Varices are common also on the legs of pregnant women, and of persons who have ulcers there of long standing. Uniform pressure, by a bandage or laced stocking, is the chief remedy in such cases. See Varicocele.

VA'RIX, ANEURISMAL. See Aneurism.

VA'S DE'FERENS (from *defero*, to convey from), a duct which arises from the epididymis, passes through the inguinal ring, in the spermatic cord, into the cavity of the pelvis, and terminates in the vesiculæ seminales. Its use is to convey the semen secreted in the testicle, and brought to it by the epididymis, into the vesiculæ seminales.

VA'SA BRE'VIA. The arteries which come from the spleen, and run along the large arch of the stomach to the diaphragm, have been so called.

VA'SA VORTICO'SA. The contorted vessels of the choroid membrane are so named.

VA'STUS EXTE'RNUS (called *Vastus*, from its size), a large, thick, and fleshy muscle, situated on the outer side of the thigh. It arises, by a broad thick tendon, from the lower and anterior part of the great trochanter, and upper part of the linea aspera; likewise adhering, by fleshy fibres, to the whole outer edge of that rough line. Its fibres descend obliquely forwards, and after it has run four or five inches downwards, we find it adhering to the anterior surface and outer side of the cruræus, with which it continues to be connected to the lower part of the thigh, where we see it terminating in a broad tendon, which is inserted into the upper part of the patella laterally, and sends off an aponeurosis that adheres to the head of the tibia, and is continued down the leg.

VA'STUS INTE'RNUS, a less considerable muscle than the vastus externus, situated at the inner side of the thigh, being separated from the latter muscle by the rectus. It arises tendinous and fleshy from between the fore-part of the os femoris, and the root of the lesser trochanter, below the insertion of the psoas magnus and the iliacus internus; and from all the inner side of the linea aspera. Like the vastus externus it is connected with the cruræus, but it continues longer fleshy than that muscle. A little above the knee its outer edge unites with the inner edge of the rectus; after which it is inserted tendinous into the upper part and inner side of the patella, sending off an aponeurosis which adheres to the upper part of the tibia.

VE'CTIS, an instrument used in midwifery; consisting of one blade slightly curved, and a handle. It is somewhat larger, but similar in form, to one blade of the forceps. See Midwifery, and pl. XIX. fig. 8. Dr. Denman, in the 2d vol. of his Introduction to Midwifery, traces the origin of this instrument, and also the contested points relative to its supposed advantages over the forceps, in a very luminous and dispassionate manner. From his statement it may be fairly presumed, that the vectis, prudently used, is, in every case, an equally safe and efficacious instrument with the forceps, and a better adapted instrument in many cases which occur in practice. It is with this persuasion, that several teachers in the art of midwifery in London, never use the forceps, or speak of them in their lectures; while others, to whose judgment we owe much respect, continue to use the forceps, and think more has been advanced than experience will justify in favour of the vectis. But these different opinions only prove, that, in the generality of cases, either instrument may, in expert hands, be used with equal safety and advantage.

The general condition and circumstances of labours, as requiring the use of the forceps, will hold good when the vectis is intended to be used; and the rules given for the forceps (see Forceps) will shorten what we have occasion to say respecting the manner of using the vectis. For though this instrument might be applied when the head of the child was high in the pelvis, or even when it was firmly locked in the pelvis, in cases of great emergency; yet as success in the management of such cases depends upon much previous knowledge and experience with the instrument, Dr. Denman will not attempt to form a precise rule how high we may venture to introduce the vectis, or with what degree of force we may use it. But when, without regard to the facility with which the vectis may be introduced, or any other consideration except the necessity of the case, we have determined upon using this instrument, the patient being placed in the same situation, and every thing prepared, as when the forceps are to be used, the operation is to be performed in the following manner:

" Pass two fingers, or the fore-finger of the right hand, to the ear of the child; and introducing the vectis between the fingers and the head of the child, conduct it slowly forwards till the point of the vectis reaches the ear, wherever that may be. Then advancing the instrument as if it were a blade of the forceps, carry it on till, according to your judgment, the extremity of the blade may reach as far, or a very little beyond, the chin of the child, when the line of the head, on which the instrument rests, will be in a straight direction from the vertex, over the ear, to the chin of the child; and this is the most favourable position in which it can be placed. Then grasping the handle of the instrument firmly in the right hand, wait for the accession of a pain, during the continuance of which, raise the handle of the instrument gently but firmly towards the pubes, at the same time exerting a small degree of extracting force. When the pain ceases, let the instrument rest, and when it returns, repeat the same kind of action; and every time of acting endeavour to lessen the pressure on the soft parts of the mother, with the two fingers, or the inferior side of the palm of the left hand placed in such a manner as to form, in some sort, a cushion on which the instrument may play, or be supported. By a repetition of this action during the continuance of the pains, the head of the child will soon be perceived to descend, and the face to turn gradually towards the hollow of the sacrum. But should the very moderate force we have recommended be found insufficient to bring down the head of the child, it must be gradually and cautiously increased, till it is sufficient to answer the purpose; and this may be done consistently with the safety both of the mother and child. When the vertex begins to fill and protrude the external parts, it is probable there may be no further occasion to act with the instrument; or, if further action be required, it must be extremely gentle, taking all possible care, by turning the handle towards the ischia or side of the pelvis, by supporting the perinæum, and by slow proceeding, to guard against a laceration of the parts."

During this operation, the vectis being confined to that part of the head where it was originally placed, must, as the head descends, necessarily change its relative situation to the mother, and be gradually turned from the pubes to the side of the pelvis, as is practised with the handles of the forceps.

Though, from its name, it might be supposed we had the power of acting with the vectis as a lever only, yet it possesses a considerable degree of extracting force, even when the curvature is but small; and we are able, at the time of using it, to direct the head of the child as it descends. Some have recommended the application of it towards the hollow of the sacrum, and spoken of the advantage of this mode of application. But Dr. Denman thinks the instrument would then be worked with less efficacy, and that there would be a greater hazard of doing mischief both to the mother and child.

VEGETABLE. See Plant.

VEGETABLE FOOD. See Food.

VE'LUM PE'NDULUM PALA'TI, or *Velum palatinum*, the soft palate. It is the soft portion of the palate, which forms two arches, affixed laterally to the tongue and pharynx.

VE'NA A'ZYGOS, or *Vena sine pari.* See Azygos.

VE'NA MEDINE'NSIS. See Medinensis vena.

VE'NA PO'RTÆ *(à portando*, because through it things are carried), or *Vena portarum;* the great vein, situated at the entrance of the liver, which receives the blood from the abdominal viscera, and carries it into the substance of the liver. It is distinguished into the *hepatic* and *abdominal* portions: the former is ramified through the substance of the liver, and carries the blood destined for the formation of bile, which is returned by branches to the trunk of the vena cava; the latter is composed of three branches, viz. the splenic, mesenteric, and internal hæmorrhoidal veins. See Liver.

VE'NÆ (from *venio*, to come; because they transmit the blood), the veins. These, in many particulars, resemble the arteries. There are six trunks; of which two answer to the aorta, and the remaining four to the pulmonary artery: some count a seventh, by taking in the venæ hepaticæ. Their basis is in the auricles of the heart, and their apices in the extremities of each branch through all parts of the body, excepting one instance in the liver: or we may reverse this order, and say the veins terminate in the heart. They mostly run parallel with, and accompany, the arteries, for which reason it is sufficient to refer to the delineation in pl. IV. vol. I. for a general idea of their course.

The fabric of the veins is tender, every-where smooth, difficultly separable into distinct coats or membranes, like the arteries; and the cellular texture surrounding them is very easily distended. The veins both above and below the heart are surrounded, except in one place, with muscular fibres; every-where, however, their substance is lax, like the cellular texture which joins the arteries to the adjacent parts. The veins are, nevertheless, every-where sufficiently firm, and not easily burst with inflated air; being in most instances stronger than the arteries themselves. But they burst much more easily in living than in dead animals, as appears from morbid instances in the arm, face, leg, thigh, &c. They do not preserve their cylindrical form after having been cut, but collapse together, so as to make their capacity appear like a slit; except they are sustained, and hindered from thus collapsing, by some stronger cellular substance placed round them, as we see in the liver and womb. They are only slightly irritable, unless the stimulus be of the chemical or more acrid class; for, in that case, they contract themselves with a convulsive force greater than that of the arteries. They have no pulsation, unless the veinous channel is somewhere obstructed; or when, in dying people, the blood is thrown back again from the right auricle into the descending and ascending cava, or when falling back from the brain.

The veins are much larger than their corresponding arteries, having the square of their diameter often double or triple, or almost quadruple; as may be seen near the emulgents and vessels of the kidneys. In general, however, the diameter of the veins is to that of the arteries as nine to four; yet the capacity of the capillary veins but little exceeds that of the arteries which accompany them. They differ likewise from the arteries in their division, having more numerous trunks and branches; for to one artery in the limbs, we usually meet with two veins: and there are many veins, as the external jugular, vena portarum, azygos, cephalic, basilic, and saphena, with which there are no corresponding arteries. The larger veins are also branched in a more net-like disposition, by forming more frequent anastomoses with one another, than the arteries do. Many of the veins run near the surface of the body, especially in the limbs, neck, and head: they run a long way covered with little more than the bare skin, which is a circumstance we very rarely observe in arteries; and, for the same reason, they often separate from the arteries; following the surface of the parts next the skin, without their corresponding artery, which descends to a considerable depth, attended in its course by some smaller veinous branch. In the smaller branches of the vessels, where they make net-like dispositions in the membranes and the internal fabric of the viscera, the veins and arteries commonly run contiguous one to the other; but here the veins have generally a less serpentine or inflected course than the arteries.

In the larger sanguineous veins, valves are found in great plenty. The innermost membrane of the vein being doubled, rises into the cavity of the vessel like a curtain, stretching itself further along the vein every way, so as to form what may be called a kind of crescent; but the basis, which is the part that sustains the weight of the blood, is stronger, and grows out of the vein in the shape of a circular segment. The valve intercepts a space, of which the outer side is the vein itself, and the inner the valve, which, by its convexity, projects within the bore of the vein; so the parabolic space or hollow mouth of the valve always looks towards the heart. Valves are found in all the subcutaneous veins of the limbs, in those of the neck, face, tongue, and penis: at the origin of the larger branches, there are two, three, four, and sometimes five of them together; while in the smaller branches, they are only single. These valves are wanting in the veins of the deep-seated viscera; namely, the brain, lungs, heart, and liver, and through the whole system of the vena portarum. They are also wanting in the kidneys and womb (except one or two valves in the spermatic vein); and, lastly, in those small veinous tubes which are less than the twelfth part of an inch in diameter. Sometimes, though rarely, they are found in the branches of the vena azygos, and at the mouths of the hepatic and renal veins. There Haller has sometimes observed a sort of wrinkles in the place of valves. In the smaller veinous branches there are a set of long, sharp-pointed or parabolical valves, of a more extended figure as the vein is smaller, which seem to resist the return of the blood more powerfully than the larger valves.

The veins have their origin, as has been said, from the terminations of the arteries. They sometimes arise by a continuation from the inserted branches, or from a reflection of recurved trunks of the smallest arteries. Others, again, are continued from veins less than those which carry blood; and also, in Dr. Haller's opinion, from the absorbing veins; but as absorption by the red veins is now denied, that opinion must be rejected.

That there are veins of a smaller class, yet resembling those which convey blood, appears from the same experiments which demonstrate the pellucid arteries. Thus there are small veins in the iris, and in the adnata tunica of the eye; nor is it to be doubted, that, in a healthy body, small pellucid veins may be found in the vitreous humour of the eye itself. Such have been sometimes seen, by Wrisberg and others, after a fine injection or inflammation in the capsules of the lens and vitreous humour.

The particular veins are described under their several names. The blood that is distributed to all parts of the body by two principal arteries (viz. the aorta and arteria pulmonaris), returns by three principal veins, called by anatomists *vena cava*, *vena portæ*, and *vena pulmonaris*. See CAVA, PORTÆ, &c.

VE'NÆ LA'CTEÆ. The lacteal absorbents were so called. See LACTEALS.

VENEREAL DISEASE. See GONORRHŒA and LUES VENEREA.

VENOM; a name for that sort of poison which is introduced by a wound, made either by the bite of some noxious animal, or by an instrument armed with virulent matter. Local poisons may be introduced into the system in various ways. The effects of the poison introduced by the stings of insects have been experienced in all countries. These may frequently be prevented by applying immediately vinegar, ardent spirits, or camphorated oil. After inflammation has come on, the most effectual remedy is the washing the parts with cold sedative lotions, or the application of emollient poultices. The bite of a viper is not always dangerous; but before the poison appears to have entered the system, the application of warm oil over the bitten part, and also the whole body, has been extolled. It has even been said, that advantage has been derived from the internal use of it; but from some later observations, the efficacy of this remedy is much to be doubted. Perhaps a plentiful sweat, kept up for a considerable time, is the most certain method yet discovered. Small doses of volatile alkali, frequently repeated, are more to be depended on for producing this effect than any other remedy.

The venom infused by the bite of a mad animal occasions the most formidable effects of any local poison known in this country. From these wounds, hydrophobia indeed does not always ensue; but when it does, death is most certainly the consequence. See HYDROPHOBIA. Nothing yet known can be depended upon but the entire removal of the injured part, either with the scalpel or the actual or potential cautery. Dr. Moseley says, the bites and stings of the scorpion, and indeed of all other venomous animals, are cured by the same means. The injured part, he says, must be instantly destroyed, or cut out. Except in bites of rabid animals, cauterizing the part may be the most safe, and equally certain; and the best application for that purpose, is the *kali purum*, or the *antimonium muriatum*. These are preferable to an hot iron, which the ancients used, because that forms a crust, which acts as a defence to the under parts, instead of destroying them. The bitten part must be destroyed to the bottom, and where there is any doubt that the bottom of the wound is not sufficiently exposed, some of the antimonial caustic should be introduced into it on the following day, as deep as possible; and incisions should be made to lay every part open to the action of these applications. Besides destroying, burning, or cutting out the part, Dr. Moseley says incision should be made round the wound, to prevent the communication of the virus; but, we presume, this is only requisite in extreme and peculiar cases. The wound is to be dressed for some time with poultices, to assuage the inflammation caused by the caustics; and afterwards with proper dressings to promote digestion from the injured parts. In some countries gunpowder is laid on the part, and fired, and this has been used with success. When a person is bitten, remote from any assistance, Dr. Moseley says he should make a tight ligature above the part, till some proper application can be made. The Spanish writers say, that the *habilla de Carthagena*, or Carthagena bean, taken inwardly, is a specific for the poisonous bites of vipers and serpents; for a little of it being eaten immediately after the bite, it presently stops the effects of the poison. The natives of that country tell you, that this *habilla*, being very hot, much of it cannot be eaten; for the common dose of it is less than the fourth part of a kernel. It is found in great abundance in the West-Indian islands, where it is generally known by the name of *antidote cocoon*. In small doses it is stomachic and diaphoretic; and in large doses emetic and purgative. The Indians in Popayan, when any person has been poisoned by the *coya* or *coyba* (a deadly venomous insect, shaped like a spider, but less than a bug), burn the part: and if the body begins to swell, they singe it all over with the flame of straw, or dry grass; and this process generally succeeds. When wounds are poisoned by the application of matter from certain sores, as those of the venereal or cancerous kinds, or from any of the vegetable poisons, it is better to remove the part affected immediately, than to undergo a course of medicines generally slow and often doubtful in their operations. See Scorpio, and Musquitoe.

VE'NTER, a term formerly applied to the larger circumscribed cavities of the body, as the abdomen and thorax.

VENTRICLES; a term given by anatomists to the cavities of the brain and heart. See Cerebrum and Heart.

VENTRI'CULUS PULMONA'RIS, a name for the right ventricle of the heart.

VENTRI'CULUS SUCCENTURIA'TUS, a name given to that portion of the duodenum, which is surrounded by the peritoneum, and sometimes so large as to resemble a second stomach.

VEPRE'CULÆ (from *vepres*, a briar or bramble); the 31st class of plants in Linnæus's natural method. It consists of plants resembling the daphne, dirca, gnidia, &c. but which, however, do not constitute a true natural assemblage. The genera belonging to this order are, Dais; Daphne; Dirca; Gnidia; Lachnæa; Passerina; Quisqualis; Stellera; Thesium.

VERA'TRUM. See Helleborus albus, and Helleborus niger.

VERBA'SCUM (quasi *barbascum*, from its hairy coat), also called *Thapsus barbatus*, *Candelaria*, and *Lanaria;* the herb mullein. The *Verbascum nigrum* and *Verbascum thapsus*, appear to be ordered indifferently, by this name, in the pharmacopœias. The flowers, leaves, and roots, are deemed mildly astringent. The leaves, which possess a rough taste, are said to be of service in diarrhœa, and debility of the intestines.

VERBE'NA (quasi *herbena*, a name of distinction for all herbs used in sacred rites), also called *Verbenaca*, *Peristerium*, *Hierobotane*, and *Herba sacra*, vervain; the *Verbena officinalis* Linn. This plant is without smell, and to the taste manifests but a slight degree of bitterness and astringency. In former times the verbena was bruised and appended to the neck as an amulet for inveterate head-aches. In still later times it has been employed in the way of cataplasm, by which we are told the most severe and obstinate cases of cephalalgia have been cured: for this we have the authorities of Etmuller, Hartmann, and more especially De Haen. Notwithstanding these testimonies, however, vervain has deservedly fallen into disuse in Britain.

VERBE'NA FŒ'MINA; a name for the hedge-mustard. See Erysimum.

VERDIGRISE, or Verdigris. See Ærugo.

VE'RMES. See Worms.

VERMICULA'RIS. See Illecebra.

VERMIFORM PROCESS, *Protuberantia vermiformis;* the substance which unites the two hemispheres of the cerebellum like a ring, forming a process. It is called *vermiform*, from its resemblance to the contortions of a worm.

VERMIFU'GA (from *vermis*, a worm, and *fugo*, to drive away), vermifuge medicines. See Anthelmintica.

VERMILLION. See Cinnabar.

VERNA'TIO (from *Ver*, the spring), in botany, a renewing or growing again; a term substituted by Linnæus for *foliatio*, leafing, or foliation. Thus leaves, according to their manner of being folded up, have the distinguishing epithets of *conduplicata*, *convoluta*, *equitantia*, &c. the meaning of which terms is easily understood by a careful dissection and unfolding of the buds.

VERO'NICA, also called *Thea Germanica*, and *Betonica pauli;* the *Veronica officinalis, spicis lateralibus, pedunculatis foliis oppositis, caule procumbente*, of Linnæus. This plant is not unfrequent on dry barren heaths, flowering in June and July. The leaves have a weak not disagreeable smell, which on drying is dissipated, and which they give over in distillation with water, but without yielding any separable oil. To the taste they are bitterish and rough: an extract made from them by rectified spirit is moderately bitter and astringent. This plant, a century ago, was much used in Germany, as a substitute for tea; and the French still distinguish it by the name of *Thé d'Europe*. But though this plant has roughness and a slight bitterness, which is not ungrateful to the taste, yet its qualities are still very unlike those which we discover in foreign tea. As a medicine also this plant has had a considerable share of fame. The disorders in which it has been esteemed useful are coughs, asthmas, consumptions, &c. in which it is said not only to prove expectorant, but by its extraordinary vulnerary power to heal internal ulcers. It has however been long laid aside in this country.

VERO'NICA AQUA'TICA. So the brooklime speedwell is sometimes called. See Beccabunga.

VERO'NICA BECCABU'NGA; the systematic name of the brooklime speedwell. See Beccabunga.

VERO'NICA FŒ'MINA. See Elatine.

VERO'NICA TEU'CRIUM. See Teucrium.

VERRU'CÆ (*à verrendo*, to change for the better), warts; a genus of disease in the class *locales*, and order *tumores*, of Cullen. See Warts.

VE'RTEBRÆ (from *verto*, to turn), the irregularly shaped bones which form the spine; extending from the head to the lower part of the trunk. The vertebræ may be considered as forming two irregular pyramids, which are united to each other in that part of the loins where the last of those named the lumbar vertebræ is united to the os sacrum. Those which form the upper and longest pyramid, are called true vertebræ; and those which compose the lower pyramid, or the os sacrum and coccyx, are termed false vertebræ, because they do not quite resemble the others; and particularly because, in the adult state, they become perfectly immoveable, whilst the upper ones continue to be capable of motion; for it is upon the bones of the spine that the body turns. The true vertebræ, from their situation with respect to the neck, back, and loins, are divided into three classes of *cervical*, *dorsal*, and *lumbar* vertebræ, which we shall first consider separately.

1. As in other bones, so in each of the vertebræ, we remark the body of the bone, its processes and cavities. The body may be compared to part of a cylinder cut off transversely; convex before, and concave behind, where it makes part of the cavity of the spine. Each vertebra has commonly seven processes. The *spinous* process, which is placed at the back part of the vertebra, gives the name of spine to the whole of this bony canal. Two others, called *transverse* processes, from their situation with respect to the spine, are placed on each side of the spinous process. The four others, which are called *oblique*, are much smaller than the other three. There are two of these on the upper and two on the lower part of each vertebra, rising from near the basis of the transverse processes. They are sometimes called *articular* processes, because they are articulated with each other; that is, the two superior processes of one vertebra, are articulated with the two inferior processes of the vertebra above it: and they are called oblique processes, from their situation with respect to the processes with which they are articulated. These oblique processes are articulated to each other by a species of ginglimus, and each process is covered, at its articulation, with cartilage.

There are foramina, corresponding with each other, running through all the vertebræ, and forming a long bony conduit, wide enough to admit a finger, for the lodgment of the spinal marrow. And besides this great hole, there are four notches on each side of every vertebra, between the oblique processes and the body. Two of these notches are at the upper, and two at the lower part of the bone. Each of the inferior notches, meeting with one of the superior notches of the vertebra below it, forms a foramen; whilst the superior notches do the same with the inferior notches of the vertebra above it. These four foramina form passages for blood-vessels, and for the nerves that pass out of the spine.

The vertebræ are united together by means of an elastic substance, which forms regular partitions between them. This seems, in the fœtus, to approach nearly to the nature of ligament; but in the adult it has a greater resemblance to cartilage. When cut horizontally, it appears to consist of concentrical curved fibres: externally, it is firmest and hardest; internally, it becomes thinner and softer, till at length, in the centre, it exists in the form of a tenacious mucus, which facilitates the motions of the spine.

In advanced life, the cartilages become shrivelled, lose, in a great measure, their elasticity, and are subject to a temporary diminution, from the weight of the body in an erect posture; so that people who have been long standing, or have carried a considerable weight, are found to be shorter than when they have been long in bed. Hence we are taller in the morning than at night: young people, will be nearly an inch; but in older, or shorter persons, the difference will be less considerable.

Besides the connection of the several vertebræ, by means of these cartilages, there are likewise many strong ligaments, which unite the bones of the spine to each other. Some of these ligaments are external, and others internal. Among the external ligaments, we observe one which is common to all the vertebræ, extending, in a longitudinal direction, from the fore part of the body of the second vertebra of the neck, over all the other vertebræ, and becoming broader as it descends towards the os sacrum, where it becomes thinner, and gradually disappears. This external longitudinal ligament, if we may so call it, is strengthened by other shorter ligamentous fibres, which pass from one vertebra to another, throughout the whole spine. The internal ligament, the fibres of which, like the external one, are spread in a longitudinal direction, is extended over the back part of the bodies of the vertebræ, where they help to form the cavity of the spine; and reaches from the foramen magnum of the occipital bone to the os sacrum.

Dr. Hooper observes, that all the vertebræ diminish in density and firmness of texture, in proportion as they increase in size, so that the lower vertebræ, though larger, are not so heavy in proportion as those above them. In consequence of this sort of structure, the size of the vertebræ is increased without adding to their weight; and this is an object of no little importance, in a part of the body, which, besides flexibility and suppleness, seems to require lightness as one of its essential properties.

In the fœtus, at the ordinary time of birth, each vertebra is found to be composed of three bony pieces, connected by cartilages which afterwards ossify. One of these pieces is the body of the bone; the other two are the posterior and lateral portions, which form the foramen for the medulla spinalis. The oblique processes are at that time complete, and the transverse processes beginning to be formed; but the spinous processes are totally wanting.

2. The *cervical vertebræ* are seven in number; their bodies are smaller and of a firmer texture than the other bones of the spine. The transverse processes of these vertebræ are short, and forked for the lodgment of muscles; and, at the bottom of each of these processes, there is a foramen, for the passage of the cervical artery and vein. The spinous process of each of these vertebræ is likewise shorter than in the other vertebræ, and forked at its extremity; by which means it allows a more convenient insertion to the muscles of the neck. Their oblique processes are more deserving of that name than either those of the dorsal or lumbar vertebræ. The uppermost of these processes are slightly concave, and the lowermost slightly convex. This, as a general description of these vertebræ, may be sufficient; but the first, second, and seventh, deserve more particular notice.

The first, called *Atlas*, from its supporting the head, differs from all the other vertebræ. It forms a kind of bony ring, which may be divided into its anterior and

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posterior arches, and its lateral portions. Of these, the anterior arch is the smallest and flattest. At the middle of its convex fore-part we observe a small tubercle, which is here what the body is in the other vertebræ. To this tubercle a ligament is attached, which helps to strengthen the articulation of the spine with the os occipitis. The back part of this anterior portion is concave, and covered with cartilage, where it receives the odontoid process of the second vertebra. The posterior portion of the vertebra, or, more properly speaking, the posterior arch, is larger than the anterior one. Instead of a spinous process, we observe a rising or tubercle, larger than that which we have just now described, on the fore part of the bone. The lateral portions of the vertebra project, so as to form what are called the transverse processes, one on each side, which are longer and larger than the transverse processes of the other vertebræ. They terminate in a roundish tubercle, the end of which has a slight bend downwards. Like the other transverse processes, they are perforated at their basis, for the passage of the cervical artery. But, besides these transverse processes, we observe, both on the superior and inferior surface of these lateral portions of the first vertebra, an articulating surface, covered with cartilage, answering to the oblique processes in the other vertebræ. The uppermost of these are oblong, and slightly concave, and their external edges rise somewhat higher than their internal brims. They receive the condyloid processes of the os occipitis, with which they are articulated by a species of ginglimus. The lowermost articulating surfaces, or the inferior oblique processes, as they are called, are large, concave, and circular, and are formed for receiving the superior oblique processes of the second vertebra; so that the atlas differs from the rest of the cervical vertebræ in receiving the bones, with which it is articulated both above and below.

This vertebra in the fœtus is composed of five, instead of three, pieces, as in the other vertebræ. One of these is the anterior arch; the other four are the posterior arch and the sides, each of the latter being composed of two pieces. The transverse process, on each side, remains long in a state of epiphysis with respect to the rest of the bone.

The second vertebra is called *dentata*, from the process on the upper part of its body, which has been, though perhaps improperly, compared to a tooth. This process, which is the most remarkable part of the vertebra, is of a cylindrical shape, slightly flattened, however, behind and before. Anteriorly it has a convex, smooth, articulating surface, where it is received by the atlas, as we observed in our description of that vertebra. It is by means of this articulation that the rotatory motion of the head is performed; the articulation of the os occipitis with the superior oblique processes of the first vertebra, allowing only a certain degree of motion backwards and forwards, so that when we turn the face either to the right or left, the atlas moves upon this odontoid process of the second vertebra. But, as the face cannot turn a quarter of a circle, that is, to the shoulder, upon this vertebra alone, without being liable to injure the medulla spinalis, we find that all the cervical vertebræ concur in this rotatory motion, when it is in any considerable degree; and indeed we see many strong ligamentous fibres arising from the sides of the odontoid process, and passing over the first vertebra, to the os occipitis, which not only strengthen the articulation of these bones with each other, but serve to regulate and limit their motion. It is on this account some have given the name of *moderators* to these ligaments. The transverse processes of the vertebra dentata are short, inclined downwards, and forked at their extremities. Its spinous process is short and thick. Its superior oblique processes are slightly convex, and somewhat larger than the articulating surfaces of the first vertebra, by which mechanism, the motion of that bone upon this second vertebra is performed with greater safety. Its inferior oblique processes have nothing singular in their structure.

The seventh vertebra of the neck differs from the rest, chiefly in having its spinous process of a greater length. Upon this account it is that some have applied to it the epithet of *prominens*.

3. The *dorsal vertebræ*. These are twelve in number, of a middle size, between that of the cervical and lumbar vertebræ; the upper ones gradually losing their resemblance to those of the neck, and the lower ones coming nearer to those of the loins. The bodies of these vertebræ are more flattened at their sides, more convex before, and more concave behind, than the other bones of the spine. Their upper and lower surfaces are horizontal. At their sides we observe two depressions, one at their upper, and the other at their lower edge, which, united with similar depressions in the vertebræ above and below, form articulating surfaces, covered with cartilage, in which the heads of the ribs are received. These depressions, however, are not exactly alike in all the dorsal vertebræ; for we find the head of the first rib articulated solely with the first of these vertebræ, which has therefore the whole of the superior articulating surface within itself, independent of the vertebra above it. We may likewise observe a similarity in this respect in the eleventh and twelfth of the dorsal vertebræ, with which the eleventh and twelfth ribs are articulated separately. Their spinous processes are long, flattened at the sides, divided at their upper and back part into two surfaces by a middle ridge, which is received by a small groove in the inner part of the spinous process immediately above it, and connected to it by a ligament. These spinous processes are terminated by a kind of round tubercle, which slopes considerably downwards, except in the three lowermost vertebræ, where they are shorter and more erect. Their transverse processes are of considerable length and thickness, and are turned obliquely backwards. Anteriorly they have an articulating surface, for receiving the tuberosity of the ribs, except in the eleventh and twelfth of the dorsal vertebræ, to which the ribs are articulated by their heads only. In the last of these vertebræ the transverse processes are very short and thick, because otherwise they would be apt to strike against the lowermost ribs when we bend the body to either side.

4. The *lumbar vertebræ*, are the lowest of the true vertebræ. These are five in number, and they are larger than the dorsal vertebræ. Their bodies are ex-

tremely prominent, and nearly of a circular form at their fore-part: posteriorly they are concave. Their intermediate cartilages are of considerable thickness, especially anteriorly, by which means the curvature of the spine forwards, towards the abdomen, in this part, is greatly assisted. Their spinous processes are short and thick, of considerable breadth, erect, and terminated by a kind of tuberosity. Their oblique processes are of considerable thickness; the superior ones are concave, and turned inwards; the inferior ones convex, and turned outwards. Their transverse processes are thin and long, except in the first and last vertebra, where they are much shorter, that the lateral motions of the trunk might not be impeded. The inferior surface of all these vertebræ is slightly oblique, so that the fore-part of the body of each is somewhat thicker than its hind part; but this is more particularly observable in the lowermost vertebra, which is connected with the os sacrum. Many anatomists describe the os sacrum and the os coccygis when considering the bones of the spine, whilst others regard them as belonging more properly to the pelvis. These latter bones are described under PELVIS: it now remains to notice the uses of the spine. We find the spinal marrow lodged in this bony canal, secure from external injury. It defends the thoracic and abdominal viscera, and forms a pillar, which supports the head, and gives a general firmness to the whole trunk.

To give it a firm basis, we find the bodies of the vertebræ gradually increasing in breadth as they ascend; and to fit it for a variety of motion, it is composed of a great number of joints, with an intermediate elastic substance, so that to great firmness there is added a perfect flexibility.

Besides the uses of the vertebræ in defending the spinal marrow, and in their mutual articulation to form the spine, they serve to form a greater surface for the lodgment of muscles, and to enable the latter to act more powerfully on the trunk, by affording them levers of considerable length. In the neck, we see the spine projecting somewhat forwards, to support the head, which, without this assistance, would have required a greater number of muscles. Through the whole length of the thorax, it is carried in a curved direction backwards, and thus adds considerably to the cavity of the chest, and consequently affords more room to the lungs, heart, and large blood-vessels. In the loins the spine again projects forwards, in a direction with the centre of gravity, by which means the body is easily kept in an erect posture; for otherwise we should be liable to fall forwards. But, at its inferior part, it again recedes backwards, and helps to form the pelvis, a basin, in which the urinary bladder, intestinum rectum, and other viscera, are placed.

In a part of the body that is composed of so great a number of bones, and constructed for such a variety of motion, as the spine is, luxation is more to be expected than fracture; but this is very wisely and effectually guarded against in every direction, by the many processes that are to be found in each vertebra, and by the cartilages, ligaments, and other means of connection, which have been described.

VERTEBRA'LIS ARTERIA, the vertebral artery; a branch of the subclavian, proceeding through the vertebræ to within the cranium. There, with its fellow, it forms the basilary artery, the internal auditory, and the posterior artery of the dura mater.

VE'RTEX; the crown of the head.

VERTICA'LIA OSSA. See PARIETAL BONES.

VERTICILLA'TÆ, the 42d in Linnæus's natural orders. This consists of herbaceous vegetables, having four naked seeds, and the flowers placed in whorls round the stalk. The genera are very numerous. The plants composing this order are fragrant, warm, and penetrating, and their chief virtue resides in the leaves. Mint, baulm, horehound, sage, thyme, rosemary, hyssop, &c. are included in this order.

VERTI'GO, a giddiness, in which external objects, really at rest, seem to reel, or to whirl round. If very violent, the person is neither able to see, on account of a dimness of sight; nor can he stand, as the powers fail which ought to govern his limbs. A nausea also usually accompanies the vertigo, and the one generally produces the other. This disorder is the symptom and forerunner of some dangerous diseases; such as apoplexy, epilepsy, hysteria; hæmorrhages from the nose and other parts; suppressions of the menses; plethora; fevers, as well such as are accompanied with debility as those in which there is an increased impetus of the blood towards the head. An injury done to the head also, but rarely one done to the eyes, unless in so far as it affects the whole head, brings on a vertigo. A vertigo may be likewise produced by a very great and sudden loss of blood or other fluid; by debility; syncope; various diseases of the alimentary canal, of the stomach especially; poisons admitted into the body, particularly of the narcotic kind, as opium, wine, &c. and hence vertigo is a symptom of every kind of drunkenness. Various motions also, either of the head or the whole body, being tossed in a ship, especially if the vessel be small and the sea runs high, produce a vertigo. In these and similar examples, the unusual and inordinate motions of the blood are communicated to the nervous parts which are in the head; or these being affected by sympathy from the neighbouring parts, produce a confused sensation, as if of a rotatory motion. Nay, it is often produced from an affection of the mind itself, as from beholding any thing turned swiftly round, or a great cataract, or looking down a precipice, or even by intense thought, without looking at any thing. Though a vertigo be, for the most part, a symptom and concomitant of other diseases, yet it is sometimes a primary disease, returning at intervals, increasing gradually, and equally impeding and destroying the functions of the body and mind.

VERVAIN. See VERBENA, and ERYSIMUM.

VESALIUS (Andreas), a celebrated physician and anatomist, was born at Brussels about the year 1512. He studied physic at Paris under James Sylvius; but applied himself chiefly to anatomy, which was then very little known, dissections being esteemed unlawful and impious: and it appears from his work, *De Humani Corporis Fabrica*, that he perfected himself in this useful knowledge very early. About the year 1537, the republic of Venice made him professor in the university of Padua, where he taught anatomy for seven years; Charles V. called him to be his physician, as he was also to Philip II. king of Spain. Vesalius was now at the height of his glory, when all of a sudden he formed the design of taking a journey to Palestine; concerning which journey we are told the following story: A Spanish nobleman whom he attended, being believed to be dead, Vesalius obtained leave to open him to explore the true cause of his illness; but when he opened the breast, he perceived symptoms of life, and saw the heart beat. The friends, not satisfied with prosecuting him for murder, accused him of impiety to the inquisition, in hopes that tribunal would punish him with greater rigour: but the king interposing, saved him, on condition of his making a pilgrimage to the Holy Land. He was ship-wrecked on his return, and thrown upon the island of Zante, where he perished, in 1564. He was the author of several works, the principal of which is that above mentioned.

VESA'NIÆ; the fourth order in the class *neuroses* of Cullen's nosological arrangement; comprehending diseases in which the judgment is impaired, without either coma or pyrexia. See NOSOLOGY.

VE'SICA (dim. of *vas*, a vessel); a bladder.

VE'SICA FELLIS; the gall-bladder. See GALL-BLADDER.

VE'SICA URINA'RIA; the urinary bladder. The bladder is a kind of membranous and fleshy pouch or bottle, capable of dilatation and contraction, situated in the lower part of the abdomen immediately behind the symphysis of the ossa pubis, and opposite to the beginning of the intestinum rectum. The figure of it is nearly that of a short oval. It is broader on the fore and back sides than on the lateral parts; rounder above than below, when empty; and broader below than above, when full. It is divided into the body, neck, and bottom; into an anterior, posterior, and two lateral parts. The upper part is termed the *fundus* or bottom; and the neck is a portion of the lower part, which is contracted by a sphincter muscle.

The urinary bladder is made up of several coats, almost like the stomach. That part of the external coat which covers the upper, posterior, and lateral sides of the bladder, is the true lamina or membrane of the peritonæum; and the rest of it is surrounded by a cellular substance, by the intervention of which, the peritonæum is connected to the muscular coat. The proper coats are three in number; one muscular, one cellular, and an internal smooth one. The *muscular* coat is composed of several strata of fleshy fibres; the outermost of which are mostly longitudinal; the next to these are more inclined toward each side; and the innermost more and more oblique; and they become at length almost transverse. All these fibres intersect each other in various manners; and they are connected together by a fine cellular substance, and may be separated by inflating that substance. The *cellular* coat is nearly of the same structure with what is called the *tunica nervosa* of the stomach. Winslow describes the internal or *villous* coat as somewhat granulated and glandular; but modern anatomists deny the existence of glands there. A mucilage is continually discharged through it, which moistens the inner surface of the bladder, and defends it against the acrimony of the urine. It appears sometimes altogether uneven on the inner side, being full of eminences and irregular rugæ when empty, and in its natural state of contraction. These inequalities disappear, however, when the bladder is full, or when it is artificially distended by air, or by injecting any liquid.

The muscular fibres closely connected round the neck of the bladder, form the *sphincter;* but this part is not a distinct muscle, nor is its action distinct from the rest of the muscular coat.

In pl. XVIII. a view is given of the bladder and its appendages. *a*, Is its inferior part. *b*, *b*, The ureters. *c*, *c*, The vasa deferentia. *d*, *d*, The vesiculæ seminales. *e*, The prostate gland. *f*, The meatus urinarius.

An inflammation of the bladder is termed CYSTITIS, which see. It is subject to disease from the mechanical action of calculi, &c. and also to morbid irritability, to tumors obstructing the passage of urine through the sphincter, to ulceration, and to other chronic affections, which, after tormenting the patient for a longer or shorter period, at length end fatally.

VESICATO'RIA (from *vesica*, a bladder; because they raise the cuticle, like a bladder). See EPISPASTICA.

VESICLE (*bulla*, Lat.), an elevation of the cuticle, of a large size, irregularly circumscribed, and containing a transparent watery fluid. Vesicles with a dark red, or livid coloured base, are usually denominated *Phlyctænæ.*

VESI'CULÆ PULMONA'LES; the air-cells which compose the greatest part of the lungs. They are situated at the termination of the bronchia.

VESI'CULÆ SEMINA'LES; the seminal vesicles. These are two membranous receptacles, situated on the back part of the bladder above its neck. The excretory ducts are called ejaculatory ducts. They proceed to the urethra, into which they open by a peculiar orifice at the top of the verumontanum. They have vessels and nerves from the neighbouring parts, and are well supplied with absorbent vessels, which proceed to the lymphatic glands about the loins. The use of the vesiculæ seminales is to receive the semen brought into them by the vasa deferentia, to retain, somewhat inspissate, and to excern it *sub coitu* into the urethra, from whence it is propelled into the uterus. See pl. XVIII.

VESICULAR FEVER. See PEMPHIGUS.

VESTI'BULUM, the name of a round passage of the internal ear, between the cochlea and semicircular canals, in which are, an oval opening communicating with the cavity of the tympanum, and the orifices of the semicircular canals. Scarpa has demonstrated membranous tubes, connected loosely by cellular texture, within the bony semicircular canals, each of which is dilated in the cavity of the vestibule into an ampulla; it is upon these ampullæ, which communicate by means of an *alveus communis*, that branches of the portio mollis are expanded to receive the impressions of sound.

VETERINA'RIA; that part of medicine which has the diseases of cattle for its object. This art was in great esteem among the ancients; and having now fallen into good hands in this country, it may greatly conduce to the improvement of medicine in general. Vegetius wrote a book upon this subject, under the title of *Mulo-Medicina.* To the credit of the Veterinary College and its pupils, many valuable and scientific works on the subject have been recently published; particularly those of Professor Coleman, the two Lawrences, the Veterinary Dictionary, by Boardman, &c.

VETO'NICA CORDI. See BETONICA.

VIBI'CES; large purple spots which appear under the skin, in some malignant fevers.

VIBRATION; properly the swing or motion of a pendulum. Hence this term comes to be used for all tremulous or undulating motions, particularly of the nerves. See NERVES.

VIBRI'SSÆ (from *vibro*, to quaver); hairs growing in the nostrils. See CAPILLUS.

VI'CIA FA'BA; the systematic name of the common bean plant. See BEAN.

VICTORA'LIS LO'NGA; the *Allium victoralis* Linn. The root of this, when dried, loses its alliaceous smell and taste, and is said to be efficacious in allaying the abdominal spasms of pregnant women.

VIGILANCE, or WATCHFULNESS, *Pervigilium.* This, when attended by anxiety, pain in the head, loss of appetite, and diminution of strength, is by Sauvages and Sagar considered as a genus of disease, and is called *Agrypnia.* It may arise from a great variety of causes familiar to most persons. Want of sleep is hurtful in a great many different ways, especially to the nervous system. It renders the organs of sense, both external and internal, as well as those of every kind of motion, unfit for performing their offices. Hence the sensations are either abolished, or become imperfect or depraved; and hence imbecility of mind, defect of memory, a kind of delirium, mania itself, pain of the head, weakness of the joints, an imperfect or inordinate action of the vital organs, quickness of pulse, heat, fever, depraved digestion, atrophy, leanness, and an increase of perturbation of the secretions and excretions. Sleep may be prevented both in healthy and sick people from various causes; such as strong light, noise, pain, anger, joy, grief, fear, anxiety, hunger, thirst, vehement desire, motion of the body, memory, imagination, intense thought, &c. Pervigilium occurs in many diseases; for there are few which do not excite pain, anxiety, or uneasiness, sufficient to prevent the approach of sleep, or to disturb it. Fevers generally cause those who labour under them to sleep ill; as well on account of the uneasiness which accompanies this kind of diseases, as by reason of the impetus of the blood towards the head being frequently increased; and likewise from the stomach being disordered, loaded with meat, or distended with drink. Hence also we may see the reason why many hypochondriac and hysteric patients sleep so ill; because they have a bad digestion, and their stomach is disposed to receive many though frequently slight disorders; the slightest of which, however, is sufficient to deprive the patient of rest, provided the body be already irritable, and endowed with too great a share of mobility. Want of sleep will hurt in diseases as well as in health, and for the same reason; but in a greater degree, and more quickly, in the former than in the latter; and it is therefore not only a very troublesome symptom of itself, but often produces other very dangerous symptoms. See SLEEP.

VILLOUS, in anatomy, an epithet applied to surfaces that are covered with a fine pile, like that of velvet, the distinct points of which are not discernible by the naked eye. Such are the internal coats of the stomach, intestines, &c. The villi are highly vascular, as appears from the injection of these parts.

VI'NCA MINOR; the systematic name of the lesser perriwinkle. See VINCA PERVINCA.

VI'NCA PERVI'NCA, the lesser perriwinkle; *Vinca minor* Linn. This plant is bitter and astringent, and said to be efficacious in stopping nasal hæmorrhages, when bruised and put into the nose. If boiled, it forms a gargle in common sore-throats, and it is also given, by some, in phthisical complaints.

VINCETO'XICUM (from *vinco*, to overcome, and *toxicum*, poison; from its supposed antidotal virtues), or *Hermidinaria*, the Asclepias, Swallow-wort, or tame-poison: *Asclepias vincetoxicum* Linn. The fresh root of this plant smells somewhat like valerian. When chewed, it imparts at first a considerable sweetness, which is soon succeeded by an unpleasant subacrid bitterness. It is given for the cure of glandular obstructions.

VINEGAR. See ACETUM.

VINEGAR, MEDICATED, the acetic acid in which vegetable substances have been infused. The acid, in this case, acts: 1. Simply as water, in consequence of the great quantity of water which enters into its composition, and generally extracts every thing which water is capable of extracting. 2. It exerts its own peculiar action; sometimes increasing the solvent power of its watery portion, or dissolving substances which water alone is incapable of dissolving. In a few instances, it impedes the solution of substances which water alone would dissolve. As acetic acid, in itself sufficiently perishable, has its tendency to decomposition commonly increased by the solution of any vegetable matter in it, it should never be used as a menstruum, unless where it promotes the solution of the solvend, as in extracting the acrid principle of squills, colchicum, &c. and in dissolving the volatile, and especially the empyreumatic, oils, or where it coincides with the virtues of the solvend.

VI'NUM; wine. See WINE. In pharmacy many officinal tinctures go under the name of *Wines;* as *Vinum aloes*, *Vinum ferri*, &c. But M. Parmentier, in the *Annales de Chimie*, contends that wine is an extremely bad menstruum for extracting the virtues of medicinal substances. His argument is, that by the infusion of vegetable substances in wine, its natural tendency to decomposition is so much accelerated, that at the end of the process, instead of wine we have only a liquor containing the elements of bad vinegar. As a solvent, diluted alcohol perfectly supersedes the use of wine; and if we wish to use wine to cover the taste, or to assist the operation of any medicine, M. Parmentier proposes, that a tincture of the substance should be extemporaneously mixed with wine as a vehicle.

VI'OLA (from Ιον; because first found in Ionia), or

Violaria, the sweet violet; *Viola odorata* Linn. *Viola acaulis, foliis cordatis, stolonibus repentibus.* Class, *Syngenesia.* Order, *Monogynia.* The recent flowers of this plant have an agreeable smell, and a mucilaginous bitterish taste. Their virtues are mildly laxative, anodyne, and pectoral. The only officinal preparation of the flower is a syrup, which is given to young children: it is also of considerable utility as a chemical test, to detect an acid or an alkali; the former changing the blue colour to a red, and the latter to a green.

VI'OLA CANI'NA, the dog-violet; *Viola canina* Linn. The root of this plant will both vomit and purge, in the dose of a scruple of the dried root. Though neglected in this country, some think this remedy worthy of the attention of physicians.

VI'OLA IPECACUA'NHA; the plant which was once supposed to afford the ipecacuanha root.

VI'OLA LU'TEA, a name for the wall-flower. See Cheiri.

VI'OLA PALU'STRIS. See Pinguicula.

VI'OLA ODORA'TA; the systematic name of the sweet violet. See Viola.

VI'OLA TRICO'LOR, heart's-ease, or pansies; a well-known little plant that grows both in waste, and in cultivated grounds, flowering all the summer-months. To the taste, this plant is extremely mucilaginous, accompanied with the common herbaceous flavour and roughness. Starick, Metzger, Haase, and others, recommend it as a remedy for the crusta lactea. A handful of the fresh herb, or half a drachm of it dried, is boiled two hours in milk, and taken night and morning. This decoction is also to be formed into a poultice with bread and applied to the part. Many instances of the successful exhibition of this medicine, are cited by those authors, under whose management indeed it seems rarely, if ever, to have failed. However, Mursinna, Akermann, and Flennig, were less fortunate in the employment of this plant; and the last declares, that in the different cutaneous disorders in which he used it, no benefit was derived. Bergius speaks of this plant as a useful mucilaginous purgative, but takes no notice of its efficacy in the crusta lactea or in any other disease.

VIOLA'RIA. See Viola.

VIPER-GRASS. See Scorzonera.

VI'PERA *(quod vi pariat;* because it was thought that its young eat through the mother's bowels), the viper, *Coluber berus* of Linnæus; a viviparous reptile, possessing the power of infusing into the wound made by its bite, a poisonous fluid, concealed in little bags near its teeth. See Venom. The flesh is perfectly innocent, and often taken by the common people against the king's-evil, and a variety of disorders of the skin. Experience, however, evinces it to be an inefficacious substance, though it was long a fashionable remedy in this country.

VIPERA'RIA. See Serpentaria Virginiana.

VIPERI'NA (from *vipera*, a snake; so called from the serpentine appearance of its roots). See Serpentaria Virginiana.

VI'RGA AU'REA, also called *Herba dorea*, and *Consolida Saracenica;* golden-rod: *Solidago virga aurea* Linn. The leaves and flowers of this plant are reckoned aperient and corroborant; and are given in urinary obstructions, ulcerations of the kidneys and bladder, and in cachexies.

VIRGIN'S-BOWER, UPRIGHT. See Flammula Jovis.

VIRGIN'S-MILK. A solution of gum benzoinum has been so called.

VI'RUS, a synonyme of poison or contagion. See Contagion, Poisons, and Venom.

VI'S ELA'STICA. See Vis Mortua.

VI'S I'NSITA, a property defined by Haller to be that power by which a muscle, when wounded, touched, or irritated, contracts, independent of the will of the animal that is the object of the experiment, and without its feeling pain. See Fibre, and Irritability. Dr. Monro, in accounting for muscular motion, contrasts this power with that of the *vis nervea.* The latter, he says, comes to the muscle from without; whereas the *vis insita* resides constantly in the muscle itself. The nervous power ceases when life is destroyed; the other appears, from certain experiments, to remain for some time after death: it is also suppressed by tying a ligature upon the nerve, by hurting the brain, or by taking opium. The *vis insita* suffers nothing from all these circumstances; it remains after the nerve is tied: it continues in the intestines though they be taken out of the body and cut in pieces: it appears with great strength in such animals as are destitute of brain: that part of the body is moved which has no feeling; and the parts of the body feel which are without motion. The will excites and removes the nervous power, but has no power over the *vis insita.*

VI'S MEDICA'TRIX NATURÆ, a term employed by physicians to express that healing power in an animated body, by which, when diseased, the body is enabled to regain its healthy actions.

VI'S MO'RTUA, or Vis elastica; that property by which a muscle after the death of the animal, or a muscle immediately after having been cut out from a living body, contracts.

VI'S NE'RVEA, or Vis nervosa; a property considered by Whytt and Monro to be another power of the muscles by which they act when excited by the nerves.

VI'SCUM, misletoe, the *Viscum album* of Linnæus; a singular parasitical plant that grows on the apple, oak, and other trees. In former times this was thought to possess many medicinal virtues. The leaves and branches of the plant have very little smell, and a very weak taste of the nauseous kind. The *viscus quercus* obtained great reputation for the cure of epilepsy; and a case of this disease, in which it proved remarkably successful, is mentioned by Boyle. In various convulsive disorders, Colbatch has related instances of its good effects. He administered it in substance, in doses of half a drachm or a drachm, of the wood or leaves, or an infusion of an ounce. This author was followed by others, who have not only given testimony of the efficacy of the misletoe in different convulsive affections, but also in those complaints denominated nervous, in which it was supposed to act in the quality of a tonic. All, however, that has been written in favour of this remedy, has not prevented it from falling into general neglect; and the colleges of London and Edinburgh have, perhaps not without reason, expunged it from their catalogues of the materia medica.

VISCUS, in anatomy, any internal organ which has an appropriate use; as the viscera of the abdomen, thorax, &c.

VISION, the power of seeing external objects. The organ of this sense is the eye. See Eye. The part on which the impressions of light are received is the retina, which is the optic nerve expanded and co-extended with the tunica choroides. Rays of reflected light striking upon this membrane, the sensation is conveyed by the optic nerves, to the common sensorium. These nerves do not enter at the middle of the bottom of the eyes, but nearer the nose; for those rays of light being ineffectual for vision that fall upon the entrance of the optic nerves, it is fit they should so enter, as that the same object, or part of any object, should not be unperceived in both eyes, as would have been the case, had they been otherwise inserted; which appears from a common experiment of part of an object being lost to one eye, when we are looking towards it with the other shut. Mr. Cheselden speaks of a gentleman, who having lost one eye by the small-pox, and going through a hedge, a thorn, unseen, probably from this cause, struck the other and put it out. The two optic nerves, soon after they arise out of the brain, join, and seem perfectly united; and yet the seeing objects single seems not to depend upon any such union, nor from the light striking upon corresponding fibres of the nerves, as some have believed, but upon a judgment from experience, all objects appearing single to both eyes in the manner we are most used to observe them, but in other cases double; for though we have a distinct image from each eye sent to the brain, yet while both these images are of an object seen in one and the same place, we conceive of them as one; so when one image appears to the eyes (when they are distorted or wrong directed) in two different places, it gives the idea of two; and when two bodies are seen in one place, as two candles rightly placed, through one hole in a board, they appear one. Cases of this kind are very numerous. Mr. Cheselden mentions that of a gentleman, who, from a blow on the head, had one eye distorted. This person found every object appear double, but by degrees the most familiar ones became single, and in time, all objects became so, without any amendment of the distortion.

That power by which the eye can adapt itself to view objects at different distances has been the object of some controversy. The crystalline humour has been supposed to move forward in the aqueous while viewing near objects, and backward for remoter objects; without which mechanism, or, in the place of it, a greater convexity in the crystalline humour in the former case, and the less convexity in the latter, it is difficult, according to the laws of optics, to conceive, how we can so distinctly see objects at different distances. However it is in the human eye, we may plainly see that fish move their crystalline humour nearer the bottom of the eye when they are out of the water, and the contrary way in water; because light is less refracted from water through the crystalline humour than from air. The use of the crystalline humour is to refract the rays of light which pass through it, so that each pencil of rays from the same point of any object, may be united upon the retina, as in a camera obscura, to make the stronger impression (see pl. XVIII.); and though, by this union of the rays, a picture inverted is made upon the retina, yet we may find the true cause of this, by considering the directions in which the rays strike the retina, as we judge of above and below from a like experience, when any thing strikes upon any part of our bodies. Nevertheless, in viewing an object through a lens, we conceive of it as inverted; whereas in receiving the impulses of light in the same manner, and having the picture on the retina in the same attitude, when we stand on our heads without the lens, we have not the same but the contrary idea of the position of the object. The same thing also may be observed of the aqueous humour, which is indeed more concave than convex; but when the crystalline humour is removed in couching a cataract, the aqueous possesses its place and becomes a lens; but that, refracting light less than the crystalline, whose place and shape it partly takes, the patient needs a convex glass to see accurately. In some eyes, either this humour being too convex or too distant from the retina, the rays unite too soon, unless the object is held very near to the eye, which fault is remediable by a concave glass; as the contrary fault, common to old persons, is by a convex glass. See the article Sight. If the eye had been formed for a nearer view, the object would often obstruct the light; if it had been much farther, light enough would not commonly have been produced from the object to the eye. In fish the crystalline humour seems a perfect sphere, which is necessary for them, because light being less refracted from water through the crystalline humour than from air, that defect is compensated by a more convex lens. The vitreous humour lies behind the crystalline, and fills up the greatest part of the eye. Its fore side is concave for the crystalline humour to lodge in, and its back side being convex, the retina is spread over it; it serves as a medium to keep the crystalline humour and the retina at a due distance.

The phenomena of vision will be best illustrated by the delineation in the plate referred to above. *a*, Is a cross for an object. *b*, The same represented on the retina at the bottom of each eye. *c*, The entrance of the optic nerves, in which place no object is represented. *d*, Cones, within which all objects placed are dark to each eye, the rays from thence falling upon the entrance of the optic nerves; but that which falls upon the entrance of the optic nerve in one eye, can never fall upon the optic nerve in the other. *e*, Pencils of rays from points of the object passing through the crystalline humour, where they converge, to meet in a point on the retina to form vision.

The larger animals having larger eyes, their organs of vision, like a microscope with a large lens, are fit to take in a greater view, but in that view things are not so much magnified; in lesser animals a small space is discerned, such as is their sphere of action, but that greatly magnified, not really so in either case, but comparatively, for vision shews not the real magnitude of objects, but their proportions one to another. Fish have their eyes, and particularly their pupils, larger than land animals, because there is less light, and that not so far distributed in water as in the air.

VISION, DEFECTIVE. See Sight.

VI'SUS DEFIGURA'TUS. See Metamorphopsia.

VITAL ACTIONS. See Vital Functions.

VITAL FUNCTIONS, or actions; those actions of the body upon which life immediately depends. Such are, the circulation of the blood, respiration, heat of the body, &c. See Function and Life.

VITAL PRINCIPLE. See Life, Blood, and Resuscitation.

VITA'LBA, traveller's joy, a plant common in our hedges. It is the *Clematis vitalba; foliis pinnatis, foliolis cordatis scandentibus*, Linn. The leaves, when fresh, produce a warmth on the tongue, and if the chewing is continued may blister the mouth. The same effect follows their being rubbed on the skin. This plant has been given internally in *lues venerea, scrofula,* and *rheumatism.* In France the young sprouts are boiled and eaten as hop-tops are in this country.

VITILI'GO (from *vitio*, to infect); a disease of the skin. See Alphus.

VI'TIS, the vine; *Vitis vinifera* Linn. *Vitis foliis lobatis sinuatis nudis.* Class, *Pentandria.* Order, *Monogynia.* The leaves and tendrils are astringent, and were formerly used in diarrhœas, hæmorrhages, and other disorders requiring styptic medicines. The sap has been recommended in calculous disorders; and also applied to weak eyes and for removing specks of the cornea. The ripe fruit, dried, have the name of raisins. See Uvæ Passa. Wine, and vinegar, are produced from the expressed juice. See Acetum, and Wine.

VI'TIS ALBA, a name for the white bryony. See Bryonia Alba.

VI'TIS IDÆ'A, the red whortle-berry; *Vaccinium vitis idæa* Linn. The leaves are sufficiently astringent to be used in tanning. A decoction of them is said to mitigate the pain attendant on calculous diseases when given internally. The ripe berries are gratefully acid; and esteemed, in Sweden, as aperient, antiseptic, and refrigerant.

VI'TIX AGNUS CASTUS; the systematic name of the chaste-tree. See Agnus Castus.

VITREOUS HUMOUR, that which fills the whole bulb of the eye behind the crystalline lens. The whole of it is composed of small cells which communicate with each other, and are distended with a transparent fluid.

VITRIOL, a general, though now exploded name, for the different earthy or metallic compounds in which vitriolic or sulphuric acid is combined with a particular base. Thus we had formerly the sulphates of iron, copper, &c. under the names of *green vitriol, blue vitriol,* &c.

VITRIOL, ACID OF, or *Vitriolic acid.* See Sulphuric acid.

VI'TRUM ANTIMO'NII CERA'TUM; a former name for the *Oxydum antimonii vitrificatum cum cera.* This diaphoretic compound is exhibited in the cure of dysenteries arising from checked perspiration. See Antimonium.

VOICE; a name given to sounds uttered by human organs for the purpose of expressing our sentiments or declaring our wants. The principal organ of the voice is the larynx; for, when that is injured, the air passes through the windpipe, without yielding any sound. See Larynx. Speech is performed, when the larynx is at rest, in tones differing but little in acuteness and gravity; but we variously modify the voice by the organ of the mouth. Sonorous speech has both variations in the tone, and modifications of the voice by the organ of the mouth. All speech is reducible to the pronunciation of letters, which differ in various nations, although they agree in the greatest number over the whole world.

VO'LVA, in botany, a sort of *calyx*, so called from its involving or enfolding. In the fungi or mushroom tribe, it is membranaceous, and rent on all sides.

VO'LVULUS (from *volvo*, to roll up), or *Iliac passion.* See Colica.

VO'MER, a bone of the nose so called from its resemblance to a plough-share. It is situated in the cavity of the nostrils, which it divides into two parts.

VO'MICA; an abscess of the lungs. See Phthisis.

VO'MICA NUX. See Nux vomica.

VOMITING, a forcible ejection of the contents of the stomach, through the œsophagus and mouth. It is either idiopathic, when arising from a cause in the stomach itself; or symptomatic, when originating from diseases seated in any other part of the body. Its immediate cause is an antiperistaltic, spasmodical, convulsive constriction of the stomach, and pressure of the diaphragm, and abdominal muscles. It is an effort of nature to expel whatever molests or is troublesome in the stomach, and this action is artificially excited by the medicines termed *Emetics.*

VO'MITUS CRUE'NTUS. See Hæmatemesis.

VORACIOUS APPETITE. See Bulimia.

VULGA'GO; a former name for the asarabacca. See Asarum.

VU'LVA, or *pudendum muliebre;* the parts of generation proper to women.

VULVA'RIA (from *vulva*, the womb: so named, as some say, from its smell; but more probably from its use in disorders of the uterus). See Atriplex Olida.

W.

WAKE-ROBIN. See Arum.

WALL-FLOWER. See Cheiri.

WALL-PELLITORY. See Parietaria.

WALL-PEPPER. See Illecebra.

WALNUT. See Juglans.

WARTS; small, hard, indolent tumors, with a rough surface, appearing on other parts of the body, but chiefly in the hands and face, and more commonly in young people. When they appear in advanced life they sometimes degenerate into cancer, especially when of a livid colour, and with a smooth surface. If they do not prove troublesome, nothing should be done to them, as they generally either fall off or waste gradually away. When, from their size or situation, they require to be removed, this, if they are pendulous or have narrow necks, is easily done by ligature; but if their bases be broad, the scalpel or escharotic applications will be necessary. As few, however, will submit to the former method, the latter remedies are generally employed. Escharotics of a mild nature give least pain, and are least apt to excite inflammation, which in these cases is difficult to remove, are found to be quite sufficient for the purpose. One of the best of these is ammonia muriata, which should first be moistened, and then well rubbed upon the wart two or three times a-day. Liquid kali, and sometimes spirit of hartshorn, have answered the same purpose. Some recommend also the milky juice of dandelion, or juice of onions. But the most effectual remedies are the *tincture of muriated iron* applied daily, or a *solution of nitrated silver* in nitric acid. Warts appearing on the penis as a symptom of venereal infection, are of the same nature, and to be cured by the foregoing means; or by a powder consisting of equal parts of *savine* and *verdigrise*. Mercury is of no advantage here, and commonly indeed does harm. When the venereal infection is eradicated, the warts may be removed by the knife, and the parts afterwards touched with lunar caustic, to prevent them from returning. When this method, however, is practised, the operator ought to be certain that he has removed the wart entirely; for where part has been left, the most formidable symptoms have sometimes ensued.

WATER, a transparent fluid, without colour, smell, or taste; in every degree compressible; when pure, not liable to spontaneous change; liquid in the common temperature of our atmosphere, assuming the solid form at 32° Fahrenheit, and the gaseous at 212°, but returning unaltered to its liquid state on resuming any degree of heat between these points; capable of dissolving a greater number of natural bodies than any other fluid whatever, especially of those known by the name of the saline; performing the most important functions in the vegetable and animal kingdoms, and entering largely into their composition as a constituent part.

Water is formed of hydrogen, combined with oxygen, in the proportion of 14.42, to 85.58. Water is assumed as the standard, or unity, in all tables of specific gravity. A cubic inch of it weighs, at 30 inches of the barometer, and 60° thermometer, 252,422 grains. Water does not enter the list of materia medica of any of the colleges, but it is so important, both as an article of diet and as an agent in the cure of diseases, that a brief account of its varieties and properties cannot but be proper in this place. The purest natural water is melted snow, or rain, collected in the open fields. That which falls in towns, or is collected from the roofs of houses, is contaminated with soot, animal effluvia, and other impurities; although, after it has rained for some time, the quantity of these diminishes so much, that Morveau says, it may be rendered almost perfectly pure by means of a little barytic water, and exposure to the atmosphere. Rain water, after it falls, either remains on the surface of the earth, or penetrates through it until it meet with some impenetrable obstruction to its progress, when it bursts out at some lower part, forming a spring or well. The water on the surface of the earth either descends along its declivities in streams, which, gradually wearing channels for themselves, combine to form rivers, which at last reach the sea; or it remains stagnant in cavities of considerable depth, forming lakes or ponds, or on nearly level ground forming marshes.

Although the varieties of spring-water are exceedingly numerous, they may be divided into: 1. The *soft*, which are sufficiently pure to dissolve soap, and to answer the purposes of pure water in general. 2. The *hard*, which contain earthy salts, decompose soap, and are unfit for many purposes both in domestic economy and in manufactures. 3. The *saline*, which are strongly impregnated with soluble salts. When spring waters possess any peculiar character, they are called mineral waters. See Mineral Waters. River water is in general soft, as it is formed of spring water, which by exposure becomes more pure; and running surface water, which although turbid from particles of clay suspended in it, is otherwise very pure. Lake water is similar to river water. The water of marshes, on the contrary, is exceedingly impure, and often highly fetid, from the great proportion of animal and vegetable matters constantly decaying in them.

Water is an essential constituent in the organisation of all living bodies; and as it is continually expended during the process of life, that waste must be also continually supplied, and this supply is of such importance that it is not left to reason or to chance, but forms the object of an imperious appetite. When taken into the stomach, water acts by its temperature, its bulk, and the quantity absorbed by the lacteals. Water about 60° gives no sensation of heat or cold; between 60° and 45° it gives a sensation of cold followed by a glow and increase of appetite and vigour; below 45 the sensation of cold is permanent and unpleasant, and it acts as an astringent and sedative: above 60 it excites nausea and vomiting, probably by partially relaxing the fibres of the stomach, for when mixed with stimulating substances it has not these effects. In the stomach and the intestines it acts also by its bulk, producing the effects arising from the distension of these organs, and as the intestinal gases consist of hydrogen gas, either pure or carbonated, or sulphuretted, or phosphuretted, it is probably in part decomposed in them. It likewise dilutes the contents of the stomach and intestines, thus often diminishing their acrimony. It is absorbed by the lacteals, dilutes the chyle and the blood, increases their fluidity, lessens their acrimony, and produces plethora *ad molem*. Its effects in producing plethora and fluidity are however very transitory, as it at the same time increases the secretion by the skin and kidneys. Indeed the effects of sudorifics and diuretics depend in a great measure on the quantity of water taken along with them.

The external use of water depends almost entirely on its temperature. It may be employed topically in external inflammations, ulcers, &c. with or without the metallic salts. See Ulcers. It is also highly beneficial employed as a bath. See Bathing, and Cold affusion.

WATER-BRASH. See Pyrosis.

WATER-CRESS. See Nasturtium aquaticum.

WATER-DOCK. See Hydrolapathum.

WATER-FLAG, YELLOW. See Iris palustris.

WATER-GERMANDER. See Scordium.

WATER-HEMP. See Eupatorium.

WATER-LILY. See Nymphæa.

WATER-PARSNEP. See Sium.

WATER-ZIZANIA, *Zizania aquatica* Linn. It is a reed-like plant, which grows in the swampy parts of Jamaica and Virginia. The Indians account its grain more delicious than rice, and are more fond of it.

WATERS, MINERAL. See Mineral waters.

WAX. See Cera.

WEIGHTS. The pound of the British pharmacopœias is that of the goldsmiths; viz. *Troy weight*, divided in the following manner:

Pound.	Ounces.	Drachms.	Scruples.	Grains.
1 =	12 =	96 =	288 =	5760
	1 =	8 =	24 =	480
		1 =	3 =	60
			1 =	20
				1

The medical or Troy pound is less than the avoirdupois, but the ounce and the drachm greater. The Troy pound contains 5670 grains; the avoirdupois 7000 grains. The Troy ounce contains 480 grains; the avoirdupois only 437½. The Troy drachm 60; the avoirdupois drachm somewhat more than 27. Eleven drachms avoirdupois are equal to five drachms Troy; twelve ounces avoirdupois to nearly eleven ounces Troy; and nineteen pounds avoirdupois to somewhat more than twenty-three pounds Troy. These differences in our weights have occasioned great confusion in the practice of pharmacy, for some time; but they are now happily removed, in most, if not in all, instances.

WHEAT, the seeds of the *Triticum hybernum*, and *æstivum*, of Linnæus. It is to these plants therefore we are indebted for our bread, and the various kinds of pastry. Wheat is first ground between mill-stones, and then sifted to obtain its farina or flour. The flour of wheat may be separated into the following constituent parts: 1. A grey elastic matter that sticks to the hand, and on account of its properties has gained the name of the gluten. 2. A white powder which falls to the bottom of the water, and is the *fæculum* or starch. 3. A matter which remains dissolved in the water, and seems to be a sort of mucilaginous extract. See Flour, Starch, and Bread.

WHEAT, BUCK. See Buck-wheat.

WHEAT, INDIAN. See Zea mays.

WHITES, the vulgar name for a fluor albus, or leucorrhœa. See the latter.

WHITE-SWELLING, a disease of the joint, most commonly of the knee. The species are described under Hydarthrus. The true nature of this formidable and much too common complaint is as little understood, and the cure of it as difficult, as that of any other disorder to which the body is liable. The term *white-swelling* has commonly been applied to such enlargements of the joints, as are not attended with external inflammation or discoloration of the skin; the only symptoms which at first commonly take place, being a greater or less degree of swelling, with a deep-seated pain. There seems evidently, as Dr. Cullen has observed, to be two different species of white-swellings, entirely distinct from each other, and likewise differing greatly in respect to the difficulty of cure.

1. The most simple species of this disease, called the *rheumatic*, begins with an acute pain, which seems to be diffused over the whole joint, and frequently even extends along the tendinous and aponeurotic expansions of such muscles as communicate with the joint. There is from the beginning a uniform swelling of the whole surrounding teguments, which in different patients is in very different degrees; but it is always so considerable as to occasion an evident difference in point of size, between the diseased and the sound joint. Great tension also generally prevails, but seldom, in this period of the disorder, is there any external discoloration.

From the first commencement of the disease, the patient feels great pain from the motion of the joint. Finding it easiest in a relaxed posture, it is therefore kept constantly bent; which generally, in every situation, but especially in the knee, occasions a stiffness or kind of rigidity in the flexor tendons that are connected with the part. If the disorder be not carried off at this period, the swelling, which originally was not very considerable, begins gradually to augment. The cuticular veins become turgid and varicose, the limb below the swelling decays considerably in its muscular substance, at the same time that, by becoming œdematous, it acquires an equality in point of thickness. The pain becomes more intolerable, especially when the patient is warm in bed or otherwise heated, and abscesses arise in various parts.

In all these abscesses, a fluctuation of a fluid, upon pressure, is generally evident, as is the case in every collection of matter not very deeply seated. But independent of this fluctuating sensation, all such swellings afford a very peculiar elastic feel, yielding to pressure, at the same time that they do not, like œdematous swellings, retain the mark. Those different collections, either upon breaking of themselves, or on being laid open, discharge considerable quantities of matter, which at first is generally purulent, and of a pretty good consistence. It soon however degenerates into a thin, fetid, ill-digested sanies, and has never, at least in proportion to the quantity discharged, any remarkable influence in reducing the size of the swelling. If the orifices are not kept open artificially, they very soon heal up, and new collections forming in different parts, break out and heal as before; so that in long-continued disorders of this kind, the whole surrounding teguments are often entirely covered with cicatrices, that remain after such ulcers.

Long before the disorder has arrived at this state, the patient's health has generally very much suffered; first, from the violence of the pain, and afterwards from the absorption of matter into the system. But this never appears so evidently till the several collections either burst of themselves, or are laid open by incision; when a quick pulse, night-sweats, and a weakening diarrhœa, never fail to supervene, and which at last carry off the patient, if the diseased member be not amputated.

2. In the *scrofulous* species of white-swelling, the pain is commonly very violent, and instead of being diffused, is more confined to a particular spot, most frequently to the middle of the joint. At first, the swelling is commonly very inconsiderable, insomuch that, on some occasions, even when the pain has been exceedingly violent, very little difference in point of size can be observed between the diseased joint and the sound one of the opposite side. In this, as in the former species, the least degree of motion always gives great pain; so that the joint being too constantly kept in a bent posture, a rigidity and stiffness of the tendons are soon produced. As the disorder advances, the pain and swelling become more considerable, accompanied with an evident enlargement of the ends of such bones as compose the joint. The tumor acquires that elastic feel formerly taken notice of; varicose veins appear over its surface, and collections of matter occur in different parts. Those, upon bursting or being laid open, discharge considerable quantities, sometimes of a purulent matter, but more frequently of a thin fetid kind; and if a probe be introduced, and can be passed to the bottom of the sores, the bones are generally found carious. On the further continuance of the disorder, the constitution is impaired, as in the former species of the disease; a diarrhœa, with night-sweats, commences, and the patient is soon reduced to the lowest state.

In regard to the causes of this disorder, those of the former or rheumatic species may comprehend all such strains as particularly affect the ligaments of the joints, so as to produce inflammation. Likewise bruises, luxations of the bones, and, in short, every affection which can, in any degree, be attended with that effect. The latter species of the disease seems to be originally an affection of the bones; the surrounding soft parts appearing to suffer in the progress of the complaint only from their connection and vicinity. This species of white-swelling very seldom occurs in consequence of any external accident; but generally begins without any sensible cause. It is likewise observed, that this species of white-swelling is generally either attended with other evident symptoms of scrofula subsisting at the time, or that the patient, in an earlier period of life, has been subject to that disease; or that he is descended of scrofulous parents, and therefore probably has the seeds of the disease lurking in his constitution.

To discriminate these two species, it is necessary to observe, that the pain in the rheumatic white-swelling is, as was formerly remarked, diffused over the whole joint, and, on some occasions, extends even a considerable way along the muscles attached to it; while, in the other species of the disorder, the pain is not always at first, but sometimes, even when the complaint has been of considerable standing, confined to a very small circumscribed space. In the former, the swelling is always confined to the soft parts, and is from the beginning quite evident. But in the latter, there is seldom, for some time, any perceptible swelling, and when it becomes apparent, the bones are found to be the parts chiefly affected, the surrounding teguments being affected only in the further progress of the disease. These are the chief local differences of the two species of this disorder; but some assistance in the distinction may likewise be obtained, from the general habit of the patient, and from the manner in which the complaint may have taken place.

The rheumatic white-swelling being always at first of an inflammatory nature, great benefit is commonly obtained from cupping and scarifying the part, which is greatly preferable to leeches. The glasses should be applied to each side of the diseased joint, and at least eight or ten ounces of blood discharged. The operation should be repeated at proper intervals, according to the state of the symptoms, and of the patient's strength. Upon the anterior part of the joint where the cupping-glasses have not been placed, a small blister ought to be directly applied, and the part kept open with issue-ointment, till the wounds from the scarificator are so far healed, that a vesicatory may likewise be laid on one side of the joint; and so soon as that is nearly healed, the other side should be also blistered. By thus alternately applying them, almost a constant stimulus is kept up, which, in deep-seated inflammations, seems to have a greater effect than all the discharge occasioned by blisters. Mild laxatives, at proper intervals, are here also of advantage; and the patient ought to be kept on an antiphlogistic course.

It is only in the early stages of the disease, however, as Mr. Bell remarks, that the above-mentioned treatment can be of service; and in such it has frequently been a means of curing disorders, which otherwise would probably have ended in amputation. The original inflammatory affection being once corrected, those drains seem to have little or no influence, and ought not then to be long persisted in, as tending to prevent the use of other remedies, which, in an advanced state of the disease, commonly prove more efficacious.

When the inflammation is for the most part subdued, and there are yet no appearances of the formation of matter, Mr. Bell informs us, that he has sometimes observed great benefit from mercury; not given so as to salivate, but to affect the mouth gently, and to keep it somewhat sore for a few weeks. The best form of using mercury in such cases, he thinks, is rubbing into the joint an ointment of quicksilver, prepared so weak, that the patient may use two drachms three times a-day; employing gentle friction, for at least an hour each time. Calomel given internally is here likewise of use; but unction is certainly preferable, on account of the friction with which it is accompanied. M. Le Dran, and other French writers, have recommended falls of warm water, or warm pumping, as employed at Bath. Cold water has also been used in the same manner, and with occasional advantage.

For removing the stiffness of the joint, which much oftener proceeds from the contracted state of the flexor tendons than from any other cause, the best application is warm camphorated olive-oil. This should be rubbed in, by an hour's gentle friction, at least three times a-day, and this friction should be extended over the muscles, and even to the insertion of their extremities.

Hitherto we have supposed the disorder not so far advanced, as to have occasioned the formation of matter; for when it has arrived at this height, no great advantage can be expected from any of the remedies above recommended. If the disease is so far advanced as to have destroyed the capsular ligaments of the joint, and perhaps even the cartilages and bones, amputation is then the only resource.

In the scrofulous species of white-swelling, except amputation be performed in time, there is very little hope of a cure. If ever this can be effected, it must be by sea-bathing, and the long-continued use of such medicines as are adapted to scrofulous constitutions. See Scrofula. In such cases, however, even amputation may not prove of lasting advantage; and if the operation be determined against, it then becomes necessary to have recourse to palliatives. With this view, opiates in large doses, by moderating the pain and procuring rest to the patient, will, in general, be found the principal remedies.

WHORTLE-BERRY. See Uva ursi, and Vitis idæa.

WIDOW-WAIL. See Mezereum.

WILD CARROT. See Daucus sylvestris.

WILD CUCUMBER. See Cucumis agrestis.

WILD NAVEW. See Napus.

WILLOW. See Salix.

WILLOW, SWEET. See Myrtus Brabantica.

WILLOW-HERB. See Lysimacha purpurea.

WILLOW-HERB, ROSEBAY. See Rosebay willow-herb.

WILLOW-LEAVED OAK. See Quercus phellos.

WINE (*Vinum*, Lat.), the fermented juice of the ripe fruit of the *Vitis vinifera* Linn. See Vitis. The numerous varieties of wine depend principally on the proportion of sugar contained in the must, and the manner of its fermentation. When the proportion of sugar is sufficient, and the fermentation complete, the wine is perfect and generous: if the quantity of sugar be too large, part of it remains undecomposed, as the fermentation is languid, and the wine is sweet and luscious: if, on the contrary, it be too small, the wine is thin and weak; and if it be bottled before the fermentation be completed, it will proceed slowly in the bottle, and, on drawing the cork, the wine will froth and sparkle in the glass like champaigne. When the must is separated from the husk of the grape before it is fermented, the wine has little or no colour: these are called white wines. If, on the contrary, the husks are allowed to remain in the must while the fermentation is going on, the alcohol dissolves the colouring matter of the husks, and the wine is coloured: such are called red wines. Wines vary much in flavour. Red port-wine is the most commonly drunk in this country. This is strong and austere, containing much tannin. Some drink claret, which is thinner and higher flavoured. Our white wines are all strong; Madeira, Sherry, Lisbon, Malaga, and Hock. Of these the last is the most acidulous, and Malaga the sweetest.

Wine, in moderate quantities, acts as a stimulus to the whole system, but is only beneficial when such a stimulus is really wanted. It then promotes digestion, increases the action of the heart and arteries, raises the heat of the body, and exhilarates the spirits. If taken to excess, it produces inebriety, which is often succeeded by headach, stupor, nausea, and diarrhœa, which last for several days. Habitual excess in wine debilitates the stomach, produces inflammation of the liver, weakens the nervous system, and gives rise to dropsy, gout, and apoplexy, tremors, and cutaneous affections. To convalescents, and in all diseases of general debility, and deficiency of the vital powers, as in the case of old people, wine is the remedy on which we must place our chief dependence; and when properly administered, its effects are sometimes very remarkable.

The use of wine, as an article of pharmacy, has been noticed under the article Vinum.

WINTER CHERRY. See Alkekengi.

WI'NTERA AROMA'TICA; the systematic name of the winter-bark tree. See Winteranus cortex.

WINTERA'NUS CORTEX, or *Winteranus cortex Magellanicus;* the bark of the *Wintera aromatica pedunculis aggregatis terminalibus, pistillis quatuor*, Linn. It is nearly allied, in its properties, to the *Canella alba*. See Canella alba.

WOLF'S-BANE. See Aconitum.

WOMB. See Uterus.

WOMB, INFLAMMATION OF. See the article Hysteritis.

WOOD-LOUSE. See Millepedes.

WOOD-SORREL. See Lujula.

WOODY NIGHTSHADE. See Dulcamara.

WORM-BARK. See Geoffræa.

WORM-GRASS, PERENNIAL. See Spigelia.

WORM, GUINEA; the *Dracunculus*, a thread-like worm, which insinuates itself under the skin, and creeps along the cellular membrane. It is peculiar to Africa and the warm climates. This worm is described by Mr. Paton, in the Edin. Med. and Surg. Journal, as an extraneous body, producing inflammation. He says it should not be drawn forcibly, but very gently from day to day, and even then very cautiously, merely as if it were *to discover whether it be loose or fast*. It never comes away with advantage, until it becomes of a dead-white appearance; and then the milky fluid it contains can be pressed from one part to another, like as if a little milk had been injected into a fine transparent tube, formed of pellucid membrane. It gives the patient much pain when drawn; and it is of little use to make any thing fast to it, as a little adhesive ointment prevents its retracting, and the piece drawn, dries in the course of the day. The inflammation is to be treated in the usual way, with poultices, fomentations, &c. Mr. Paton has related, in detail, a great number of cases; in the first of which, the patient, a German of a sanguine temperament, drew two or three inches of a white, round, slender substance from a small opening, a little above the outer ancle of the left leg. His leg was somewhat swelled and painful 14 days before. A small vesicle had formed, and discharged a little water; it then healed, but again began to discharge ichorous matter. Finding a small sinus, Mr. Paton enlarged the opening to half an inch; on which he again discovered the white substance, resembling a piece of catgut, and fastening it to a piece of linen rolled to the thickness of a writing-quill, got three turns. By a repetition of these, cautiously made, the worm was extracted.

WORM, RING; a species of herpes. See Herpes Serpigo.

WORM-SEED. See Santonicum.

WORMS (*Vermes*, Lat.) There are several kinds of animals which infest the human body, but the most common are intestinal worms. Such is the nature and office of the human stomach and intestines, that both insects and worms, or their ovula, may be conveyed into that canal with those things that are continually taken as food. Insects or worms so received, however, do not live long, and seldom, if ever, generate in a situation so remote from their natural one. But there are worms, that are never found in any other situation than the human stomach or intestines, and which there generate and produce their species. Thus it appears that the human stomach and intestines are the seat for animalculæ, which are translated from their natural situation, and also for worms proper to them, which live in no other situation. Dr. Hooper, with great ingenuity, has attempted the following classification of the latter:

Order I. Round worms.

Genus 1. Intestinal ascarides. Body round, head obtuse, and furnished with three vesicles.

Species (1.) *Ascaris lumbricoides.* The long round worm or lumbricoid ascaris. When full grown a foot in length; the mouth triangular. (2.) *Ascaris vermicularis.* The thread or maw-worm. When full grown, it is half an inch in length; the tail terminating in a fine point.

Genus 2. Intestinal trichurides. Body round, tail three times the length of the body: the head without vesicles.

Species. *Trichuris vulgaris;* the trichuris or long thread-worm. The head furnished with a proboscis.

Order II. The flat worms.

Genus 1. Intestinal tape-worm. The body long, flat, and jointed.

Species (1.) *Tænia osculis marginalibus;* the long tape-worm. The oscula situated upon the margin of the joints. (2.) *Tænia osculis superficialibus;* the broad tape-worm. In this species, the oscula are placed upon the flattened surface.

These worms were all, except the second species, known to the ancients; and they are mentioned in the works of Hippocrates, Galen, Celsus, Paulus Ægineta, and Pliny. Under the articles Ascaris and Lumbricoides we have given an account of those species; as well as some practical remarks respecting Tænia under the latter head. It is proper here to notice Dr. Hooper's discovery, of the *Trichuris*, a new species of intestinal worm, in which, however, he found he had been anticipated by Roederer, who described it in 1760. There are, it seems, several specimens of this worm in Dr. Wm. Hunter's museum, but that great anatomist was, nevertheless, ignorant of their being trichurides, and believed them to be adventitious.

The essential character of this worm is, the body large and furnished with a proboscis, the tail twice as long as the body and filiform. When full grown, the body is $\frac{1}{16}$ of an inch broad. In length the whole worm measures nearly two inches, two thirds of which are tail; hence the French call it *Le ver à queue.* Out of the head proceeds the proboscis, which is not always visible; for the animal has the power of ejecting and withdrawing it. The body may be said to begin at the basis of the proboscis; it is the thickest part of the worm, and the most so at the extremity, where the proboscis is received. It gradually diminishes in size as it proceeds, and forms about one-third part of its length. The tail commences where the body terminates. It is twice as long as the body, and appears like a fine hair, gradually becoming smaller, and at length terminates in a very fine point. The figure of this worm, taken from Dr. Hooper's beautiful representations in vol. V. of the Trans. of the Med. Soc. of Lond. may be seen in pl. XV.

Dr. Hooper has seen upwards of twenty trichurides in some fæces of a child of six years old. Wrisberg, Blumenbach, and others, have found them in the rectum, in the inferior part of the ileum, and also in the jejunum, mixed with their pultaceous contents. Dr.

Hooper never saw them after death but in the cæcum. Their colour is like that of the vermicular ascarides. They are supplied, like the ascarides, with annular muscles, cutis, and cuticle. The stomach and intestine, in each of these animals, are formed by a long canal; which proceeds in a direct line from the head to the very extremity. It is largest at its beginning, and continues of the same size throughout the body; and when arrived at the place where the tail commences, it suddenly becomes considerably less in diameter, and terminates in the anus.

The remaining viscus, or ovarium, is a convoluted canal similar to that of the female vermicular ascaris, but is seldom found embracing the intestinal tube. The contents of this canal are ovula and a limpid fluid. Dr. Hooper never has seen any young worms in them.

In pl. XV. are given two figures of the trichuris vulgaris, which is sometimes convoluted and sometimes straight, as there represented.

Two species of *Tænia* are described by Dr. Hooper; the tænia *osculis marginalibus*, and the tænia *osculis superficialibus*. For the former see fig. 1. in the plate. This animal consists of a head placed at the smallest extremity, and a chain of articulations, more or less broad or long, which gradually enlarge as they advance, but at length terminate in a tail, formed by a rounded joint. Each of these joints contains its proper viscera. The essential character of this species consists in the oscula being situated upon the margin of each articulation, and the ovaria disposed in an arborescent form.

In this species of tænia the joints differ very much in the same worm: their figure is by no means characteristic. They are, for the most part, oval, rhomboidal, oblong, or quadrangular, and generally have a great resemblance to large cucumber seeds; from which circumstance, the detached joints have been named *cucurbitini*. They are shortest near the head, and their length, towards the tail, is sometimes exceeded by their breadth. On the margin of each joint, near the middle, is an osculum, and none on the opposite margin of the same joint. It sometimes happens that a joint is furnished with more than one osculum. They have frequently been observed with three or four; but, in general, the next joint has its osculum situated on the margin of the opposite side, so that it alternately changes. This order, however, is seldom preserved throughout the whole tract of the worm, for they are sometimes on the same side for several joints together, but they never are situated on the flattened surface, and hence their essential character already described.

Fig. 1 Is a portion of the *Tænia osculis marginalibus*, of its natural size and usual appearance. *a*, *a*, Are the marginal oscula. Fig. 2, A portion of the same worm injected, to shew the intestinal canal. Fig. 3, The arborescent ovaria, as they appear between the intestinal canal, when injected with quicksilver. Fig. 4, The head, of its natural size. Fig. 5, The head magnified. Fig. 6, A direct or front view of the head, very much magnified. *a*. The oscula at the basis. *b*. The protuberant margin, and stellated appearance. *c*. The mouth. Fig. 7, Is a detached joint of the usual size. *a*. The extremity which is received. *b*. The extremity which is supplied with the ligamentous band to receive the next joint.

In the *Tænia osculis superficialibus*, the oscula are situated on the flattened surface of each joint, the ovaria disposed like a star round the osculum. This creature is composed of a head similar to that of the other species, a chain of articulations, and a tail formed of a round joint. The joints however are more uniform in their appearance than those of the tænia osculis marginalibus. They are considerably more broad than long, and their oscula are not placed on the margin, but in the middle of the flattened surface, and only on one side. In every other respect the description of this species agrees with that given of the other, except that the ovaria are in the form of a rose or star. This species seldom or ever parts with any of its joints. When it does, it happens from some increased peristaltic motion of the intestines (and not spontaneously), by which a portion is torn off and passes with the fæces. This species of tænia seldom exceeds five yards in length, is always situated in the small intestines, and, it would appear, that it feeds on no other food than pure chyle. It is for the most part of a darker hue than the former species, though sometimes as white as milk. Of this species of tænia it is very seldom that more than three or four are met with in the same subject. It is endemic in Switzerland and Russia, and very common in Germany and other parts of Europe, but rare in this country.

Fig. 8, Exhibits the largest and most extreme portion of this worm, with its superficial oscula. The head is similar to that of the tænia osculis marginalibus, with this difference only, that it is much more filiform. Fig. 9, Shews a portion of the worm with the intestinal canal and ovaria. A rounded joint is the most common termination of the tail; nevertheless, it ends sometimes by a bifurcated apparatus, and each fork has been observed to have four or five tentacula.

The methods of destroying these troublesome animals, are noticed under the articles ANTHELMINTICA, TÆNIA, &c.

WORMWOOD. For the different species, see ABSINTHIUM.

WORT, the name given to an infusion of malt in hot water. This has been found extremely useful in the cure of the scurvy. See SCORBUTUS.

WOUND, a forcible division of some of the soft parts of the body, either with a cutting, pointed, or blunt instrument; the nature of the latter generally giving the character of the wound, as incised, punctured, contused, lacerated, &c. Gun-shot wounds, indeed, have a peculiar character (see GUN-SHOT WOUNDS), and the same may be said of wounds proceeding from the bites of venomous reptiles, &c. Of those, some notice is taken in the article VENOM.

The first thing to be considered in the inspection of a wound is, whether it is likely to prove mortal or not. This knowledge can only be had from anatomy, by which the surgeon will be able to determine what parts are injured; and, from the offices which these parts are calculated to perform, whether the human frame can subsist under such injuries. It is not, however, easy for the most expert anatomist always to prognosticate the event with certainty; but this rule he ought always to lay down to himself, to draw the most favourable prognosis the case will bear, or even more than the rules of his art will allow. This is particularly incumbent on him in sea-engagements, where the sentence of death is executed as soon as pronounced, and the patient may be thrown alive into the sea, upon the surgeon's declaring his wound to be mortal. There are, besides, many instances on record, where wounds have healed, which the most skilful surgeons have deemed mortal. The following wounds may be reckoned mortal: 1. Those which penetrate the cavities of the heart, and all those wounds of the viscera where the large blood-vessels are opened; because their situation will not admit of proper application to restrain the flux of blood. 2. Those which obstruct or entirely cut off the passage of the nervous influence through the body. Such are wounds of the brain, cerebellum, medulla oblongata, and spinal marrow; though the brain is sometimes injured, and yet the patient recovers. Wounds likewise of the small blood-vessels within the brain are attended with great danger, from the effused fluids pressing upon the brain. Nor is there less danger where the nerves which tend to the heart are wounded, or entirely divided; for after this, it is impossible for the heart to continue its motion. 3. All wounds which entirely deprive the animal of the faculty of breathing. 4. Those wounds which interrupt the course of the chyle to the heart: such are wounds of the receptacle of the chyle, thoracic duct, and larger lacteals, &c. There are other wounds which prove fatal if neglected and left to nature; such are wounds of the larger external blood-vessels, which might be remedied by ligature.

In examining wounds, the next consideration is, whether the parts injured are such as may be supposed to induce dangerous symptoms, either immediately or in some time during the course of the cure. In order to proceed with any degree of certainty, it is necessary to be well acquainted with those symptoms which attend injuries of the different parts of the body. If the skin only and part of the cellular substance is divided, the first consequence is an effusion of blood; the lips of the wound retract, become tumefied, red, and inflamed, leaving a gap of considerable wideness according to the length and deepness of the wound. Besides, if a very considerable portion of skin and cellular substance is divided, a slight fever seizes the patient; the effusion of blood in the mean time stops, and the wound is partly filled up with a cake of coagulated blood. Below this cake, the small vessels pour forth a clear liquor, which in a short time is converted into pus. Below this pus granulations of new flesh arise, the cake of coagulated blood loosens, a new skin covers the place where the wound was, and the whole is healed up; only there remains a mark, called a *cicatrix* or *scar*, shewing where the injury had been received.

All wounds are accompanied with a considerable degree of pain, especially when the inflammation comes on, though the division reaches no farther than the skin and cellular substance. If the muscular fibres are divided, the pain is much greater, because the sound part of the muscle is stretched by the contraction of the divided part and the action of the antagonist muscle, which it is now less fitted to bear. The wound also gapes much more than where the cellular substance only is divided, insomuch that, if left to itself, the skin will cover the muscular fibres, without any intervention of cellular substance; and not only a very unsightly cicatrix remains, but the use of the muscle is in some measure lost. If the muscle happens to be totally divided, its parts retract to a very considerable distance; and unless proper methods be taken, the use of it is certainly lost ever afterwards.

If by a wound any considerable *artery* happens to be divided, the blood flows out with great velocity, and by starts; the patient soon becomes faint with loss of blood; nor does the hæmorrhagy stop until he faints away altogether, when the ends of the divided vessel close by their natural contractility: and if as much *vis vitæ* still remains as is sufficient to renew the operations of life, he recovers after some time, and the wound heals up as usual. The part of the artery which is below the wound in the mean time becomes useless, and its sides collapse, so that all the inferior part of the limb would be deprived of blood, were it not that the small branches sent off from the artery above the wounded place, become enlarged, and capable of carrying on the circulation. Nature also, after a wonderful manner, often produces new vessels from the superior extremity of the divided artery, by which the circulation is carried on as formerly. However, the consequences of such a profuse hæmorrhagy may be very dangerous to the patient, by inducing extreme debility, polypous concretions in the heart and large vessels, or an universal dropsy. This happens especially where the artery is partially divided; because then the vessel cannot contract in such a manner as to close the orifice: however, if the wound is but small, the blood gets into the cellular substance, swelling up the member to an extreme degree, forming what is called a *diffused aneurism.* Thus the hæmorrhagy soon stops externally, but great mischief may proceed from the confinement of the extravasated blood, which is found to have the power of destroying not only the fleshy parts, but also the bones themselves; and thus not only the use of the limb is entirely lost, but the patient is brought into great danger of his life, if proper assistance be not obtained in a short time.

Wounds of the *ligaments*, *nerves*, and *tendons*, are likewise attended with bad consequences. When a nerve is entirely divided, the pain is but trifling, though the consequences are often dangerous. If the nerve is large, all the parts to which it is distributed below the wound immediately lose the power of motion and sensation; nor is it uncommon, in such cases, for them to be seized with a gangrene. This, however, takes place only when all or the greatest part of the nerves belonging to a particular part are divided. If the spinal marrow, for instance, be divided near the head, the parts below soon lose their action irrecoverably; or if the bundle of nerves passing out of the axilla be divided or tied, sensation in the greatest part of the arm below will probably be lost. But though a nerve should be divided, and a temporary palsy be produced, it may again reunite, and perform its proper functions. If a nerve be wounded only, instead of being divided, the worst symptoms frequently ensue.

Wounds which penetrate the cavities of the *thorax* are always exceedingly dangerous, because there is scarcely a possibility of all the viscera escaping unhurt. A wound is known to have penetrated the cavity of the thorax principally by the discharge of air from it at each inspiration of the patient, by an extreme difficulty of breathing, coughing up blood, &c. Such wounds, however, are not always mortal; the lungs have frequently been wounded, and yet the patient has recovered. Wounds of the *diaphragm* are almost always mortal, either by inducing fatal convulsions immediately, or by the ascent of the stomach, which the pressure of the abdominal muscles forces up through the wound into the cavity of the thorax. Even though the wound does not penetrate into the cavity of the thorax, the very worst symptoms may follow. For if the wound descends deeply among the muscles, and its orifice lies higher, the extravasated fluid will be there collected, and form various sinuses; and after having eroded the pleura, it may at length pass into the cavity of the thorax. The matter having once found a vent into this cavity, will be continually augmenting from the discharge of the sinuous ulcer, and the lungs will at last suffer by the surrounding matter. If, in cases of wounds in the thorax, the ribs or sternum happen to become carious, the cure will be extremely tedious and difficult.

There is sometimes difficulty in determining whether the wound has really penetrated into the thorax or the abdomen; for the former descends much farther towards the sides than at the middle. But as the lungs are almost always wounded when the cavity of the thorax is penetrated, the symptoms arising from thence can scarcely be mistaken. Another symptom which frequently, though not always, attends wounds of the thorax, is an *emphysema;* occasioned by the air escaping from the wounded lungs, and insinuating itself into the cellular substance; which being pervious to it over the whole body, the tumor passes from one part to another, till at last every part is inflated to a surprising degree.

Wounds of the *abdomen* are not less dangerous than those of the thorax, on account of the importance of the viscera which are lodged there. When the wound does not penetrate the cavity, there is some danger of an hernia being formed by the protrusion of the peritonæum through the weakened integuments, and the danger is greater the larger the wound is. Those wounds which run obliquely betwixt the interstices of the muscles often produce sinuous ulcers of a bad kind. For as there is always a large quantity of fat interposed every-where betwixt the muscles of the abdomen, if a wound happens to run between them, the extravasated humours, or matter there collected, not meeting with free egress through the mouth of the wound, often makes its way in a surprising manner through the cellular substance, and forms deep sinuosities between the muscles; in which case the cure is always difficult, and sometimes impossible.

If a large wound penetrates the cavity of the abdomen, some of the viscera will certainly be protruded through it; or if the wound is but small, and closed up with fat so that none of the intestines can be protruded, we may know that the cavity of the abdomen is pierced, and probably some of the viscera wounded, by the acute pain and fever, paleness, anxiety, faintings, hiccough, cold sweats, and weakened pulse, all of which accompany injuries of the internal parts. The mischiefs which attend wounds of this kind proceed not only from the injury done to the viscera themselves, but from the extravasation of blood and the discharge of the contents of the intestines into the cavity of the abdomen; which, being of a very putrescent nature, soon bring on the most violent disorders. Hence wounds of the abdominal viscera are very often mortal. This, however, is not always the case, for the small intestines have been totally divided, and yet the patient has recovered. Wounds both of the small and large intestines have healed spontaneously, even when they were of such magnitude that the contents of the intestine were freely discharged through the wound in it, and after part of the intestine itself has been protruded through the wound of the integuments.

When the *mesentery* is injured, the danger is extreme, on account of the numerous vessels and nerves situated there. Wounds of the liver, spleen, and pancreas, are also exceedingly dangerous, although there are some instances of the spleen being cut out of living animals without any considerable injury.

From the preceding account of the symptoms attending wounds in the different parts of the body, the surgeon may be enabled to judge in some measure of the event; though it must always be remembered, that wounds, even those which seemed to be of the slightest nature, have, contrary to all expectation, proved mortal, chiefly by inducing convulsions, or a locked jaw; so that no certain prognostic can be drawn on sight of recent wounds. We shall now, however, proceed to consider their treatment.

For the *cure of wounds*, it has been already observed, that the ancients imagined balsams, the juice of herbs, &c. to be a kind of specifics. In after-ages, and in countries where balsams are not easily to be procured, salves have been substituted in their place; and even at this day there are many who reckon a salve or ointment essentially necessary for healing the slightest cut. It is certain, however, that the cure of wounds cannot be effected, nay, not even forwarded in the least, by ointments, unless in particular cases or by accident. That power which the human frame has of repairing the injuries done to itself, *vis medicatrix naturæ*, is the sole agent in curing external injuries; and without this the most celebrated balsams would prove ineffectual. When a wound has been made with a sharp instrument, and is not extensive, if it be immediately cleaned, it will almost always heal by the *first intention* in a very short time. Indeed the cures performed by this simple process are so surprising, that they would be incredible were we not convinced of their possibility by our own experience. When this process is either neglected or proves unsuccessful, there are three stages to be observed in the cure of a wound: the first, called *digestion*, takes place when the ends of the wounded vessels contract themselves, and pour out the liquor which is converted into pus. As soon as this appears, the second stage, in which the flesh begins to *grow up*, takes place; and as this proceeds, the edges of the wound acquire a fine bluish or pearl colour, which is that of the new skin beginning to cover the wound as far as the flesh has filled it up. This process continues, and the skin advances from all sides towards the centre, which is called the *cicatrizing* of the wound. For the promoting of each of these processes, several ointments were formerly much in vogue; but it is now found, that no ointment whatever is capable of promoting them, and that it is only necessary to keep the wound clean, and to prevent the air from having access to it. This, indeed, nature takes care to do, by covering the wound with a cake of coagulated blood; but if a wound of any considerable magnitude should be left entirely to nature, the pus would form below the crust of coagulated blood, in such quantity, that it would most probably corrupt, and the wound degenerate into a corroding ulcer. It is necessary, therefore, to cleanse the wound frequently; and for this purpose it will be proper to apply a little ointment spread on soft scraped lint. For the first dressing, dry lint is usually applied, and ought to be allowed to remain for two or three days, till the pus is perfectly formed; after which, the ointment may be applied as just now directed: and in a healthy body, the wound will heal without further trouble. As to the ointment employed, it is almost indifferent what it be, provided it has no acrid or stimulating ingredient in its composition.

But though, in general, wounds thus easily admit of a cure, there are several circumstances which require a different treatment, even in simple divisions of the fleshy parts, when neither the membranous nor tendinous parts are injured. These are: 1. Where the wound is large, and gapes very much, so that, if allowed to heal in the natural way, the patient might be greatly disfigured by the scar. It is proper to bring the lips of the wound close to each other, and to join them either by adhesive plaster, or by suture, as the wound is more superficial, or lies deeper. 2. When foreign bodies are lodged in the wound, as when a cut is given by glass, &c. it is necessary by all means to extract them, before the wound is dressed; for it will never heal until they are discharged. When these bodies are situated in such a manner as not to be capable of being extracted without lacerating the adjacent parts, which would occasion violent pain and other bad symptoms, it is necessary to enlarge the wound, so that these offending bodies may be easily removed. This treatment, however, is chiefly necessary in gun-shot wounds, of which we have treated under that article. 3. When the wound is made in such a manner that it runs for some length below the skin, and the bottom is much lower than the orifice, the matter collected from all parts of the wound will be lodged in the bottom of it, where, corrupting by the heat, it will degenerate into a fistulous ulcer. To prevent this, we must use compresses, applied so that the bottom of the wound may suffer a more considerable pressure than the upper part of it. Thus the matter formed at the bottom will be gradually forced upwards, and that formed at the upper part will be incapable of descending by its weight; the divided parts, in the mean time, easily uniting when pressed close together. Indeed, the power which nature has of uniting different parts of the human body is very surprising; for, according to authors of credit, even if a piece of flesh be totally cut out, and applied in a short time afterwards to the place from whence it was cut, the two will unite. That a part cut out of a living body does not entirely lose its vital power for some time, is evident from the modern practice of transplanting teeth; and from the experiments of Mr. Hunter. We have therefore the greatest reason to hope, that the divided parts of the human body, when closely applied to each other, will cohere without leaving any sinus or cavity between them. However, if this method should fail, and matter still be collected in the depending part of the wound, it will be necessary to make an opening in that part in order to let it out; after which the wound may be cured in the common way. 4. During the course of the cure, it sometimes happens that the wound, instead of filling up with fleshy granulations of a florid colour, shoots up into a glassy-like substance which rises above the level of the surrounding skin; while, at the same time, instead of laudable pus, a thin ill-coloured and fetid ichor is discharged. In this case, the lips of the wound lose their beautiful pearl colour, and become callous and white, nor does the cicatrizing of the wound at all advance. When this happens in a healthy patient, it generally proceeds from some improper management, especially the making use of too many emollient and relaxing medicines, or an immoderate use of balsams and ointments. Frequently, nothing more is requisite for taking down this fungus, than dressing with dry lint; at other times, desiccative powders, such as calamine, tutty, calcined alum, &c. will be necessary; and sometimes red nitrated mercury must be used. This last, however, is apt to give great pain, if sprinkled in its dry state upon the wound; it is therefore most proper to grind it with some simple ointment, which makes a much more gentle, though at the same time an efficacious escharotic. Touching the overgrown parts with blue vitriol is also a very common practice.

Hitherto we have considered the wounded patient as otherwise in a state of perfect health; but it must be observed, that a large wound is capable of disordering the system to a great degree, and inducing dangerous diseases which did not before exist. If the patient is strong and vigorous, and the pain and inflammation of the wound great, a considerable degree of fever may arise, which it will be necessary to check by bleeding, low diet, and other parts of the antiphlogistic regimen; at the same time that the inflamed lips of the wound and parts adjacent are to be treated with emollient fomentations, or cataplasms, till the pain and swelling abate. On the other hand, it may happen, when the patient is of a weak and lax habit, that the vis vitæ may not be sufficient to excite such an inflammation in the wound as is absolutely necessary for its cure. In this case, the edges of the wound look pale and soft; the wound itself ichorous and bloody, without any signs of fleshy granulations: or if any new flesh shoots up, it is of the fungous glassy kind above mentioned. To such wounds all external applications are vain; it is necessary to strengthen the patient by proper internal remedies, among which the bark has a principal place, until the wound begins to alter its appearance. In such persons, too, there is some danger of a hectic fever, by the absorption of matter into the body when the suppuration is large; and this will take place during the course of the cure, even when the appearances have been at first as favourable as could be wished. This happens generally when the wound is large, and a great quantity of matter formed: for by this discharge the patient is weakened; so that the pus is no sooner formed, than it is, by the absorbent vessels, reconveyed into the body, and feverish heats immediately affect the patient. For this the best remedy is to exhibit the bark copiously, at the same time supporting the patient by proper cordials and nourishing diet. Indeed, in general, it will be found, that in the case of wounds of any considerable magnitude, a more full and nourishing regimen is required than the patient, even in health, has been accustomed to: for the discharge of pus alone, where the quantity is considerable, proves very debilitating, if the patient is not strengthened by proper diet. And it is constantly found, that the cure of such sores goes on much more easily when the patient is kept in his usual habit of body, than when his system is much emaciated by a very low allowance; and, for the same reason, purgatives, and whatever else tends to weaken the constitution, are improper in the cure of such wounds.

Hæmorrhagies very frequently happen in wounds, either from a division of one large artery, or of a number of small ones. In this case, the first step to be taken by the surgeon, is to effect a temporary stoppage of the blood by means of compression. He is then to tie up all the vessels in the manner to be afterwards described.

When the principal arteries of a wound have been tied, and a little blood continues to be discharged, but appears to come from sundry small vessels only, an experienced surgeon may perhaps think, that the necessary compression of the bandages will, in all probability, effect a total stoppage of the hæmorrhagy. In a general oozing of a small quantity of blood from the whole surface of a sore, and when no particular vessel can be distinguished, there is a necessity for trusting to this remedy; but whenever an artery can be discovered, of whatever size it may be, it ought unquestionably to be secured by a ligature. But it frequently happens, that considerable quantities of blood are discharged, not from any particular vessel, but from all the small arteries over the surface of the sore. In wounds of great extent, praticularly after the extirpation of cancerous breasts, and in other operations where extensive sores are left, this species of hæmorrhagy often proves very troublesome, by being exceedingly difficult to suppress.

Bleedings of this kind seem evidently to proceed from two very different and opposite causes. *First*, either from too great a quantity of blood contained in the vessels, or from an over-degree of tone in the vessels themselves; or, perhaps, from a combination of both these causes. But, *secondly*, such evacuations undoubtedly happen most frequently in such constitutions as are very relaxed and debilitated; either from a particular state of the blood, or from a want of tone in the containing vessels, or, in some instances, from a concurrence of both.

In constitutions perfectly healthy, on the occurrence of wounds even of the most extensive nature, as soon as the larger arteries are secured, all the small vessels which have been divided are diminished, not only in their diameters, but also in their length; in consequence of which, they recede considerably within the surface of the surrounding parts. This cause of itself would probably, in the greatest number of instances, prove sufficient for restraining all loss of blood from the smaller arteries. Another very powerful agent, however, is provided by nature for producing the same effect. From the extremities of the divided vessels, which at first discharged red blood only, there now, in their contracted state, oozes out a more thin, though viscid fluid, containing a great proportion of the coagulable parts of the blood; and this being equally distributed over the surface of the wound, by its known agglutinating power, has a very considerable influence in restraining all such hæmorrhages.

When a tedious oozing occurs in a patient young and vigorous, and where the tone of the muscular fibres is evidently great, the most effectual means of putting a stop to the discharge is to relax the vascular system, either by opening a vein in some other part, or, what gives still more immediate relief, by untieing the ligature on one of the principal arteries of the part, so as to allow it to bleed freely: those violent spasmodic twitchings, too, so frequent after operations on any of the extremities, when they do not depend on a nerve being included in the ligature with the artery, are in this manner more effectually relieved than by any other means.

By the same means, the patient, from being in a febrile heat and much confused, soon becomes very tranquil: the violent pulsation of the heart and larger arteries abates, and the blood not being propelled with such impetuosity into the smaller vessels of the part, they are thereby left at more liberty to retract. In the mean time the patient ought to be kept exceedingly cool; wine and other cordials should be rigidly avoided; cold water, acidulated either with the mineral or vegetable acids, ought to be the only drink; motion of every kind, particularly of the part affected, should be guarded against; and the wound being covered with dry flour and lint, ought to be tied up with a bandage, so applied as to produce a moderate degree of pressure on the extremities of the divided parts.

As soon as a sufficient quantity of blood has been discharged, the wound being dressed, and the patient laid to rest, a dose of opium, proportioned to the violence of the symptoms, ought to be immediately exhibited. It ought to be remarked, however, that in all such circumstances, much larger doses of that remedy are necessary than in ordinary cases requiring the use of opium. Small doses, instead of answering any good purpose, seem frequently rather to aggravate the various symptoms; so that whenever they are here had recourse to, they ought always to be given in quantities sufficient for the intended effect.

But hæmorrhagies of this nature happen much more frequently in relaxed enfeebled habits, where the solids have lost part of their natural firmness, and the fluids have acquired a morbid tenuity. In this case, a moderate use of generous wine ought to be immediately prescribed; for nothing tends so much, in such circumstances, to restrain hæmorrhagies, as a well-directed use of proper cordials. By tending to invigorate and brace the solids, they enable the arterial system to give a due resistance to the contained fluids; and have also a considerable influence in restoring to the fluids that viscidity of texture, of which, in all such instances, we suppose them to be deprived.

A nourishing diet also becomes proper; the patient ought to be kept cool; and the mineral acids, from their known utility in every species of hæmorrhagy, ought also to be prescribed. Rest of body is here also proper; and opiates, when indicated either by pain or spasmodic affections of the muscles, ought never to be omitted.

Together with these remedies adapted to the general system, particular dressings, appropriated to the state of the parts to which they are to be applied, have been found very beneficial. In healthy constitutions, soon after the discharge of blood is over, the parts are covered with a viscid coagulable effusion, from the mouths of the now retracted arteries; but in constitutions of an opposite nature, where the solids are much relaxed, the blood in general is found in such an attenuated state as to afford no secretion of this nature.

To supply as much as possible the deficiency of this natural balsam, different artificial applications have been invented. Dusting the part with starch or wheat-flour has sometimes been found of use, and gum-arabic in fine powder has been known to answer when these failed.

Applications of this kind, indeed, have been used with success in all such hæmorrhagies, with whatever habit of body they happen to be connected; but they have always proved more particularly serviceable in relaxed constitutions, attended with an attenuated state of the blood, and an enfeebled muscular system. Alcohol, or any other ardent spirits, impregnated with as great a quantity as they can dissolve of myrrh, or any other of the heating viscid gums, may be here used with freedom, though in constitutions of an opposite nature they ought never to be employed. The old balsamum traumaticum of the shops, a remedy of this nature, was long famous for its influence in such cases: but the indiscriminate use of this and similar applications, which long prevailed with some practitioners, has undoubtedly done much harm; for as they are all possessed of very stimulating powers, they of course tend to aggravate every symptom in wounds connected with a tense state of fibre, when much pain, and especially when spasmodic muscular affections prevail.

By a due perseverance in one or other of the plans here pointed out, it will seldom happen that hæmorrhagies of this nature are not at last put a stop to: but when the contrary does occur, when, notwithstanding the use of the remedies recommended, a discharge of blood still continues, together with the means already advised, an equal moderate pressure ought to be applied over the whole surface of the sore, to be continued as long as the necessity of the case seems to indicate.

In finishing the dressings of such wounds, after the lint and compresses have been applied, a bandage, properly adapted to the part, ought to conclude the whole, and in such a manner as to produce as equal a degree of pressure over the surface of the sore as possible. But it now and then happens, that no bandage whatever can be so applied as to produce the desired effect; and in such cases the hand of an assistant is the only resource; which being firmly applied over the dressings, so as to produce a very equal degree of pressure, will commonly succeed when no other remedy is found to have much influence.

With regard to wounds of the *nerves*, *tendons*, and *ligaments*, which are often attended with violent symptoms, and frequently resist every method of cure proposed by the most skilful practitioners, we have sufficiently treated of them in the case of blood-letting, in which it frequently happens that the *aponeurosis* of the biceps muscle is wounded, or even the tendon of that muscle punctured, or sometimes a nerve which happens to lie in the neighbourhood is partially divided. See Bleeding.

In the case of a *wounded or ruptured tendon*, the limb should be placed in such a manner as will most readily admit of the retracted ends of the tendon being brought nearly together; and when in this situation, the muscles of the whole limb in which the injury has happened must be confined with a roller, so as to prevent them from all kind of exertion during the cure, endeavouring at the same time to keep the parts easy and relaxed. Thus, in a wound or rupture of the tendon of the rectus muscle of the thigh, the patient's *leg* should be kept as much as possible stretched out during the cure, while the thigh should be in some degree bent, to relax the muscle itself as far as possible. In similar affections of the tendo Achillis, the *knee* should be kept constantly bent, to relax the muscles of the leg; and the foot should be stretched out, to admit of the ends of the ruptured tendon being brought nearly into contact. A roller should be applied with a firmness quite sufficient for securing the muscles and tendons in this situation; but care must be taken to prevent it from impeding the circulation. With this view, fine soft flannel should be preferred either to linen or cotton; for being more elastic, it more readily yields to any swelling with which the limb may be attacked.

The late Dr. Monro was the first who gave any accurate directions for the treatment of rupture in the large tendons, and it is, perhaps, given with more precision, from his having himself experienced the effects of this misfortune in the tendo Achillis. He used a foot-sock or slipper, made of double-quilted ticking, and left open at the toe; from the heel of which a strap went up above the calf of the leg. A strong piece of the same material went round the calf, and was fastened with a lace. On the back-part of this was a buckle, through which the strap of the foot-sock was passed, by which the calf could be brought down, and the foot extended at pleasure. Besides, there was a piece of tin applied to the fore-part of the leg, to prevent the foot from getting into any improper posture during sleep. After proposing to walk, he put on a shoe with a heel two inches deep, and it was not till the expiration of five months that he ventured to lay aside the tin plate; and he continued the use of the high-heeled shoe for two years. The whole apparatus is represented in pl. XXXI. From this treatment, a knowledge may be formed of the treatment necessary to be followed in the laceration of tendons of other parts of the body.

In wounds of the *thorax*, even though none of the viscera should be injured, we may yet reasonably expect that a considerable quantity of blood will be extravasated; and this, if very large, must be evacuated if possible. However, it ought to be particularly observed, that this extravasated blood should not be discharged before we are assured that the wounded vessels have done bleeding. When the pulse appears sufficiently strong and equal, the extremities are warm, no hiccup or convulsion appears, and the patient's strength continues, we may then know that the internal hæmorrhagy has ceased, and that the means for discharging the blood may now be safely used. Matter, water, blood, &c. have sometimes vanished from the cavities of the thorax, and been afterwards discharged by sweat, urine, &c. Yet this but seldom happens; and if we were to trust to nature only in these cases, it is certain that many would perish, froma corrosion of the thoracic viscera by the extravasated and putrid blood, who, by an artificial extraction of that fluid, might be saved.

Wounds of the *abdomen* must be closed as soon as possible, and then treated as simple wounds; only they ought to be dressed as seldom and expeditiously as may be. A spare diet, with other parts of the antiphlogistic regimen, is here absolutely necessary. It sometimes happens, that, through a large wound of the abdominal integuments, the intestine comes out without being injured; yet, if it remains for any time exposed to the air, the case is commonly very dangerous. The most proper method, in all such cases, is to return the protruded part as soon as possible; for although writers in general formerly recommended warm fomentations, &c. to be previously applied, the latest authors upon this subject consider the most natural and proper fomentation to be that which is produced by the heat and moisture of the patient's belly, and that therefore the intestines, if no mortification has taken place, are to be cleared from extraneous matter, and immediately returned. When the omentum appears prolapsed, the same general treatment is to be observed; only that, when it is dry and mortified, the dead part may safely be extirpated.

Wounds into the *cavities of joints*, though they do not seem at first alarming, yet by exposure to the air, the lining membrane of such cavities acquires such a degree of sensibility as may endanger life. As soon, therefore, as any extraneous body, pushed into the joint, is removed, the admission of the external air is to be guarded against as much as possible. If the wound be not too large, this may be done by pulling the skin over the wound of the joint; and, to prevent its retraction, some adhesive plaster, with proper bandaging, is to be used. But when inflammation is come on, repeated and copious blood-letting, together with fomentations, become necessary; and as the pain in these cases is apt to be violent, opiates must be administered; but should matter be formed in the cavity of the joint, free vent must be given to it.

Contused and lacerated Wounds form a subject which is next for consideration. When the small vessels of a part are broken by a blow with any hard instrument without penetrating the skin, at the same time that the solid fibres of the part are crushed, the injury is termed a *contusion:* and when, at the same time, the skin is broken, it is termed a *contused and lacerated wound;* because in this case the parts are not fairly divided as with a knife, but torn asunder or violently stretched. Every contusion, therefore, whether the skin is broken or not, may properly be reckoned a wound; for where the injury is so slight that none of the contents of the small vessels are extravasated, it scarcely deserves to be mentioned. The immediate consequence of a contusion, therefore, is a swelling, by reason of the extravasation just mentioned; and the skin becomes discoloured by the blood stagnating under it: but as this fluid, even though covered by the skin, cannot long remain in its natural state, it then happens that the contused part soon loses its florid red colour, and becomes blue or black; the thinner parts being in the mean time gradually taken up by the absorbent vessels, which at last happens to the cruor itself; the blue disappears, and is succeeded by a yellowish colour, shewing that the blood is now absorbed; after which the part recovers its former appearance, and the ruptured vessels appear to have united as though nothing had happened.

These are the symptoms which attend the slightest kind of contusions; but it is evident, that where the blow is so violent as to rupture or crush some of the large nerves, or blood-vessels, all the bad consequences which attend simple wounds of those parts will ensue, and they will not at all be alleviated by the circumstance of the skin being whole. Hence it is easy to see how a contusion may produce ulcers of the worst kind, gangrene, sphacelus, carious bones, &c.; and if it happens to be on a glandular part, a scirrhus or cancer is very frequently found to ensue. Even the viscera themselves, especially of the abdomen, may be injured by contusions to such a degree as to produce an inflammation, gangrene, or scirrhus, nay instant death, without rupturing the skin. What has been said under GUN-SHOT WOUNDS sufficiently applies to these cases.

WOUNDWORT, called by the country people Hercules's allheal. See PANAX.

X.

XA'NTHIUM, the lesser burdock; *Xanthium strumarium* Linn. This plant was once esteemed, but with little reason, in the cure of scrofula. The seeds now are administered internally, in some countries, against erysipelas.

XA'NTHIUM STRUMARIUM; the systematic name of the lesser burdock. See XANTHIUM.

XERA'SIA (from ξερος, *dry);* an excessive tenuity of the hairs, similar to down.

XIPHOID CARTILAGE. See CARTILAGO ENSIFORMIS.

XIPHOIDES (from ξειφος, a *sword*, and ειδος, *likeness)*, xiphoid; a term given by anatomists to parts which have some resemblance to an ancient sword. The xiphoid cartilage is an instance of this.

XYLO-ALOES. See LIGNUM ALOES.

XYLO-BALSAMUM. See BALSAMUM GILEADENSE.

Y.

YAM, an esculent root obtained from three species of *Dioscorea;* viz. the *alata*, *bulbifera*, and *sativa*. Yams grow spontaneously in both the Indies, and their roots are eaten, especially by the negroes, as the potatoe is with us. There is great variety in the colour, size, and shape of yams; some are blue or brown, round or oblong, and weigh from one pound to two. They are esteemed, when dressed, as being nutritious and easy of digestion, and are preferred to wheaten bread. Their taste is somewhat like the potatoe, but more luscious. The negroes boil and mash them. They also grind them into flour, and make them into bread and puddings. When yams are to be kept for some time, they are exposed upon the ground to the sun, as we do onions, and when sufficiently withered they are put into dry sand in casks, and placed in a garret, where they remain often for many seasons without losing any of their properties.

YARROW. See MILLEFOLIUM.

YAWS, a cutaneous disease common amongst the negroes in the West Indies. See FRAMBÆSIA. It is the African name for raspberry.

YEAST, or *Barm;* the foam or froth of beer, or other liquors, in a state of fermentation. Yeast is used for a leaven or ferment in the making of bread; as serving to swell or puff it up very considerably in a little time, and to make it much lighter, softer, and more digestable: though when there is too much of it, the bread is rendered bitter and nauseous. Yeast has been given, as an antiseptic, in putrid fevers, and with advantage.

YELLOW FEVER, *Typhus icterides*, *Putrid bilious fever*, or *Endemial Causus;* one of the most fatal diseases to which the inhabitants of warm climates are subject. It is the same, as the generality of writers assert, with that called, from one of its worst symptoms, the *black vomit;* which is so terribly destructive in some of the warm parts of America, particularly at Carthagena. See CAUSUS, ENDEMIAL. This fever principally attacks Europeans, especially those who have recently arrived in hot climates. Negroes are entirely exempt from it, though people of colour are no less liable to be attacked than the whites.

The yellow fever has been thus described by Dr. Moseley. When a new-comer is seized with a sudden loss of strength, and a desire of changing, for rest, into every position, without finding it in any, those symptoms which constitute this fever may be expected. It is, he says, of great consequence to be understood, that when new-comers are taken ill in hot climates, an intermission is not to be waited for; the disease must be stifled in its birth. If exposed to the causes of the fever, the probable consequences would soon be, that a person would perceive an heaviness, a lassitude, an oppression, and a loss of appetite. This is the time to extinguish the disease; but Europeans and North-Americans neglect it, as they are not accustomed at home to have recourse to medicine, on the first moment of indisposition.

Either on the following day, or perhaps within twelve hours from the first indisposition, the violence of the disease will commence, thus:—

1. "There will be a faintness, and generally a giddiness of the head, with a small degree of chilliness and horror, but never a rigor. Then immediately will succeed, a high degree of fever, with great heat, and strong beating in all the arteries of the body, particularly observable in the carotid and temporal arteries; flushings in the face, gasping for cool air, white tongue, but tinged with yellow, after the retchings have commenced; excessive thirst, redness, heaviness, and burning in the eyes; heaviness and darting pains in the head, and small of the back, and often down the thighs; pulse quick, generally full and strong, in some cases quick, low, and vaccillating; skin hot and dry, sometimes with a partial and momentary moisture; sickness of the stomach, from the first, which increases with the disease, and immediately after any thing is taken to quench the thirst, retchings succeed, in which bilious matter is brought up; anxiety with stricture, soreness, and intense heat about the præcordia; great restlessness; heavy respiration; sighing; urine deep coloured, and but little in quantity. This is the first stage of the fever, and may continue twenty-four, thirty-six, forty-eight, or sixty hours, and this constitutes its inflammatory period.

2. "The *second stage* begins with an abatement of many of the preceding symptoms, and the rise of others; sometimes with a deceiving tranquillity, but with perturbation, if the patient should fall into a sleep. Then a yellow tinge is observed in the eyes, neck, and breast; the heat subsides, and sometimes with a chilliness; but not with that sort of strong rigor which, when it happens, terminates the disease by sweat, or by copious bilious evacuations, upwards or downwards. The retchings increase and turn poraceous, the pulse flags, but is sometimes high, and sometimes soft; the skin moist and clammy; urine in small quantity, and of a dark croceous colour; the tongue, in some cases, is dry, harsh, and discoloured, but in others furred and moist; confusion in the head, and sometimes delirium; with the eyes glassy. This stage of the disease sometimes continues only for a few hours, sometimes for twelve, twenty-four, thirty-six, or forty-eight hours, but seldom longer. It is in the beginning of this second stage when attempts have failed, or have been neglected in the inflammatory stage, that the struggle is to be made between life and death,

3. "In the *third* and *last stage* of the fever, the pulse sinks and becomes unequal and intermittent, sometimes very quick; frequent vomiting; with great straining and noise in vomiting, and what is brought up now is more in quantity, and has the appearance of the grounds of coffee, or is of a slate colour; nothing can be retained in the stomach; difficult breathing; tongue black; cold clammy sweats; eyes yellow, and sunk; yellowness round the mouth and temples, and soon after over the whole body.

"This universal yellowness growing deeper coloured, accompanied by an aggravation of all the other symptoms, is the immediate forerunner of death. Deep respiration; subsultus tendinum; a convulsive kind of sighing; black urine; sometimes total suppression of urine; death-like coldness of the hands, feet, and legs; heat still about the pit of the stomach; delirium, and struggling to get up in the bed; faultering speech; trembling; blood oozing from the mouth and nostrils; sometimes from the corners of the eyes, and from the ears; vomiting black bloody cruor; stools the same; livid spots about the body, particularly the præcordia; hiccup; muttering; coma;—death."

Dr. Moseley has divided the disease into three stages, because, between the *inflammatory* and the *gangrenous state*, there is a distinct period of its *metaptosis*; a composure preceding mortification, as is observed on all other occasions, which sometimes gives sufficient length of time to perform the cure; though sometimes it is of so short a duration, that the patient rushes immediately, as soon as the inflammatory state is passed, into the black vomiting. Sometimes, in this period of the disease, the symptoms are so mild, and the patient so tranquil, that the disease is supposed at an end; and all means are neglected, till the third stage comes on and completes the catastrophe.

This description corresponds with the general course of the disease, when the patient dies from the third or fourth, to the seventh day. But many patients do not experience all the symptoms mentioned, which vary according to habit of body; some inclining, according to Dr. Moseley, to characterise the *genuine*, and some the *spurious* causus, of the ancients. Some have no chilliness at first, nor faintness, nor flushings in the face, and the pulse is sometimes deeply depressed, and not quick; and there are gross habits of body which have been attacked in very sultry weather, in damp situations, where the inflammatory period has been only of a few hours' duration; the *metaptosis* has been so rapid, that the black vomiting, and the mortified state, have unexpectedly appeared, and have ended the patient in twenty-four, thirty-six, or forty-eight hours. On the contrary, there are some instances where the disease has been protracted to the eighth, ninth, or tenth day; and others where it has never passed from the inflammatory stage; but being checked, though not extinguished, it has been lengthened out, and at last converted into a remittent of great duration, of most difficult cure, and tedious recovery.

During all the periods of the disease, great heat is perceived near the præcordia, and soreness and uneasiness complained of, on pressing the hand upon those regions. After death, livid spots appear over the whole body, particularly about the præcordia; but from the appearance of the liver, and gall-bladder, on dissection, though both are materially affected in this disease, there is no fair inference to be drawn that these are primarily in fault. In the course of the fever, though there are some symptoms common to inflammations of the liver, yet there are more to inflammations of the stomach; and none of the invariable symptoms which distinguish inflammations of the liver from all other diseases. There is no heavy fixed pain in the right hypochondrium, with inflation and tension, and hiccup, as when the concave part of the liver is inflamed; there is no evident and painful enlargement of the side, with acute pain in breathing, extending up to the neck, or top of the right shoulder, and dry cough, as when the convex part of the liver is inflamed. This fever never terminates in suppuration of the liver, as in the *Hepatitis;* though it must be confessed it often does in an enormous excretion of bile.

In speaking of the prevention and cure of the yellow fever, were we to follow the different authors who have written on the subject, we should not only greatly exceed our necessary limits, but also state some instances of contradictory practice. Suffice it then to say, that the general indications of cure are these: 1. To moderate the too great and rapid motion of the fluids, and abate the too great heat and violence of the fever, in the earliest periods of the disease, as much and as safely as we can. 2. To evacuate the redundant bile as expeditiously and safely as possible. 3. To counteract the putrescent disposition of the fluids, by suitable antiseptics.

Dr. Moseley says, if a person newly arrived in the West Indies has subjected himself to any of the causes which may produce this fever, as soon as any heaviness, or lassitude, or restlessness, or stretching and yawning, is perceived, he should *immediately* be blooded, take a dose of salts, dilute plentifully, and keep himself quiet and cool; and after the operation of the salts, he should take small doses of *James's Powder*, live low, and drink barley-water. Lastly, after these measures, it is always prudent to take the bark, to render these preventive means effectual.

In the *first stage* of the fever, when it has made a regular attack, when these precautions have not been used, or when they have failed, and the patient is no longer able to abstain from his bed, he should be kept in a large room, as cool as possible, covered lightly with bed-clothes, with a circulation of air admitted into the room, but not directly upon, or near the bed; and this must be observed throughout the whole of the disease. Bleeding must then be performed, and must be repeated every six or eight hours, or whenever the exacerbations come on, while the heat, fulness of pulse, and pains, continue: and if these symptoms be violent and obstinate, and do not abate during the first thirty-six or forty-eight hours of the fever, Dr. Moseley says, "bleeding should be executed, *usque ad animi deliquium.*" The blood taken away in the beginning of the yellow fever, is very florid, and of the arterial blood colour; and the surface is never sizy, and seldom even contracted, as is usually the case when we bleed in inflammatory diseases. "The intention of bleeding," continues he, "can be answered only by performing it *immediately*, and in the *most extensive manner;* which the high state of inflammation, and the rapid progress of the disease, demand. Taking away only six or eight ounces of blood, because the patient may be faint, which is a symptom of the disease, is doing nothing towards the cure. Some practitioners who have not been witnesses of the good effects of bleeding, from never having taken away a sufficient quantity of blood, imagine that bleeding is not among the remedies for this disease. But this disease truly is not among those that yield to the loss of *a few ounces* of blood."

"Bleeding, it is evident, must not be performed in any other stage of the disease, than the first or inflammatory stage; but this has been injudiciously done, which has given rise to the notion, that a patient will seldom bear more than two bleedings. Many practitioners have been deterred from bleeding their patients, from the depression of the pulse, and from the faintness, which sometimes accompany the very first onset of this fever; but here the pulse always rises, and the faintness disappears, as the heart is relieved from its oppression, by the loss of blood. Faintness and depression of the pulse here, are not to be considered like those circumstances where putrefaction has commenced, or where there has been long and fatiguing illness: they are symptoms here of *plethora*, the reverse of inanition."

Dr. Moseley's opinion respecting the employment of *emetics* in this disease forms an important feature in his plan of treatment. "The *sickness of the stomach*," says he, "and disagreeable *taste* in the mouth, indicate the quality, and not the quantity, of the offending secretions. The vomiting is from irritation in the stomach, and not from plenitude. Therefore vomits are never to be given:—no, not so much as warm water, for fear of exciting and stirring up that terrible operation, which, when once begun, no art can, sometimes, allay." The nausea and vomiting not only remain after vomits have been given, but the stomach is thus so irritated, that no purgative can be afterwards retained; and the only means that can remove these symptoms are thereby defeated. Dr. Moseley, above all, has lamented the effects of antim. tartar. given to remove the supposed cause of this treacherous symptom. Even in slight degrees of fever in the West Indies, instead of removing the irritating sickness or exciting a diaphoresis, he says, a spasm has been produced in the stomach, incessant vomiting, inflammation, the vessels of the thorax and head have been surcharged with blood, and the patient has vomited away his life.

"When a sufficient quantity of blood has been taken away, which is never done, let the patient's habit be what it may, while the heat, reiterated exacerbations, flushings in the face, thirst, pains in the head, and burning in the eyes, remain; the next step is to evacuate the bowels." This is best done, Dr. Moseley thinks, by clysters, or by giving the *sal polychrestum*, in small doses, every hour, till it operates; but he warns the practitioner against adding to it the antim. tartar. Purging generally completes the suppression of the fever, and carries off the vomiting; but it must be continued while the stools remain bilious or fetid; otherwise the fever will rise, and the vomiting return.

If the fever still continues and the stomach be settled, after the bowels have been well evacuated, Dr. Moseley seems to wave his objections to the use of antimonials, which he says may be had recourse to as *sudorifics.* Repeated doses of *James's Powder*, are among the remedies he proposes, together with the use of effervescing draughts, and plentiful diluents, such as barley-water, or balm tea, &c. "An intermission being procured," says he, "the bark, in substance, is immediately to be given, and repeated every hour, in drachm doses, if the stomach will bear it, until twelve drachms have been taken; which is generally a sufficient security against the progress of the disease. But it must still be continued, at longer intervals, for many days; interposing mild cathartics."

In the *second stage* of this fever, Dr. Moseley says, we must draw a distinct line or boundary, in the very beginning of it, and put a *final period to bleeding.* The strength now begins to fail; the pulse is sinking; the suffusion of yellowness is perceived in the eyes, neck, and breast; the vomiting incessant, and the stomach rejects every thing that is swallowed. A coldness here, not succeeded by sweat, or bilious discharges, is almost a certain mortal symptom. In this state nothing but *purging* can remove the vomiting, and save the patient's life. Here the corruption of the humours begins, and the stools are acrid, corrosive, and fetid to an extraordinary degree; but the misfortune here is, that the stomach, retaining nothing, without great difficulty, opposes all our attemps.

Dr. Moseley sums up his plan of treatment in the following remarkable words: "If," says he, "bleeding, purging, baths, and diaphoretics, do not remove the fever in its first stage:—If purging, baths, diaphoretics, and blisters, do not remove it in the second stage: —If the vomiting cannot be suppressed, and bark retained:—The *last stage* of the disease appears with its *direful vomiting;*" the interior surfaces of the body are all oozing out blood into their cavities, and death ensues.

Some writers who concur with Dr. Moseley as to the necessity of exhibiting purgatives, have suggested much more efficacious means of effecting it; particularly by giving *calomel,* of which many practitioners make a free use, and with the most beneficial consequences. Indeed, the experience of Dr. Chisholme has shewn, that mercurials, given with a view to their *specific effect*, are amongst the most important remedies employed in the yellow fever. This practice is even countenanced by our experience at home, where the most rapid means of exciting ptyalism by mercury, are found to be almost uniformly successful in typhous fever; to the class of which the yellow fever belongs.

Till of late years, when we have had such abundant and fatal experience of the disease in our West-India Islands, it was a matter of much dispute, whether the yellow fever be of an infectious nature or not. The truth, however, is, that though originally not infectious, it becomes so afterwards; like the dysentery, and some other diseases. Dr. Rush of Philadelphia thus describes this fever, as it appeared in that city in 1793.

"There were for several weeks two sources of infection, viz. exhalation, and contagion. The exhalation infected at the distance of three and four hundred yards; while the contagion infected only across the streets. The more narrow the street, the more certainly the contagion infected. Few escaped it in alleys. After the 12th of September, the atmosphere of every street in the city was loaded with contagion; and there were few citizens, in apparent good health, who did not exhibit one or more of the following marks of its presence in their bodies: 1. A yellowness observable in the eyes, and a swallow colour upon the skin. 2. A preternatural quickness in the pulse. I found but two exceptions to this remark, out of a great number of persons whose pulses I examined. In one of them it discovered several preternatural intermissions in the course of a minute. This quickness of pulse occurred in the negroes, as well as in the white people. I met with it in a woman who had the yellow fever in 1762. In two women, and in one man above seventy, the pulse beat upwards of ninety strokes in a minute. This preternatural state of the pulse during the prevalence of a pestilential fever in persons in health, is taken notice of by Riverius. 3. Frequent and copious discharges, by the skin, of yellow sweat. In persons who were much exposed to the contagion, these sweats sometimes have an offensive smell, resembling that of the washings of a gun. 4. A scanty discharge of high-coloured or turbid urine. 5. A deficiency of appetite, or a greater degree of it than was natural. 6. Costiveness. 7. Wakefulness. 8. Head-ach. 9. A preternatural dilatation of the pupils: this was universal. I was much struck in observing the pupil, in one of the eyes of a young man who called upon me for advice, to be of an oblong figure. Whether it was natural, or the effect of the contagion acting on his brain, I could not determine.

"It will be thought less strange, that the contagion should produce those changes in the system of persons who reside constantly in the city, when I add, that many country people who spend but a few hours in the streets in the day, in attending the markets, caught the disease, and sickened and died after they returned home; and that others, whom business compelled to spend a day or two in the city during the prevalence of the fever, but who escaped an attack of it, declared that they were indisposed, during the whole time, with languor, or head-ach." Dr. Rush rejects the general opinion, that this disease can be had only once by the same person.

Drs. Physic and Catherall give the following account of the appearances after death, in the fatal cases which occurred: "1. That the brain in all its parts has been found in its natural condition. 2. That the viscera of the thorax are perfectly sound. The blood, however, in the heart and veins is fluid, similar in its consistence to the blood of persons who have been hanged, or destroyed by electricity. 3. That the stomach, and beginning of the duodenum, are the parts that appear most diseased. In two persons who died of the disease on the 5th day, the villous membrane of the stomach, especially about its smaller end, was found highly inflamed; and this inflammation extended through the pylorus, into the duodenum, some way. The inflammation here was exactly similar to that induced upon the stomach by acrid poisons, as by arsenic, which we have once had an opportunity of seeing in a person destroyed by it. The bile in the gall-bladder was quite of its natural colour, though very viscid. In another person who died on the eighth day of the disease, several spots of extravasation were discovered between the membranes, particularly about the smaller end of the stomach, the inflammation of which had considerably abated. Pus was seen in the beginning of the duodenum, and the villous membrane at this part was thickened. In two other persons who died at a more advanced period of the disease, the stomach appeared spotted in many places with extravasation, and the inflammation disappeared. It contained, as did also the intestines, a black liquor, which had been vomited and purged before death. This black liquor appears clearly to be an altered secretion from the liver; for a fluid in all respects of the same qualities was found in the gall-bladder. This liquor was so acrid, that it induced considerable inflammation and swelling on the operator's hands, which remained some days. The villous membrane of the intestines, in these last two bodies, were found inflamed in several places. The liver was of its natural appearance, excepting in one of the last persons, on the surface of which a very few distended veins were seen: all the other abdominal viscera were of a healthy appearance. The external surface of the stomach, as well as of the intestines, was quite free from inflammation; the veins distended with blood, which appeared through the transparent peritonæum, gave them a dark colour. The stomach of those who died early in the disease was always contracted; but in those who died in a more advanced period of it, where extravasations appeared, it was distended with air."

A violent difference of opinion having existed amongst the physicians in that quarter of the world, as to the method of treatment which ought to be pursued; and that appearing to Dr. Rush to have arisen from their having confounded the diagnostics of this, with those of other fevers, particularly the gaol, or hospital fever, he carefully points out the discriminating signs, and then proceeds to speak of the cure. After having lost, in 1793, a multitude of patients affected with the yellow fever, under the established treatment, he at last hit upon the mode of cure by *calomel purges and bleeding;* by which most of his subsequent patients were cured. The hint was derived from a manuscript account of the yellow fever which appeared in Virginia in 1741, given to the author by Dr. Franklin.

Ten grains of calomel and fifteen of jalap were administered in the first instance, and repeated every six hours till four or five large evacuations were produced. Some practitioners who had before employed calomel had done no good with it; because they had given it "in *small* and *single doses* only, and had followed it by large doses of bark, wine, and opium." The practice becoming general, Dr. Rush accompanied this purging powder with suitable instructions of which the following are the chief: "After the bowels are *thoroughly* cleansed, if the pulse be *full* or *tense*, eight or ten ounces of blood should be taken from the arm, and *more*, if the tension or fulness of the pulse should continue. Balm tea, toast and water, lemonade, tamarind-water, weak camomile tea, or barley-water, should be drank during this state of the disorder; and the bowels should be kept constantly open, either by another powder, or by small doses of crystals of tartar, or cooling salts, or by common opening clysters: but if the pulse should become *weak* and *low* after the bowels are cleansed, infusion of camomile and snake-root in water, vitriolic acid, and laudanum; also wine and water, and wine, punch, or porter, should be given, and the bark, either in infusion in water, or in substance, may be administered in the intermission of the fever. Blisters may likewise be applied to the sides, neck, or head, in this state of the disorder, and the lower limbs may be wrapped up in flannels wetted in hot vinegar and water. The food should consist of gruel, sago, panada, tapioca, tea, coffee, weak chocolate, wine whey, chicken broth, and the white meats, according to the weak or active state of the system. The fruits of the season may be eaten with advantage at all times. Fresh air should be admitted into the room in all cases, and *cool* air when the pulse is full and tense. The floor should be sprinkled now and then with vinegar, and the discharges from the body removed as speedily as possible."

Respecting the important question of *blood-letting* in this disease, Dr. Rush makes some very important remarks, for which we refer to his treatise. It is evident, that the circumstances of the disease in Philadelphia, differed materially from those under which Dr. Moseley directs the free use of the lancet; for Dr. Rush says:—"I am every day more surprised when I see medical men ordering bleeding in such quantities, *usque animi deliquium;* and having seen such fatal consequences arising from it, I am obliged to say, and really to believe, that those gentlemen who used it in such disorders to so great an excess, have either not met with that tendency in the fluids to a dissolution and putrid state which here made itself apparent, or that they had but little practice, or paid but little attention to the different symptoms and termination of the disease. Having already explained the fatal consequences arising from bleeding, experienced from my own practice, and the innumerable ones I had the opportunity of seeing under the care of others, it is my opinion, that whoever has been so fortunate as to escape from this dreadful disease, by the use, or rather the abuse, of blood-letting, it arose from his entire vigour and robust habit of body; or the little tendency of the fluids to dissolution and putrefaction: and all those that have survived this method of cure have been under a state of convalescence for two, three, or four months, and frequently the disorder terminated in remittents, or intermittents of the most difficult cure."

YELLOW SAUNDERS. See SANTALUM ALBUM.

YORKSHIRE SANICLE. See the article PINGUICULA.

Z.

ZA'RZA, an ancient and provincial name for sarsaparilla.

ZE'A MAIZE, or *Zea mays*, the systematic name of the Indian wheat plant; a native of America, and cultivated in Italy and several parts of Europe, for its grain, which is ground for the same purposes as our wheat, to which it is very little if at all inferior. In the late years of scarcity in this country, particularly in Scotland, we had some useful experience of this excellent grain; concerning which much has been written by Count Rumford in his Essays.

ZEDO'ARIA *(vox sinensis)*, zedoary; the *Kœmpferia rotunda* Linn. *Kœmpferia foliis lanceolatis petiolatis.* Class, *Monandria.* Order, *Monogynia.* The roots are brought to us in long pieces about the thickness of the little finger, two or three inches in length, bent, rough, and angular, or in roundish pieces about an inch in diameter, of an ash colour on the outside and white within. They have an agreeable camphoraceous smell, and a bitterish aromatic taste. Though formerly much esteemed against rheumatic affections, they are at present thought to possess very little medicinal power. Yet they have a place in the confectio aromatica of the London Pharmacopœia.

ZEOLI'TES; a particular kind of spar, which dissolves very slowly in acids, and without any effervescence. Cronsted takes notice of it. It may be called *Zeolites fluor*, as it belongs to the fluors.

ZI'BETHUM (ζιϐεθοη, from *Zobeth*, Arab.), also called *Civetta*, civet; a soft unctuous odoriferous substance, of a whitish, yellowish, or brownish colour, and sometimes blackish, contained in some excretory follicles near the anus of the *Viverra zibetha* of Linnæus. It has a grateful smell when diluted, and an unctuous subacrid taste, and possesses stimulating, nervine, antispasmodic virtues, in some degree resembling musk.

ZI'NCUM *(Zinc*, Germ.), zinc; a brilliant, bluish white, semi-metallic substance, crystallised in narrow plates. It is without taste or smell. It is brittle, yet yields with a degree of elasticity under the hammer, is very fusible, and of all metals the most inflammable. When heated red, it burns with a beautiful yellowish white flame; and it decomposes water with great energy. Zinc, next to iron, is said to be the most common of all the metals. It is found sometimes in a native form, but most frequently in a state of oxyd, when it is called lapis calaminaris (see Calaminaris). Sometimes it is mineralised by sulphur, forming what is called sulphure of zinc, or *blend*. Great quantities are found in Germany, France, Britain, Norway, and Italy. Zinc exposed to heat, in vessels, melts and volatilises without being decomposed. Cold sulphuric acid, diluted with water, possesses the power of dissolving it. The sulphate of zinc, which is the product of this composition, is crystallisable in tetrahædral prisms terminating in prisms that have also four sides. Cold nitric acid, diluted with water, combines rapidly with zinc, and affords *nitrate of zinc*. The muriatic acid acts on this metal with as much energy as the nitric, and the solution affords by distillation *muriate of zinc*. The carbonic acid diluted in water also dissolves zinc, and the solution being exposed to the air, affords *carbonate of zinc*. All the solutions of this metal in acids, are precipitated by lime-water, magnesia, fixed alkali, and ammonia. Melted zinc, exposed to intense heat, becomes oxydated, and the oxyd is volatilised by the current of the flame, ascends, and is afterwards condensed into little white flakes called *flores zinci*, or, in the new chemical nomenclature, *oxydum zinci sublimatum.* These are exhibited internally as a powerful antispasmodic. The use of zinc in medicine is very general. The *sulphate of zinc*, formerly called white vitriol, is given internally, in the dose of from ℈j to ℥ss. as a vomit. In small doses it is given in dropsies, epilepsies, intermittent head-achs, and some nervous diseases, and is a powerful antispasmodic and tonic remedy. A solution of it is also used as an injection for gleets and gonorrhœas (see Injection), and for cleansing foul ulcers.

ZI'NGI; an ancient name for the stellated anniseed. See Anisum stellatum.

ZI'NGIBER (ζιγγιϐερις, Indian), *Zingiber album, nigrum, vel commune;* common ginger: *Amomum zingiber* Linn. The white and black gingers are both produced by the same plant; the difference depending only upon the mode of preparing them. Ginger is an aromatic, and less pungent and heating to the system than might be expected from its effects upon the tongue. It is used in a great many of our officinal preparations; and supposed to possess, equally with the more costly aromatics, the virtues of an antispasmodic and carminative. The cases in which it is more immediately serviceable are flatulent colics, debility, and laxity of the stomach and intestines; and in torpid and phlegmatic constitutions to excite brisker vascular action. It is seldom given but in combination with other medicines. In the pharmacopœias ginger is directed in the form of a syrup and condiment.

ZIZA'NIA AQUATICA; the systematic name of a reed whose grain is much esteemed. See Water zizania.

ZI'ZYPHUS, a former name for the jujubes. See Jujubæ.

ZO'NA (from ζωννυμι, to surround), or *Zoster;* the shingles. See Shingles.

ZOOLO'GIA (from ζωον, an *animal*, and λογος, a *discourse)*, zoology; or that part of natural history which treats on animals.

ZOONO'MIA (from ζωον, an *animal*, and νομος, a *law)*, the laws of organic life. The late Dr. Darwin published a work under this title.

ZOOTO'MIA (from ζωον, an *animal*, and τεμνω, to *cut)*, zootomy; or the dissection of animals.

ZYGO'MA (from ζυγος, a *yoke;* because it transmits the tendon of the temporal muscle like a yoke). The cavity under the zygomatic process of the temporal bone and os malæ is so called.

ZYGO'MATIC PROCESS. An apophysis of the os jugale, and another of the temporal bone, are thus named.

ZYGO'MATIC SUTURES. These unite the zygomatic process of the temporal bone, to the cheek bone.

FINIS.

A GLOSSARY OF OBSOLETE TERMS.

*** *Including articles omitted, errors corrected, &c. References to the body of the work are in capitals.*

AABAM, an obsolete term for *Lead.*

Abactus. *Abactus venter*, among the ancient writers, denoted a miscarriage procured by art.

Abaisir. See *Spodium.*

Abalienatus, destroyed or so corrupted as to require extirpation; also, the total destruction of the senses by disease.

Abartamen. Lead.

Abas. The epilepsy.

Abductio, a species of fracture, in which a bone is divided transversely near a joint, so that each part recedes from the other. In Cœlius Aurelianus it signifies a strain.

Abebæos (*αβεϐαιος*); infirm, weak, or inconstant.

Abessi; the alvine excrements.

Abevacuatio, partial or incomplete evacuation, either naturally or by art.

Ablatio, the taking away from the body whatever is useless or hurtful. This term comprehends all evacuations; sometimes signifying the substraction of diet, with a medical view; and sometimes the interval betwixt two paroxysms of a fever.

Abrasa, a term applied to ulcers that have suffered abrasion of part of their substance.

Abrotonites; a wine mentioned by Dioscorides, impregnated with *Abrotanum* or southernwood.

Abscedentia; decayed parts of the body, which in a morbid state are separated from the sound.

Abstentio, by Cœlius Aurelianus, used to express a suppression or retention of the excrements, which he mentions as a symptom very frequent in *satyriasis.*

Acacalis, a term applied by Dioscorides to the fruit of an Egyptian shrub like a tamarisk, the infusion of which they mixed with collyria, to sharpen the sight. Lib. i. cap. 118. Dale relates, that the pods are in use, and are astringent. Hesychius explains *αϰαϰαλις, the flower of the narcissus.*

Acairos, (from *α, priv.* and *ϰαιϱος, time)*; unseasonable. It is applied to any thing that is unseasonable.

Acalcum; tin. Castellus, from Mullerus.

Acamatos, (*αϰαματος*, from *α, priv.* and *ϰαμνω, to be weary).* By this Galen seems to signify, that position of a limb, which is equally distant from flexion and extension; which situation the part can longest bear without weariness.

Acantabolus, (from *αϰανθα, spina*, a thorn, and *βαλλω, jacio*, to throw away); a surgeon's instrument, called also *Volsella*, like a pair of pincers. It was used to take out any prickly substance that chanced to stick to the œsophagus, or gullet; as also the fragments of any thing remaining in a wound. It is also used for that instrument wherewith people pull out the hairs of their eye-brows, called *tweezers.*

Acardios, (*αϰαϱδιος*); fearful, faint-hearted, dejected.

Acari, small creatures bred in wax, said by Aristotle to be the least objects of the human sight. It also signifies a particular kind of lice that lodge in the cuticle and cutis.

Acatalepsia, (*αϰαταληψια*), incomprehensibility, or uncertainty in science; the contrary of which is *catalepsis*, or certain knowledge. This word is taken notice of by Castellus, and it occurs in Galen.

Acatastatos, (*αϰαταστατος*, from *α, priv.* and *ϰαθϛημι*, which amongst other significations, implies *to fix, establish, or render certain)*, inconstant; as applied to regular fevers, where the periods of exacerbation are uncertain, and the appearances in the urine are perpetually changing. It is also applied to the cold fits of fever, which return at irregular periods. Or, it is applied to urine when turbid, but not depositing any regular sediment.

Acatharsia, (from *α, priv.* and *ϰαθαιϱω, to purge)*; an impurity of the humours. It is also applied to the sordes of wounds.

Acedia, (*αϰηδιη*, from *α, priv.* and *ϰηδος, care)*; carelessness, or neglect. Hippocrates sometimes uses this word, in his Treatise on the Glands, to signify fatigue or trouble.

Aceratos, (from *α, priv.* and *ϰεϱοω*, or *ϰεϱαννυμι, to mix)*; unmixed, or uncorrupted, a term applied sometimes to the humours of the body by Hippocrates. Paulus Ægineta mentions a plaster of this name, but probably means *Aceron.* See Acerides.

Acerides, (from *α, priv.* and *ϰηϱος, wax)*; plasters made without wax.

Acesis, (*αϰεσις*); a remedy or cure.

Acesta; distempers which are curable.

Acestoris, (*ακεϛορις*, from *ακος*, *a cure*); strictly a female physician, but the term is used for a midwife.

Acestrides, (*ακεστριδες*, from *ακεομαι*, *to cure*). Midwives were so called among the Greeks. Hippocrates uses the word in this sense, at the latter end of his treatise De Carnibus.

Acheir, (from *α*, *priv.* and *χειρ*, *a hand*); without hands.

Achicolum. So Cœlius Aurelianus, Acut. lib. iii. cap. 17. expresses the fornix, tholus, or fudatorium of the ancient baths.

Achlys, (*αχλυς*), darkness, or cloudiness. This is generally applied to a close, foggy air, or mist. In Hippocrates De Morb. Mulier. lib. ii. it signifies condensed air in the womb. Galen interprets it of those, who, during sickness, lose that lustre of the eye, usual in health. Others express it by an ulcer on the pupil of the eye, or the scar left there by an ulcer. It means also an opacity of the cornea; the same as the caligo cornea of Dr. Cullen.

Achne, (*αΧνη*), chaff; the froth of the sea; or water in general: or any thing that is light and soft. It also sometimes signifies lint.

Achoristos, (*αχωριϛος*, from *α*, *priv.* and *χωρις*, *separate*); inseparable, a term understood of accidents, symptoms, or signs, inseparable from particular things. Thus, a pungent pain in the side is an inseparable symptom of a pleurisy.

Achreion, (from *α*, *priv.* and *χρεια*, *usefulness*), useless; applied by Hippocrates to the limbs, which, through weakness, are become useless.

Achroi, (*αχροοι*, from *α*, *priv.* and *χροα*, *colour*); pale or wan.

Achyron, (*αχυρον*); properly signifies bran or chaff, or straw. In Hippocrates, De morbis mulierum, this word probably means bran. *Achyron* also signifies a straw, hair, or any thing that sticks upon a wall.

Acicys, (*ακικυς*, from *α*, *priv.* and *κικυς*, *strength*, *vigour*); weak, infirm, or faint. In this sense it is used by Hippocrates. De morb. lib. iv.

Acmasticos, (*ακμαϛικος*); the same as homotonos. It is a species of synochus, wherein the febrile heat continues the same to the end.

Acmella; a species of verbesina.

Acne, (*ακνη*), a small pimple, or hard tubercle on the face. Fœsius describes it as a small pustule or pimple, which arises usually about the time that the body is in full vigour.

Acnestis, (from *α*, *priv.* and *χναω*, *to scratch*); that part of the spine, which reaches from the *metaphrenon*, which is the part betwixt the shoulder blades, to the loins. This part seems to have been originally called so in quadrupeds only, because they cannot reach it to scratch.

Acoe, (*ακοη*); the sense of hearing.

Acoelios, (*ακοιλιος*, from *α*, *priv.* and *κοιλος*, *the belly*); without belly. This term is applied to those who are so wasted, as to appear as if they had no belly. Castellus from Galen.

Acoitus, (*ακοιτος*); an epithet for honey, used by Pliny, because it has no sediment, which is called *κοιτη*.

Aconion, (*ακονιον*) an ancient form of medicine; made of powders levigated, and probably like *collyria* for the disorders of the eyes.

Acopus, (*ακοπος*, from *α*, *priv.* and *κοπος*, *weariness*), signified originally whatever is a remedy against weariness, and is used in this sense by Hippocrates, Aph. viii. lib. ii. But in time, the word was applied to certain ointments.

Acopa. According to Galen and Paulus, the *Acopa Pharmaca* are remedies for indispositions of body which are caused by long or vehement motion. So are medicines against lassitude called *acopa*.

Acor, sometimes used to denote a sourness in the stomach contracted by indigestion, and from whence flatulencies arise.

Acordina; Indian tutty.

Acoria, (*ακορια*, from *α*, *priv.* and *κορεω*, *to satiate*): insatiability. In Hippocrates it means a good appetite and digestion.

Acorites vinum; a wine mentioned by Dioscorides, made with acorns, liquorice, &c. infused in wine.

Acortinus; a lupine.

Acosmia, (*ακοσμια*, from *α*, *priv.* and *κοσμος*, *order*); irregularity, occurring principally in fevers, with respect to their crisis and critical days. Castellus from Pollux says, they who were bald used to be called *Acosmoi*, because they had lost their great ornament the hair; for *κοσμος* signifies ornament as well as order.

Acrai, an Arabic word, means the same as *satyriasis* in men, and *furor uterinus* in women.

Acrapalos, (*ακρα παλος*, from *α*, *priv.* and *κραιπαλη*), a *crapula*, or furfeit of drunkenness. Medicines too are thus named, which either prevent or cure surfeits or drunkenness.

Acrasia, (*ακρασια*, from *α*, *priv.* and *κεραννυμι*, *to mix*); intemperance. But this word is often used by Hippocrates to signify weakness or inability for motion.

Acratia, (from *α*, *priv.* and *κρατος*, *strength*); inability for motion.

Acratisma; a Grecian breakfast, consisting of a morsel of bread, soaked in wine. The derivation of this word is the same as *Acrasia*, because the wine used on this occasion was not diluted with water.

Acratomeli, the same as *Mulsum*, i. e. wine mixed with honey.

Acre, (*ακρος*, *extreme*); the tip or extremity of the nose.

Acrisia, (from *α*, *priv.* and *κρινω*, *to judge or separate*), a turbulent state of a disease, which will scarcely suffer any judgment to be formed of its result.

Acrobystia, the extremity of the prepuce; from *ακρος*, *extreme*, and *βυω*, *to cover*.

Acrocheiria, (from *ακρος*, *extreme*, and *χειρ*, *a hand*), an exercise among the ancients; probably a species of wrestling, in which they only held by the hands.

Acrocheiris, (from *ακρος*, *extreme*, and *χειρ*, *a hand*). Gorræus says, it signifies the arm from the elbow to the ends of the fingers; *χειρ* signifying the arm, from the scapula to the fingers ends.

Acrochordon, (*ακροχορδων*, from *ακρος*, *extreme*, and *χορδη*, *a string*). This Galen describes as a round excrescence on the skin, with a slender base; and that it has its name because of its situation on the surface of the skin. The Greeks call that excrescence an *acrochordon*, where something hard concretes under the skin, which is rather rough, of the same colour as the skin, slender at the base, and broader above. Their size rarely exceeds that of a bean.

Acrocolia, (from αϰρος, *extreme*, and ϰαλον, *a limb*). The extremities of animals are so called, which are used in food, as the feet of calves, swine, sheep, or oxen, and of the broths of which jellies are frequently made. Castellus from Budæus adds, that the internal parts of animals are also called by this name; in English *giblets*.

Acrolenion; according to Castellus, the same as *Olecranon*.

Acropathos, (from αϰρος, *extreme*, and ϖαθος, *a disease*); literally, a disease at the top or superior part. Hippocrates, De Superfætatione, applies it to the internal orifice of the uterus; and in Prædict. lib. ii. to cancers, which appear on the surface of the body.

Acrospelos, a Greek name for the *Bromus Dioscoridis*, or wild oat-grass.

Acroteriasmus, the amputation of an extremity; from αϰρωτηρια, *extremities*, and this from αϰρος, *summus*.

Acmo, the red coral.

Actē; the elder tree.

Actine; the herb *Bunias* or *Napus*.

Actinobolismus; irradiation. This term is applied to the spirits, conveying the inclinations of the mind to the body. It is also called *Diradiatio*.

Acuitas, acrimony.

Acureb, a name for lead.

Acuron, a name for the *Alisma*.

Acus moschata; the *Geranium Moschatum*.

Acusto, a name for nitre.

Adaiges; muriate of ammonia.

Adarnech, a name for orpiment.

Adarticulatio, the same as arthrodia.

Adec, sour milk, or butter-milk.

Adectos, (from α, *priv.* and δαϰνω, *to bite*), an epithet applied to those medicines which relieve from pain, by removing the uneasiness caused by the stimulus of acrimonious medicines, &c.

Adelphia, (αδελφια); a relation. Hippocrates calls distempers that resemble each other by this name.

Ademonia, (of α, *priv.* and δαιμων, *a genius or divinity of fortune*). Hippocrates uses this word for uneasiness, restlessness, or anxiety felt in hysterical and acute diseases.

Adenes canadenses, potatoes.

Adepta medicina. So Paracelsus calls that which treats of the diseases that are inflicted on man from heaven.

Adiaphorous, the same with neutral. This term is particularly used of some spirits and salts, which are neither of an acid nor alkaline nature.

Adibat, a name for mercury.

Adice, the nettle.

Adipsan. So the Greeks called medicines, &c. which abate thirst. Hippocrates applied this word to oxymel.

Adoc, milk.

Ados, water in which red hot iron has been extinguished.

Adrachne, or *Arbutus Andrachne*; the strawberry-tree.

Adram, the *Sal Gem*.

Adraragi, garden-saffron.

Adustio, also called *Syriasis;* an inflammation about the brain, and its membranes, with an hollowness of the eyes, paleness, and a dry skin.

Ægagropilus, (from αιγαγρος, *rupicapra*, a wild goat, and ϖιλος, *globulus*, a ball); a ball found in the stomach of deer, goats, hogs, horned cattle, &c. consisting of hairs which they have swallowed from licking themselves. Some rank these balls among the *Bezoars*. A species of conferva found in Wallenfen moor, from its resembling these concretions, is also named *ægragropilus*.

Ægedes, a disorder of the eyes mentioned by Hippocrates. Fœsius thinks it consists of small cicatrices in the eye, caused by the irritation of corrosive humours. But in one passage of Hippocrates, the same writer says it signifies small opake concretions which stick upon the pupil, and obscure the sight.

Æginetia, the Malabar broomrape; a species of *Orobanche*.

Ægis, a film on the eye.

Ægoceras, (from αιξ, *a goat*, and ϰερας, *a horn*), fœnugreek; so called, because the pods were supposed to resemble a goat's horns. It is also a name for *Bouceras*.

Ægolethron, (from αιξ, *a goat*, and ολεθρον, *destruction*), according to Tournefort, the *Chamærododendron.*

Ægonychon, gromwell; from αιξ, *a goat*, and ονυξ, *a hoof*, because of the hardness of the seed.

Ægoprosopon, a collyrium for inflamed eyes.

Æon; the spinal marrow.

Æonion, the *Sedum Majus*, or common house-leek.

Æora, (from αιωρεω, *to lift up, to suspend on high)*, gestation; a species of exercise used by the ancients, and of which Aëtius gives a full account.

Æra, the herb darnel.

Æritis, the *Anagallis*.

Aeromeli, honey; also a name for manna. The term is derived from αηρ, *air*, and μελι, *honey*.

Ærosus lapis. So Pliny calls the *Lapis Calaminaris*, upon the supposition that it was a copper ore.

Æstates, freckles in the face.

Æstaphara, an incineration, or burning of the flesh, or any other living part, as by the actual cautery.

Æstuatio; the fermenting of liquors when mixed.

Æthales, (from αει, *always*, and ϑαλλω, *to be green*), house-leek.

Ætheria herba, *Eryngo*.

Æthollices, (from αιθω, *to inflame, or burn*), superficial pustules in the skin, raised by heat; such as boils, and fiery eruptions.

Ætioi phlebes, eagle veins. So Ruphus Ephesius calls the veins that pass through the temples to the head.

Ætolion, the *Granum cnidium*.

Ætonychium, (from αετες, *an eagle*, and ονυξ, *a claw, or nail*), the *Lithospermum*.

Affion, an Arabic name for opium.

Affrodina; Venus.

Affusio, affusion, or the pouring a liquor upon something; but sometimes it means the same as *suffusio*, a cataract.

Afiun, a name for opium.

Aga cretensium, the small Spanish milk-thistle.

Agalugi, a name for the *Agallochum*.

Agen, the Persian lilac.

Ager, the common earth or soil.

Ager naturæ, the uterus.

Ageratus lapis, a stone used by coblers to polish women's shoes. This has gently astringent properties.

Ages, the palm or hollow of the hand.

Agis, the thigh.

Agitatorii, convulsive diseases; or those called *clonic.*

Aglactatio, a defect of milk.

Aglaxis, a defect of milk.

Aglia; the same as *Ægides.*

Aglithes, the divisions or cloves of a head of garlick.

Agone, the plant henbane.

Agonia, (from α, *priv.* and γονος, *an offspring*), sterility.

Agresta, verjuice.

Agrielæa, (from αγριος, *wild*, and ελαια, *an olive*); the wild olive,

Agriostari, a sort of wheat, called *Triticum creticum.*

Agrumina, the onion, or leek.

Agrypnocoma, a species of coma.

Ahamella; the same as *Zemella.*

Ahius, salt-stone.

Ahmella; the same as *Acmella.*

Ahusal, the sulphur of arsenic.

Ailes, potatoes.

Ailmad; an Arabian name for antimony.

Aipi, the cassada.

Aipima coxera, the cassada.

Aipipoca, the cassada.

Aizoon, a species of sedum.

Al, an Arabian article which signifies *the.* It is applied to a word by way of eminence, as the Greek ο is. *Al* relates to the word *Alla*, God; so *alchemy*, means *the chemistry of God;* i. e. the most exalted perfection of chemical science.

Alabari, a name for lead.

Alacab, muriate of ammonia.

Alasi, Alafor, or Alafort. alkaline salt.

Alaia phthisis, (from αλαιος, *blind*), a flux of humours from the head causing phthisis.

Alamed, antimony.

Alandahal, an Arabian name for bitter-apple.

Alanfuta, a vein betwixt the chin and upper lip.

Alaris vena, the inner of the three veins in the bend of the arm.

Alartar, burnt brass.

Alasalet, muriated ammonia.

Alaton, the litharge of gold.

Alaternus, a species of *Rhamnus.*

Alati. Those who have prominent scapulæ are so called.

Alaurat, a name for nitre.

Albadara, an Arabian name for the sesamoid bone of the first joint of the great-toe.

Albagiazi, an Arabic name for the os sacrum.

Albamentum, the white of an egg.

Albanum, the salt of urine.

Albeston, quick-lime.

Albetad, galbanum.

Albimec, orpiment.

Albinum, gnaphalium.

Albir, pitch got from the bark of the yew-tree.

Albor, urine.

Alborca, a name for mercury.

Albot, a crucible.

Albotat, ceruse or white oxid of lead.

Albotim, turpentine.

Albuginous humour, a name for the aqueous humour of the eye.

Album balsamum, the balsam of capivi.

Album hispanicum, an oxid of tin, made in the same manner as that from lead.

Album olus, lamb's-lettuce, or corn sallad.

Album jus, white broth, made by boiling whiting, haddock, cod, or any white grained fish, in water, with a little oil and salt; also a small quantity of anise and leeks.

Alcahest, an Arabic word to express an *universal dissolvent*, which was pretended to by Parcelsus and Helmont. Some say that Paracelsus first used this word, and that it is derived from the German words *al* and *geest*, i. e. *all spirit.* Van Helmont applied it to his invention which he called the universal dissolvent. *Alcahest*, is also a name for the liquor of flints; and for the fixed vegetable alkali called *Alicahest Glauberi.*

Alcaol, *lac acetosum, sive mercurius philosophorum.* So the solvent for the preparation of the philosopher's stone was called.

Alcara, a cucurbit.

Alcebris vivum, the *Sulphur vivum*,

Alchabric, a name for *Sulphur vivum.*

Alchachil, rosemary.

Alcharith, quicksilver.

Alcheron lapis, the concretion found in the gall-bladder of a bull, cow, or ox, called *Bezoar bovinus.*

Alchien, a word which occurs in the Theatrum Chymicum, vol. v. It seems to signify that power in nature by which all corruption and generation are effected.

Alchimelech, the Egyptian melilot.

Alchitran, the oil of juniper. Also the name of a dentifrice of Mesue's.

Alchymy, a mixture of copper with a small quantity of arsenic, resembling silver in appearance.

Alchys, a speck on the cornea of the eye, obscuring vision.

Alcimad, a name for antimony.

Alcob, muriated ammonia; also burnt brass.

Alcocalum, the artichoke.

Alcofol, antimony.

Alcohol martis, filings of iron rusted by adding wine to them, the remaining powder being afterwards washed.

Alcohol, a name for vinegar.

Alcola, *Aphthæ.* Paracelsus gives this name to the tartar of urine, whether it appears as sand, mucilage, or otherwise.

Alcolita, urine.

Alcolismus, the reducing any thing to powder by corrosion.

Alcone, brass.

Alcool, alcohol.

Alcor, burnt copper.

Alcore, a sort of stone with spots resembling silver.

Alcte. Hippocrates mentions a plant by this name, and Foësius thinks it is the elder.

Alcubrith, sulphur.

Alcyonium, the bastard sponge, a plant-like substance, met with on the sea-shore. It is of different shapes and colours. It is difficult to say what the Greeks called by this name. Dioscorides speaks of five sorts of it.

Alec, Alech, names for vitriol.

Alecharith, quicksilver.

Alectorolophus, the yellow-rattle.

Aleion, (αλειον), copious. Hippocrates uses this word as an epithet for water.

Aleipha, (αλειφα), any medicated oil.

Alelaion; oil beaten up with salt, to apply to tumors. Galen frequently used this remedy.

Alema, (*αλημα*), meal.

Alembic, quicksilver.

Alembroth, a Chaldee word importing the key of art. Some explain it by *sal mercurii*, or *sal philosophorum et artis;* others say, it is named *alembrot* and *sal fusionis*, or *sal fixiones*. *Alembroth desiccatum* is said to be *kali ;* hence this word seems to signify alkaline salt, which opens the bodies of metals by destroying their sulphurs, and promoting their separation from the ores.

Alemzadar, Alemzadat, names for muriated ammonia.

Alepensis, a species of ash-tree which produces manna.

Ales, the name of a compound salt. When this word is used as an adjective, it signifies *heaped*, or crouded, or condensed. Sometimes it signifies contracted, as *the uterus being contracted.*

Ales crudum, crude ales ; those drops which often fall in the night in June.

Alesch, the *Alumen Plumosum.*

Aleton, (*αλητον*, from *αλεω*, *to grind*), meal.

Aleuron, (*αλευρον*; from *αλεω*, *to grind*); strictly, the meal of wheat, though commonly applied to other sorts.

Alexicaca, an antidote.

Alexicacon, (from *αλεξω*, *to repel*, and *κακον*, *an evil*), an amulet against poison.

Alexipyreticum, *Alexipyretos*, or *Alexipyretum*, (*αλεξιπυρετικον*, from *αλεξω*, *to drive away*, and *πυρετος*, *fever*), a remedy for fever, or febrifuge.

Alexir, an elixir.

Alexiteria, (*αλεξιτηρια*; from *αλεξω*, and *τηρεω*, *preservative from contagion*), alexiterials. Hippocrates used this word to express help, or remedies ; but later writers use it to express remedies against the poisonous bites of animals. By Castellus this word is considered as synonymous with *Alexipharmaca.*

Alfacta, the same as distillation.

Alfadidom ; the scoria of gold, iron, or copper. Also burnt copper.

Alfatide, muriated ammonia.

Alfides, ceruse.

Alfol, muriated ammonia.

Alfusa, tutty.

Algala, a catheter ; also a name for nitre.

Algarah, the same as *Anchilops.*

Algata, civet.

Algema, (*αλγημα*), or *Algematodes*, uneasiness, or pain. Hippocrates often used *αλγημα* to signify the disease whence the pain proceeds.

Algeriæ, *Algerie*, or lime.

Algerot, or Algerothi pulvis. Algeroth's powder, so called from the inventor, a physician of Verona. It was called also *Mercurius Vitæ.* It is only the antimonial part of the butter of antimony, separated from some of its acid by washing it in water. It is tasteless, but violently emetic.

Algibic ; *Sulphur vivum.*

Algida, algid ; i. e. numb, chill, or withered.

Alhagi, a species of *Hedysarum.*

Alhandala, the Arabian name for colocynth.

Alhasef, a sort of pustule, called also *Hydroa.*

Alica. (*χονδρος*) in its general signification, a grain, a sort of food admired by the ancients : it is not certain whether it be a grain or a preparation of some particular kind of it.

Alices, little red spots in the skin, which precede the variolous eruption of pustules in the smallpox.

Alindesis, (*αλινδησις*), a sort of bodily exercise, which seems to have been rolling on the ground, or rather in the dust, after being anointed with oil. Hippocrates says it has nearly the same effect as wrestling.

Alkalia, a vessel.

Alkara, or *Alcara*, a cucurbit.

Alkasa, a crucible.

Alkermes, a confection made of the juice of *Kermes* berries, &c. Mesue first prescribed it.

Alkerva, an Arabian name for the *Palma Christi*, and the *Ol. Ricini* produced from it.

Alkes, burnt brass.

Alketran, an Arabian name for the oil of *Cedar.*

Alkin, a name for pot-ash.

Alkitram, tar.

Alcol, the same as *Alcohol.*

Alkosor, camphor.

Alki plumbi, a saturnine preparation supposed to be the *Cerass. acet.*

Alliar æris, philosophical copper ; a term used in preparing the philosopher's stone.

Alloiticum, (*αλλοιωτικον* ; from *αλλοιοω*, *to alter*, *or vary*); an alterative medicine.

Allochoos, (*αλλοχοος*), a person who talks deliriously.

Allognoon, (from *αλλος*, *another*, and *γνοω*, *to know*), to be delirious.

Alma, water, also the first motion of a fœtus to free itself from its confinement.

Almabri, a stone like amber.

Almagra, a red earth. Rulandus says it is the same as *Lotio.* It is also a name for the white sulphur of the alchemists.

Almakanda, litharge.

Almarcarida, the litharge of silver.

Almargen, or Almarago, coral.

Almarkasita, a name for mercury.

Almartak, the powder of litharge.

Almatatica, a name for copper.

Almecasite, or Almechasite ; copper.

Almeliletu, used by Avicenna, to express a preternatural heat less than that of fever, and which may continue after a fever.

Almene, sal lucidum, or sal gem.

Almisa, musk.

Almisadir, prepared sal ammoniac. Also verdigrise.

Alnec, a name for tin.

Almeric, *Sulphur vivum.*

Aloedaria, (*αλοηδαρια*), certain compound purging medicines, so called from having aloes as one ingredient.

Alogotrophia, (from *αλογος*, *disproportionate*, and *τρεφω*, *to nourish*), unequal nourishment, as supposed to be the case in rickets.

Alohar, quicksilver.

Alohoc, quicksilver.

Alomba, lead.

Alooc, lead.

Alopeces, the muscles of the loins called *Psoæ.*

Alosat, quicksilver.

Alosohoc, quicksilver.

Alosanthum, flower of salt.

Alphenic, an Arabian word for barley-sugar, or sugar-candy.

Alpini balsamum, the balm of Gilead.

Alquifou, a sort of lead ore; which, when broken, looks like antimony. It is used by potters, who mix a small portion of manganese with it, and thus give a blackish hue to the glazing.

Alrachas, lead.

Alratica, an Arabic word used by Albucasis, to signify a partial or total imperforation of the vagina.

Alsamach, an Arabian name for the great hole in the os petrosum.

Alsurengiam, an Arabic name for *Hermodactyls.*

Altafor, camphor.

Althanaca, or *Althanacha;* orpiment.

Althebegium, an Arabian name for a sort of oedematous swelling, such as is observed under the eyelids of those who sleep too much.

Althexis, (from *αλθεω, to cure, or heal*). Hippocrates often uses this word to signify the cure of a disease.

Altihit. So Avicenna calls the *Laserpitium* of the ancients.

Altimer, burnt copper.

Altimio, the scoria of lead.

Altincar, a factitious salt used in the separation of metals.

Altingat, the rust, or flowers, of copper.

Altinuraum, a name for vitriol.

Altith, asafœtida.

Altus. When this word is joined to *sopor,* it means sound sleep, as in a lethargy.

Alnach, pure tin.

Al-Ud, an Arabic name for *Agallochum.*

Aludit, mercury.

Alumhair, butter.

Alumboti, calcined lead.

Alumen catenum, or *Catinum;* potash.

Alumen Glaciale. So alum that appears like ice was called by the ancients.

Aluta Ægyptia, leather prepared for spreading plasters on.

Alyce, (ἀλυκη), anxiety; such as is attendant on fevers.

Alypia, or *Alypias;* the *Alypum.*

Alypum, (from *α, priv.* and λυπη, *pain*), the herb terrible; a species of *Globularia.*

Alyssoides, from its resemblance to *Alyssum.*

Alysson, a name for some species of *Veronica.*

Alysson, madwort; a species of *Marrubium.*

Alyssum, madwort, a genus in Linnæus's botany. He enumerates seventeen species. The alyssum of Galen is thought to be a species of *Marrubium.* The *allysum* of Pliny is supposed to be the *Mollugo.*

Amalago, the Jamaica long-pepper tree; a species of *Piper.*

Amaracus, the *Majorana.*

Amarantoides, a species of *Axyris.*

Amaranthoides, (from *αμαρανθος, amaranthus,* and *ειδος, forma*), the globe-amaranth, or everlasting flower.

Amarella, a species of *Gentiana.*

Amarella. So Gesner names the *Polygala.*

Amba, a name of the mango-tree.

Ambarum, ambergrise.

Ambarvalis, (from the Latin word *ambire*), a name of the *Polygala,* or milk-wort.

Ambe, a name of the tree called *Manga.*

Ambela, a Turkish, Arabian, and Persian name for the tree called *Charamais;* in English the purging cornered hazel-nut.

Amberboi, sweet sultan; a species of *Centaurea.*

Ambia monard, a yellow liquid bitumen, smelling like *Tacamahacca.* It flows from a fountain near the Indian sea.

Amblyogmos, (from *αμϐλυς, dull*), dullness of sight. Hippocrates uses this word, and *Amblyosmos,* to express the same thing.

Ambon, (*αμϑων*), the edge of the sockets in which the heads of the large bones are lodged.

Amboinensis, a species of *Rumphia.*

Ambrosia, a sounding title given to medicines which were said to be of uncommon efficacy for supporting the living principle, and procuring a kind of immortality.

Ambulo, the name of a disease, called also *flatulentus, furiosus,* and *flatus furiosus.* It is a distention or inflation attended with pain, and variously periodical.

Ambutua, the *Pareira Brava.*

Amadanus, the common *Alnus.*

Amelanchier, a sort of bilberry; the *Vitis Idæa tertia Clusii* of Parkinson.

Amelanchier, a species of *Mespilus.* Also a variety of the *Cydonia.*

Amenenos, (from *α, priv.* and *μενος, strength*), weak, feeble. In this sense Hippocrates often uses the word.

Amentum; *Scissile alum.*

Ameri, a name for indigo.

Americanum tuberosum, the potatoe.

Amethysta pharmaca, (from *α, priv.* and *μεθυ, wine*), medicines that either prevent, or take away, the inebriating effects of wine.

Amiculum, a term used in the same sense as *Amnios.*

Amidum, i. e. *Amylum.*

Aminæ gum, the *Gum Anime.*

Aminia; the name of a sort of cotton-tree.

Amisadu, prepared sal ammoniac.

Amma, the name of a girdle or truss, used in ruptures.

Amma alcalizata. Paracelsus says it is water which runs through lime-stone, and so is impregnated with lime. Rulandus calls it *Amnis Alcalizatus.*

Ammoides, a species of *Seseli.*

Ammion, cinnabar.

Ammochosia, a method of drying the body by covering it with hot sand or salt. It is used to recover drowned persons.

Ammonitrum, (from *αμμος, sand,* and *νιτρον, nitre*). In our glass-houses this is called *frit.*

Amogabriel, cinnabar.

Amomis; a fruit resembling *Amomum.* It is also called *Pseudamomum.*

Amomum plinii; the *Pseudo-Capsicum.*

Amor insanus; the same as *Erotomania,*

Amorge; the fæces of oil.

Amosteus, osteocolla.

Amotes, potatoes.

Ampar, amber.

Ampelion, the leaves, or the tendrils of vines. Hippocrates recommends them for making pessaries, to promote the menses.

Ampeloprasum; great round-headed garlic, a species of allium.

Ampelos, briony.

Amphibranchia, (from *αμφι, about,* and *βραγχια, the gills of a fish*), the fauces, or parts about the tonsils.

Amphicaustis, a sort of wild barley. Some, but not medical writers, use this word to express the *pudenda* in women.

AMPHIDEON or AMPHIDEUM, (αμφιδιον); the *Os tincæ*, or mouth of the womb.

AMPHIMETRION, (from αμφι, *about*, and μητρα, *the womb*); the parts about the uterus.

AMPHIPLEX, according to Rufus Ephesius, is the part situated betwixt the *Scrotum*, *Anus*, and internal part of the thighs.

AMPHIPNEUMA, (from αμφι, *about*, and ϖνευμα, *the breath*), a difficulty of breathing.

AMPHISMILA, (from αμφι, *utrinque*, on both sides, and σμιλη, *cultellus*, a knife), an anatomical knife, edged on both sides.

AMPHODONTA, (from αμφι, *on both sides*, and οδȣς, *a tooth*). By this word Hippocrates expresses animals that have teeth in both jaws.

AMPHORA, (αμφορευς), a measure mentioned by ancient physical writers. It contained eight gallons; of oil seventy-two pounds; of wine eighty pounds; and of honey one hundred and eighty pounds, as Castellus informs us.

AMPOTIS, (αμπωτις), the recess or ebb of the tide. Hippocrates uses this word to express the recess of the humours from the circumference to the centre of the body.

AMUCTICA, (from αμυσσω, *to vellicate*); remedies that, by vellicating and stimulating the bronchia, excite a cough, and thus contribute to expectoration.

AMURCA, (αμοργη), the sediment from olive oil, after being new pressed from the fruit.

AMYCHE, (αμυχη, from αμυσσω, *to scratch*), a superficial excoriation, laceration, or scarification of the skin.

AMYCTICA, stimulating, or vellicating.

AMYGDALIA. So Hippocrates calls the tonsils.

AMYGDALUS ÆTHIOPICA, a species of *Brabejum*.

AMYLEON, or AMYLION, starch.

AMYON, (from α, *priv.* and μυς, *a muscle*), a limb so emaciated that the muscles scarcely appear.

ANABASIS, (αναβασις, from αναϐαινω, *to ascend*). It is sometimes used for the height of a continued fever. *Febris anabaptica* is the same as *Epasmastica*.

ANABEXIS, (αναβηξις), a word used by Galen for a ptyalism.

ANABOLE, (αναβολη, from αναϐαλλω, *to cast up*), the discharging any thing as by vomit.

ANABROCHISMOS, or ANABROCHISMUS, (αναβροχισμος, from ανα, *fursum*, and βροχος, *a noose*), an operation performed on the hair of the eye-lids when they prove offensive to the eye.

ANABROSIS, (αναβρωσις, from αναϐρωσκω, *to devour*), corrosion of the solid parts by sharp humours. It is the same as *Diabrosis*.

ANACHREMPSIS, (αναχρεμψις, from ανα for ανω, *upwards*, and χρεμπτομαι, *to hawk*), the hawking up any thing from the lungs.

ANACLISIS, (ανακλισις, from ανακλινω, *to recline*). Hippocrates uses this word to express the decubiture of the sick.

ANACOELIASMUS, a remedy used by Diocles, which seems to have been gentle purging, with a view to relieve the lungs.

ANACOLLEMA, (ανακολλημα, from ανακολλαω, *to agglutinate*), the same as *frontale;* only that it is always made of agglutinants.

ANACOMIDE, (ανακομιδη, from ανακομιζω, *to repair*), the recovering a person after sickness.

ANACTORION, a name for the corn-flag.

ANACTORIUM, mugwort.

ANACYCLEON, (ανακυκλεων, from κυκλοω, *to wander about*), answers to the word *Circulator*, a mountebank.

ANADIPLOSIS, (αναδιπλωσις), a frequent reduplication of fever.

ANADOSIS, (αναδοσις, from ανωδιδωμι, *to distribute*), the distribution of the aliment over all the body.

ANADROME, (αναδρομη, from δρεμω, *to run*). Hippocrates uses this word to signify pains from the lower to the upper parts of the body.

ANAGARGALICTA, (αναγαργαλικτα), gargarisms.

ANAGARGARISTON, (αναγαργαριστον), a gargle for the throat.

ANAGLYPHE, (from αναγλυφω, *to engrave*). Herophilus calls a part of the fourth ventricle of the brain thus; but anatomists now call it *Calamus scriptorius*, from its resemblance to a pen.

ANALENTIA, a species of epilepsy mentioned by Paracelsus.

ANALGESIA, (from α, *priv.* and αλγος, *pain or grief*); ease, indolence, or absence of pain and grief.

ANALTHES, (αναλθες, from α, *priv.* and αλθεω, *to cure*), incurable.

ANAMNESTICA, (αναμνηστικα), medicines which restore the memory.

ANAMNESTICA SIGNA, (from ανα, and μναομαι, *to remember*), commemorative signs; or signs which discover the preceding state of the body, as demonstrative signs shew the present, and prognostics shew the future state. Blanchard explains this word as expressing remedies which restore the memory.

ANAPHORA, (αναφορα, from αναφερω, *to bring up, or upwards*), in a medical sense, spitting of blood if joined with αιματος.

ANAPHORICOI, (αναφορικοι), those who spit blood; or, according to Actuarius, those who spit difficultly.

ANAPHRA, (αναφρα, from α, *priv.* and αφρος, *froth*). Hippocrates uses it as an epithet for stools not frothy.

ANAPHROMELI, (from α, *priv.* and αφρος, *froth*, and μελι, *honey*); honey so despumated that it will not froth.

ANAPLASIS, (αναπλασις, from αναπλασσω, *to restore to the original form*). Hippocrates uses this word for the replacing a fractured bone, and for a restoration of flesh.

ANAPLEROSIS, (αναπληρωσις, from αναπληροω, *to fill up*), the restitution of any wasted part. Incarnatives are called *Anapleurotica*.

ANAPLEUSIS, (αναπλευσις, from αναπλευω, *to fluctuate, or float upon, or to wash out*). Hippocrates uses this word to express when faulty humours rot the bone, so that it falls out of joint, as happens to the jaw sometimes. Vogel expresses by this word, exfoliation of the carious parts of a bone.

ANAPNEUSIS, (αναπνευσις, from αναπνευω, *to respire*), respiration, transpiration. Aretæus uses it to express a truce from pain.

ANAPODOPHYLLON, a name for duck's-foot, or May-apple. The Americans call it black snake-root.

ANAPSYXIS, (αναψυξις); refrigeration.

ANARRHINUM, (*αναρρινον*), returning by the nostrils.

ANARRHŒA, (from *ανα*, *upwards*, and *ρεω*, *to flow*), a species of fluxion opposite to a catarrh; when humours regurgitate upwards. Schneider de Catarrho, lib. i. cap. 3. Hippocrates expresses the same by *Anarrhopia*, *αναρροπια*; and Linden uses it for an inversion of the intestines, and a regurgitation of the fæces.

ANARRHÔPIA, (*αναρροπια*, from *ανα*, *upwards*, and *ρεπω*, *to verge*), an upward tendency of the humours.

ANARTHROI, (*αναρθροι*, from *α*, *priv.* and *αρθρον*, *a joint*), bloated fatness, so that the joints are not visible.

ANASSUTOS, (*ανασσυτος*, from *ανω*, *upwards*, and *συτομαι*, *to shake*). Hippocrates uses this word as an epithet for eructations rushing out with violence in hysteric fits.

ANASTALTICA, (*ανασταλτικα*, from *αναστιλλω*, *to contract*), a styptic or restringent medicine.

ANASTOMOTICA; medicines that open the mouths of the vessels.

ANATES, a disease of the anus.

ANATHRON, a salt found on rocks in the form of white stoney moss.

ANATHYMIASIS; (from *θυμιαω*, *to fumigate*); evaporation.

ANATRESIS, (from *ανα*, and *τραω*, *to perforate*). Galen uses this word to express trepanning.

ANATRIS, a name for mercury.

ANATRON, the *natron* of the Egyptians.

ANATROPE, (*ανατροπη*, from *ανατρεπω*, *to subvert*), relaxation of the stomach, with loss of appetite, nausea, &c. a species of indigestion.

ANATUM, egg-shells.

ANAUDIA, a name for the *Catalepsis*.

ANAUDOS, (*αναυδος*, from *α*, *priv.* and *αυδη*, *speech*), according to Galen, one who has lost the use of speech, but retains his voice; whereas *aphonia* signifies the loss of the voice.

ANAXIRIS, a name of the *Lapathum agreste*.

ANBLATUM, a species of *Lathræa*.

ANCHA, the *Coxa*.

ANCHÆLOS, the thigh bone.

ANCI, (from *γαλη*, *a weasel*, and *αγκων*, *an elbow*), weasel-elbowed; as when of the head of the humerus is in the arm-pit. These patients were also called *Mustelanea*.

ANCINAR, borax.

ANCORA, lime.

ANCOSA, gum lac.

ANCTER, (*αγκτηρ*), the fibula, or button, by which the lips of wounds were held together; which operation Galen calls *αγκτηριασμος*.

ANCUBITUS, that affection of the eyes in which they seem to contain sand. It is also called *Petrification*.

ANCUS, (from *ανκων*, *an elbow*), a name for such as have an arm bent, so that they cannot extend it.

ANCYLE, (*αγκυλη*), strictly, a constriction upon the joints, which renders their motion difficult: in which sense Galen uses it. But Celsus expresses by it, that hindrance to motion which proceeds from a fresh cicatrix upon the part; and Hippocrates applies it to indurated joints from any cause.

ANCYLOTOMUS, (from *αγκυλος*, *crooked*, and *τεμνω*, *to cut*), any crooked knife used in surgery.

ANCYROIDES, (*αγκυροειδης*), a process of the scapula, so called from *αγκυρα*, *anchor*, *ρυγχος*, *a break*, or *fluke*, and *ειδος*, *form*. See CORACOID PROCESS.

ANDRACHNE, the Eastern strawberry-tree; a species of *Arbutus*.

ANDRANATOME, (from *ανηρ*, *a man*, and *τεμνω*, *to cut*), the dissection of a human body, especially of a male.

ANDRIA, (from *ανηρ*, *a man*), an hermaphrodite.

ANDROGYNI, (*ανδρογυνοι*, from *ανηρ*, *a man*, and *γυνη*, *a woman*) effeminate men, and hermaphrodites.

ANDROSACEUS, a species of *Agaricus*.

ANDROSAMOIDES, a species of *Myrtus*.

ANDSJUDAEN. So Avicenna calls the *Assafœtida*.

ANEBION, the alkanet root.

ANECPYETUS, (*ανεκπυετος*, from *α*, *priv.* and *εκπυετος*, *suppurated*), that which will not suppurate.

ANEILEMA, (*ανειλημα*, or *Aneilesis*, *ανειλησις*, from *ανειλεω*, *to roll up*, *or involve*), an involution, such as is caused by flatulence and gripes.

ANEMIA. Thus Hippocrates names a disease; but it is not known what.

ANENCEPHALOS. (*ανεγκεφαλος*, from *α*, *priv.* and *εγκεφαλος*, *the brain*), brainless, or those who are born without brain. Also those who are foolish or mad.

ANEPITHYMIA, error of appetite by deficiency, as in cases of *Anorexia*.

ANERIC, or ANERIT, names for *Sulphur vivum*.

ANEROTOMY, (from *ανηρ*, *a man*, and *τεμνω*, *to cut*), strictly, the dissection of human bodies.

ANET, a name for *Anethum*.

ANETHOXYLA, the woody root of dill.

ANFAKA, a coagulum.

ANFIAN, an Arabian word for *Opium*.

AN-FIR-FILIUS, mercury.

ANGI. So Fallopius, De Morbo Gallico, calls the venereal bubo.

ANGIGLOSSI, stammerers.

ANGIOPTERIS, a name of the *Onoclea*.

ANGONE, in Vogel's genera of diseases, an acute choaking or suffocation, without inflammation. According to some, a nervous quinsy.

ANGOR, (*αγωνια*), a shrinking inwards in the native heat of the body; or, its retiring to the centre, upon which follows a pain and palpitation of the heart, esteemed a very bad symptom in the beginning of acute fevers.

ANGOS, (*αγκος*), a vessel; a receptacle of humours.

ANGUILLARE, a species of *Pimpinella*.

ANGUSTIA, anxiety, or restlessness; also a narrowness in the vessels.

ANHUIBA, sassafras.

ANIADA, the astral and celestial powers which promote in us long life. *Aniadon*, *Aniadum*, *Aniadus*, words used by Paracelsus, mean the same with *Aniada*.

ANICETUM, insuperable; a name for *Anise*.

ANIDROS, (from *α*, *priv.* and *ιδροω*, *to sweat*), sweatless.

ANIDROSIS, (*ανιδρωσις*), a privation of sweat.

ANIMA HEPATIS, salt of iron; esteemed for its powers against diseases of the liver.

Anima mundi, the soul of the world; an ubiquitarian principle, supposed by Plato to do the same feats as Des Cartes's æther.

Anima pulmonum, a name given to saffron, on account of its supposed use in the asthma.

Animellæ; the glandulæ underneath the ears, and along the lower jaw.

Annetestes. So Paracelsus calls the Galenists, by way of derision, because he thought them ignorant of the causes and principles of things.

Annora, calcined egg-shells, or quick-lime.

Annuens musculus, the *Rectus Capitis Internus Minor*.

Anocheilon, (from *ανω*, and *χειλος*, *a lip*), the upper-lip.

Anodmon, (*ανοδμος*, from *α*, *neg.* and *οδμη*, *a smell*), without smell, as opposed to *fetid*.

Anodus, a word used by the chemists for what is separated from the nourishment by the kidneys. The Gr. *ανοδȣς*, signifies toothless.

Anodynia, (*ανωδυνια*), a loss of feeling; synonimous with *Anæsthesia*.

Anoea, (*ανοια*, from *α*, *priv.* and *νοος*, *the mind)*, madness.

Anomœos, (*ανομοιος*), dissimilar or heterogene. Hippocrates uses this word for viscous or unnatural humours.

Anomphalos, (from *α*, *priv.* and *ομφαλος*, *a navel*), without a navel.

Anorecti, (*ανορεκτοι*), those who have no appetite.

Anosia, (*ανοσια*, from *α*, *priv.* and *νοσος*, *a disease)*, the absence of disease.

Anotasier, muriated ammonia.

Anothen, (*ανωθεν*), the same as *Ano*.

Anpater, a name for sulphur.

Antachates, a bituminous stone, which in burning smells like myrrh.

Antatrophon, (from *αντι*, *against*, and *ατροφια*, *a consumption*), medicines against a consumption.

Antalabia; the extremities of the lips.

Antendeixis, (*αντενδειξις*, from *αντι*, *against*, and *ενδεικνυμι*, *to indicate)*, a contra-indication; as when one symptom requires a remedy which another symptom forbids the use of.

Antaneasmus, or *Anteneasinum*, a particular kind of madness; in which the patient is furious, and endeavours to lay violent hands upon himself.

Anthereon, (*ανθερεων*). Hippocrates thus expresses the chin, and all that part of the face where the beard grows.

Anthracosis, (*ανθρακωσις*), a scaly corrosive ulcer of the eye, attended with a defluxion.

Anthrope, (from *ανθρωπος*, *a man)*. Thus Herodotus calls the human skin.

Antiades, (*αντιαδες*, *the tonsils*); sometimes signifies inflamed tonsils.

Antiagri, (from *αντιαδες*, *the tonsils*, and *αγρα*, *a prey*), tumors of the tonsils.

Antias, the tonsils.

Anticadmia, a species of *Cadmia*, also called *Pseudo-cadmia.*

Anticar, borax.

Anticardium, (from *αντι*, *against*, and *καρδια*, *the heart*), the *scrobiculus cordis*, or pit of the stomach.

Anticheir, (from *αντι*, *against*, and *χειρ*, *the hand*), the thumb.

Anticnemion, (from *αντι*, *over against*, and *κνημη*, *the calf of the leg*). Hippocrates uses this word to express that part of the tibia which is bare of flesh.

Antidinica, (from *αντι*, *against*, and *δινος*, *circumgyration)*, medicines against a vertigo.

Antifides, the oxids of metals.

Antihecticum, a medicine invented by Poterus; called also *Antimonium diaphoreticum joviale*.

Antilomica, (from *αντι*, *against*, and *λοιμος*, *the plague*), remedies against the plague.

Antiperistasis, (*αντιπεριστασις*, from *αντι*, *against*, and *περιστημι*, *to stand about*), an opposition from all around. The philosophers expressed by this a certain invigoration of internal warmth by the repulsion of external cold, which they called also concentration of the internal heat, from driving it to the centre. It is also a compressing on all sides, as the air presses.

Antiphate, black coral.

Antiphthora, (from *αντι*, *against*, and *φθορα*, *corruption*), a species of wolf's-bane, which resists corruption.

Antiphysica, (*αντιφυσικα*, from *αντι*, *against*, and *φυσαω*, *to inflate*), remedies against wind, also called carminatives.

Antiphyson, the load-stone.

Antipraxia, (from *αντι*, *against*, and *πρασσω*, *to work*), a contrariety of functions and temperaments in different parts. This term was used by the ancients to express the variety of concurring, and often contrary, symptoms.

Antiscolica, (from *αντι*, *against*, and *σκωληξ*, *a worm*), the same as *Anthelmintica.*

Antiscorodon, (from *ακτι*, *against*, and *σκοροδον*, *garlick*), a large species of garlic called *Allium Ulpicum.*

Antispasis, (*αντισπασις*, from *αντι*, *against*, and *σπαω*, *to draw*), a revulsion; the turning of the course of the humours, whilst they are actually in motion. The doctrine of revulsion is the invention of Hippocrates.

Antispasmoides, (from *αντι*, *against*, and *σπασμος*, *a convulsion*), a remedy against convulsions.

Antispasticon, (*αντισπαστικος*), a general epithet for any medicine that works by way of revulsion.

Antisternon, (*αντιστερνον*, from *αντι*, *against or opposite to*, and *στερνον*, *the breast*). The back is so called, because it is opposite to the breast-bone.

Antitasis, (*αντιτασις*, from *αντι*, *against*, and *τεινω*, *to extend*), a counter-extension.

Antizeumics; preventers of fermentation in general.

Antizymics, anti-putrescents.

Antophyllon, or *Antophyllus;* the male *Caryophyllus*.

Antrum buccinosum. So Bartholine calls the cochlea of the ear.

Anucar, a name for borax.

Anus. See Rectum.

Anydrion, a species of *Solanum.*

Apagma, (*απαγμα*), the thrusting of a bone, or other part, out of its place.

Aparthrosis, (*απαρθρωσις*, from *απο*, *ab*, and *αρθρον*, *a joint*), a dislocation.

Apechema, (*απηχημα*, from *απω*, and *ηχος*, *a sound*), properly a repercussion of sound, or echo; but, in a medical sense, a contra-fissure.

Apella, a paraphymosis, or uncovered state of the glans by circumcision; whence any circumcised person was so named.

Apepsia, (*απεψια*, from *α*, *priv.* and *πεπτω*, *to digest*), indigestion.

Apepton, (*απεπτον*), crude or undigested.

Apeuthysmenos, (*απευθυσμενος*, from *ευθυς*, *straight*), a name for the rectum.

Aphæresis, (from *αφαιρεω*, *to take away*), in surgery, the amputation of whole members, or parts become diseased.

Aphilanthropia, (from *α*, *neg.* and *φιλανθρωπια*, *the love of mankind*). So Wedelius calls the first approaches of melancholy, when persons begin to dislike company.

Aphoni. So Hippocrates calls those who labour under a carus.

Aphrainon, (from *α*, *priv.* and *φρονεω*, *to be wise*), one who has lost the use of reason.

Aphrogala, (*αφρογαλα*, from *αφρος*, *froth*, and *γαλα*, *milk*). The Romans used under this name something like what we call *syllabub*.

Aphronitrum, (*αφρονιτρον*, from *αφρος*, *spume*, and *νιτρον*, *nitre*), the spume of nitre. Salts formed of the vitriolic acid and gypsum, are thus called. It is a name also for *Natron.*

Aphroscorodon, (from *αφρος*, *spume, or froth*) a name of the *Allium Ulpicum*

Aphroselenos, (*αφροσεληνος*, from *σεληνη*, *the moon*), a kind of selenite; so called from its representing the moon as it were in a glass.

Aphrosyne, (from *αφρων*, *silly*), folly or dotage.

Apnœa, (*απνοια*), a defect of respiration; such as happens in a cold or an apoplexy.

Apobamma, (*αποβαμμα*), water in which hot iron has been quenched.

Apocapnismus, (*αποκαπνισμος*, from *καπνος*, *smoak*), a fumigation.

Apocatharsis, (*αποκαθαρσις*), a term used to denote purging upwards and downwards, either with or without the help of medicines.

Apocaremma, (*αποχρεμμα*), the matter expectorated by hawking.

Apochrempsis, (*αποχρεμψις*), a hawking up of spittle.

Apochylisma, the same as the rob of any fruit.

Apochyma, (*αποχυμα*), pitch scraped from a ship's side, formerly esteemed in medicine.

Apoclasma, (*αποκλασμα*), the same as *Abductio; or* rather *Apagma.*

Apoclesis, (*αποκλεισις*), an exclusion; but Hippocrates uses the word, from whence it is derived, to express a loathing of food.

Apocrusticon, (*αποκρȣϛικον*, from *αποκρυω*, *to repel*), an epithet for a repelling and astringent remedy.

Apocyesis, the bringing forth of a child.

Apocynon, a small bone in the left side of a frog, formerly esteemed as a medicine.

Apodacrytica, (*αποδακρυτικα*), medicines which first excite, and then evacuate, the superfluous moisture of the eyes, and thus prevent defluxion.

Apœum, (*αποιον*), insipid, or void of all sensible qualities, as water is. Galen thought insipid aliments more nourishing than the acrimonious and bitter ones.

Apogalactismus, (*απογαλακτισμος*), i. e. *Ablactatio.*

Apogeusia, a depraved taste.

Apogeusis, a loss of taste.

Apolexis, (*αποληξις*), the decaying time of age, opposed to the flower of age.

Apolinosis, (*απολινωσις*, from *λινον*, *flax*). So P. Ægineta calls the method of curing a fistula by raw flax.

Apolysis, (*απολυσις*), a solution or release; such as the exclusion of a child, the solution of a disease, or untying of a bandage.

Apomathema, (*απομαθημα*, from *απο*, *priv.* and *μανθανω*, *to learn*). Hippocrates expresses by it, a forgetfulness of all that has been learned.

Apomeli, (*απομελι*), simple oxymel.

Aponenœmenos, (*απονενοημενως*), an adverb, importing an utter aversion to any thing.

Apopallesis, or Apopalsis, (*αποπαλλησις*, *αποπαλσις*, from *αποπαλλω*, *to throw off in a hasty manner*), a premature expulsion of the fœtus, as in abortion.

Apophlegmatismus, (*αποφλεγματισμος*, of *απο*, *from*, and *φλεγμα*, *phlegm*), a medicine applied to the mouth, to promote a discharge of saliva, such as pellitory root, horseradish, &c. When solid, it is called *Masticatorium.*

Apophrades, (*αποφραδες*, from the singular *αποφρας*, *unfortunate*), those days in which an acute disease comes to a fatal crisis, or no crisis at all.

Apoptharma, (*αποφθαρμα*), a medicine to procure abortion.

Apophyas, (*αποφυας*, of *απο*, *from*, and *φυω*, *to grow*), an appendix; any thing that grows to or proceeds from another.

Apoplecta, or Apoplectica; names for the internal jugular vein.

Apoplectica, medicines against the apoplexy. Vogel says it is a continued fever coming on upon an apoplexy.

Apopsychia, (*αποψυχια*), the highest degree of syncope.

Aporrhœa, (*απορροια*), contagion, or noxious effluvium.

Aporrhoes, (from *απορρεω*, *defluo*, to flow from), sulphureous exhalations from subterraneous bodies; also any kind of infectious miasmata.

Aposceparnismus, (*αποσκεπαρνισμος*, from *απο*, *from*, and *σκεπαρνιζω*, *to strike with a hatchet*), a species of fracture; when part of a bone is chipped off.

Aposchasis, (*αποσχασις*), scarification; a slight superficial incision of the skin.

Aposchasmus, (*αποσχασμος*), i. e. *Aposchasis.*

Apositia, (*αποσιτια*), a loathing of food.

Apositoi, (*αποσιτοι*), persons averse from food.

Aposphacelisis, (of the Gr. *απο*, *from*, and *σφακελος*, a *sphacelus*), a mortification of the flesh, caused by too tight bandage.

Apostalagma, (*αποσταλαγμα*), i. e. *Apostagma.*

Apostasis, (*αποστασις*, from *αφιϛημι*, *to abscede*). It is when a fragment of bone comes away by a fracture. Hippocrates uses the word: 1. When a distemper passes off by some outlet, which is an *apostasis*, *by exertion.* 2. When the morbific matter, by its own weight, settles on every part, which is an *apostasis by settlement.* 3. When one disease turns to another: this is an *apostasis metastasis.* So Pliny calls the *Apostema.*

Apostaxis, (*αποσταξις*). Hippocrates uses this word to express a distillation of blood from the nose; but it means any defluxion of humours.

Apostematiai. So Aretæus calls

those who, from an inward abscess, void pus downwards.

Apostrophe, (*αποστροφη*, from *αποστρεφω*, *to turn away*). Thus P. Ægineta expresses an aversion to food.

Aposyrma, (*αποσυρμα*), an abrasion and laceration of the cutis.

Apotheca, (*αποθηκη*, from *αποτιθημι*, *to lay aside, or reposit*), formerly signified a wine-cellar, but it is now a shop where medicines are sold.

Apotherapia, (*αποθεραπεια*), a perfect cure: also a particular sort of exercise used for health.

Apothurapeutica, that part of medicine which teaches concerning the *Apotherapia*.

Apothesis, (*αποθεσις*, from *απο*, and *τιθημι*, *to place*), reduction of a dislocated bone.

Apothlimma, (*αποθλιμμα*), the dregs of the expressed juice of a plant.

Apotropœa, or Apotropaia, a kind of *Amulets*.

Apozymos, (*αποζυμος*, from *ζυμη*, *a ferment*), fermented.

Appensio, the suspension of a broken arm in a sling.

Apprehensio, a name for the *Catalepsy*.

Apronia, black briony.

Apsychia, (*αψυχια*), the same as *Leipothymia*.

Aptystos, (*απτυστος*, from *α*, *priv.* and *πτυω*, *to spit*), an epithet for disorders in which spitting, though an unusual symptom, is yet wanting; as in what is called a dry asthma; a dry peripneumony, &c.

Apuloticus, the same as *Epulotic*.

Apyetos, (from *α*, *priv.* and *ϖυον*, *pus*); an epithet for a tumor, that will not suppurate.

Apyromele, (*απυρομηλη*), a probe without a button.

Apyron, (*απυρον*, from *α*, *priv.* and *ϖυρ*, *fire*), a name for *Sulphur vivum*; also of the *Æthiops mineralis*, when it is prepared without heat.

Apyrothium, a name for *Sulphur vivum*.

Apyroti. A name of the stone called a *carbuncle*, from its being without heat, although it appears fiery.

Aqueola. So Sennertus calls that species of *stye*, or stian, on the eye-lid, which Sauvages terms *Hordeolum hydatidosum*.

Aquila celestis, the panacea, or cure for all diseases; a preparation of mercury.

Aquila nigra, the spirit of cobalt.

Aquila veneris, a preparation made with verdigrise and sublimed muriate of ammonia.

Aquilæ. The veins were so called which pass through the temples into the head.

Aquilena; lark-spur.

Aracos, brass.

Aracus, the wild vetch.

Aracus aromaticus, the plant *Vanilla*.

Arados, (*αραδος*). Hippocrates means by it, the perturbation excited in the stomach whilst digesting the aliment. It also signifies any perturbation in the system.

Aræon; thin, rare, slow. It is applied to breathing, as when we say, the breathing is not frequent, nor thick.

Areotica, (*αραιοτικα*), things or medicines which rarefy or attenuate.

Aralda, a name of the *digitalis* or fox-glove.

Aralia humilis, a name for *Ginseng*.

Araneosa urina; urine in which is something like the spider's webs, with a scum at the top.

Araticu ape, the custard-apple.

Arbor tristis, sorrowful tree; a species of *Nyctanthes*.

Arcanne, red chalk, or ruddle.

Archeus, a term used by Helmont to express an internal efficient cause of all things; which seems no other than the *Anima Mundi* of his predecessors; and as he applies it to particular animated beings, it differs not from the *δυναμις*, or *Vis plastica* of the old philosophers.

Archeostis, the white briony.

Archigeni morbi, (from *αρχη*, *the chief*, and *γινομαι*, *to be*), acute diseases; so called because they hold the chief rank amongst diseases.

Archima, the art of changing imperfect into perfect metals.

Archos, the *Anus*, also the *Intestinum Rectum*.

Arcos, burnt copper.

Arctoscordon, the bear garlic.

Arctostaphylus, a species of *Vaccinium*.

Arcturus, the Cretan vervain, a species of *Verbascum*.

Arcualia ossa, the sinciput; or as some say, the temple bones.

Arcualis sutura, the *Sutura Coronalis*.

Arcuatio, a gibbosity of the fore parts, with a curvation of the bone of the *Sternum*.

Arcuatus morbus, the jaundice.

Arculæ, the orbits in which the eyes are lodged.

Ardabar, a species of *Arum*.

Arduini, a species of *Teucrium*.

Are-alu, a species of fig-tree.

Aremaros, cinnabar.

Arenamen, or Arenarmei; bole armeniac.

Arenatio, the casting of hot sand on the bodies of patients.

Arentes, a sort of cupping glasses used by the ancients.

Ares, a word used by Paracelsus, to express that power of nature in the material world, by which species are distributed into individuals.

Arsar, arsenic.

Argal, tartar.

Argema, or Argemon, (*αργεμα*, from *αργος*, *white*), a disorder of the eye, called *Albugo*. Vogel defines it, an ulceration of the cornea.

Arguria, a species of *Messerschmidia*.

Argyritis, a name for litharge.

Argyritis terra, a sort of spangled earth taken out of silver mines.

Argyrodamas, a kind of talc, of the colour of silver, that will not yield to the force of fire.

Argyrolithos, a sort of talc, so called from its silver colour.

Arheumatistos, an epithet given to the external parts, particularly the joints, while free from gouty rheums.

Aristionis machinamentum, a machine for restoring luxations, invented by Ariston.

Armalgal, coral.

Arme, (*αρμη*), a coalition of wounds; also the joining of the sutures of the head.

Arnabo, zedoary.

Aræira, a species of lentisk.

Arohot, mercury.

Aroma philosophorum, saffron; also the name of some saffron-coloured flowers.

Aronia, the Neapolitan medlar.

Arquatus morbus, the jaundice.

Arraphon, i. e. without suture. This word is applied to the *Cranium*, when naturally without sutures.

Arrhostia, (*αρρωστια*), an infirm state, or ill-health.

Arsag, arsenic.

Arsaltos, a name for *Asphaltum.*

Arsaneck, arsenic sublimed.

Arteriaca, (*αρτηριακα*), medicines against disorders of the voice.

Arteriotomy. See Blood-letting.

Artetiscus, one who suffers the loss of a limb; or who has a very defective one.

Arthoicum, (from *αρτος*, *bread*), oil formerly made by digesting roots with bread.

Arthrembolus, (from *αρθρον*, *a joint*, and *εμβαλλω*, *to impel*), an instrument for reducing luxated bones.

Arthrocace, an ulcer in the cavity of a bone, with caries. Dr. Cullen makes this a synonyme with *Spina ventosa.* See Spina ventosa.

Arthropuosis. See Joint.

Artia, according to some writers, the same as *Arteria;* with others the *Asperia Arteria* only.

Articulatio, an articulation or joint. See Joint.

Artiscus, (from *αρτος*, *bread*). Troches are thus called because formed like a loaf.

Artipochros color, the palish yellow colour which attends a disorder of the spleen.

Arytæno-epiglottideus; a muscle composed of a number of fibres running between the arytænoid cartilage and epiglottis. It pulls the side of the epiglottis towards the external opening of the glottis, and when both act, they pull it close upon the glottis.

Arytænoid cartilage, (*Cartilago arytænoidea; from αρυταινα, a funnel*, and *ειδος*, *shape*); the name of two cartilages of the larynx. See Cartilago arytænoidea.

Arytænoideus obliquus, the *arytænoideus minor* of Douglas; a muscle of the glottis, which arises from the base of one arytænoid cartilage, and crossing its fellow, is inserted near the tip of the other arytænoid cartilage. In some subjects it does not exist; but when present, and both muscles act, their use is to pull the arytænoid cartilages towards each other.

Arytænoideus transversus, the *Arytænoideus major* of Douglas; a single muscle of the glottis, that arises from the side of one arytænoid cartilage, from near its articulation with the cricoid to near its tip. The fibres run across, and are inserted in the same manner into the other arytænoid cartilage. Its use is to shut the glottis, by bringing the two arytænoid cartilages, with their ligaments, nearer to each other.

Arythmus, (*αρυθμος*, from *α*, *priv.* and *ρυθμος*, *modulation in music*), a term which Galen applies to the pulse when not modulating according to nature. It is opposed to *Eurythmus.*

Asa dulcis, or *odorata*, the sweet healer; viz. the gum Benjamin, and its tree.

Asaba hermes, hermodactyls, or the flowers of the *Colchicum.*

Asabon, soap.

Asagar, or *Asamar;* verdigrise.

Asagen, dragon's blood.

Asagi, or *Asamaz;* vitriol, or calcined vitriol.

Asanon, prepared sal ammoniac.

Asapheis, (*ασαφεις*, from *α*, *priv.* and *σαφης*, *clear*), persons who do not utter their words distinctly.

Asaphia, (*ασαφεια*), the *Paraphonia palatina* of Cullen. It is an indistinct utterance, as if the tongue was muffled. This word sometimes expresses a dubious kind of delirium.

Asarcon, lean, or void of flesh.

Ascardamyctes, (*ασκαρδαμυκτης*), one who keeps his eyes long fixed without twinkling.

Ascia, a simple bandage, when the rounds ascend or descend upon each other in the form of a screw. The French call it *doloires.*

Ascyron, the Canadian spreading *Tutsan*, a species of *Hypericum.*

Asdenigi, blood-stone.

Ase, (*αση*). Hippocrates means by this word, a loathing of food from a conflux of humours in the stomach.

Asef, a name for alum.

Asef, the *Hydroa.*

Asegen, dragon's blood.

Aseph, the plumous alum.

Asepta, (*ασηπτα*, from *α*, *priv.* and *σηπω*, *to putrefy*), unputrefied. But Hippocrates uses this word to signify unconcocted or undigested.

Asigi, or *Asingar;* verdigrise.

Asoper, soot.

Asperatum specillum, the rasp-like probe; the same as *Blepharoxystum.*

Aspermatismus, the same as *Dyspermatismus.*

Aspersio, sprinkling. Medicines administered this way, were called by the Greeks *Sympasmata*, and by the Latins *Aspergines.*

Aspidion, (dim. of *ασπις*, *a buckler*), a name of the *Alysson* of Dioscorides, because it has small round pods resembling a buckler.

Assac, the *Gum Ammoniacum.*

Assada, a nutmeg.

Asservatio, in pharmacy, the same as *Conservatio*, or the repositing things ready for use.

Assidentia signa; such symptoms, according to Galen, as are sometimes present to a disease, but not always so; which latter are called *Pathognomonic.*

Assiduus. Some use this word instead of *continuus*; to say *assidua febris*, instead of *continua febris.*

Assos, a name for alum.

Atachilos. So Paracelsus calls a malignant ulcer, which spreads from the feet upwards. Some call it *Araneus.*

Astericoides, a species of *Osmites.*

Asterocephalus, the *Scabiosa.*

Astrape, (*αστραπη*), lightning; which Galen reckons among the procatarctic causes of epilepsy.

Astricta, applied to the belly, signifies costiveness.

Astrictoria, astringents.

Astrobles, (*αστροβλης*, from *αϛρον*, *a star*, and *βαλλω*, *to strike*), planet-struck. Applied to human bodies, it signifies apoplectic, or sphacelated.

Astrocynologia, (from *αϛρον*, *a star*, *κυων*, *a dog*, and *λογος*, *a dissertation*), the name of a treatise on the dog-days.

Asugar, verdigrise.

Asulci, the *Lapis Lazuli.*

Asuoli, soot.

Atac, talc or nitre.

Ater succus, i. e. *Atrabilis.*

Ateramnia, (*ατεραμνια*), in Hippocrates, De Acre Locis et Aquis;

and is expounded by Galen as signifying difficult of concoction, and hard. He observes, that the ancients called bad waters thus; and that, as joined with other words, this term has other significations.

Athroos, or *Athroon*, (αθροον), in medicinal authors, imports copious, accumulated, or sudden; the reverse of gradually.

Atincar, or *Atinkar;* borax.

Atochia, preternatural labour.

Atolli, a sort of pap made of the meal of maize and water, which the Indians mix with their chocolate.

Atramentum sutorium, a name for vitriolated iron, and of the *Chalcanthum* and *Melanteria.*

Atta. Festus says it is one who, by reason of the tenderness or other defect in his feet, touches the ground rather than treads on it.

Attincar veneris, the whitening of copper to transmute it into silver.

Attractivus, *Attractorius*, or *Attrahens;* terms applied to remedies that have a power of attracting.

Attrita, excoriations from rubbing one part against another.

Atypos, (ατυπος, from α, *priv.* and τυπος, *a form or tenor*), irregular. It is applied to diseases which have no regularity in their periods. Also a deformity in the limbs.

Aubletia, a species of *Verbena.*

Auchmos, (αυχμος, from αυω, *to dry*), hot, dry, sultry weather. The Latins call it *squalor.*

Audacia, in a medical sense, that sort of boldness which we meet with in deliria or madness.

Auliscos, (αυλισκος), a catheter, or clyster-pipe.

Aulos, the onyx.

Auratos germanorum; an oleosaccharum, with the oil of cinnamon.

Aurichalcum, pinchbeck, or a composition of copper and zinc.

Auricula. "See Auris" in that article, should be "See Ear".

Auricula leporis; *Bupleurum.*

Aurigo, the same as *Icterus.*

Aurora consurgens, a whimsical phrase by which the alchemists express the vegetation of their gold.

Aurum horizontale, an *Oleosaccharum*, made with the oil of cinnamon.

Aurum leprosum, a name for *Antimony.*

Aurum vegetabile, a name given to saffron.

Authemeron, (αυθημερον, from αυτη, *the same*, and ημερα, *a day*), a medicine that gives relief on the same day it is taken.

Aviculæ hermaticæ, the universal salt supposed to exist in dew.

Avicularia sylvia, a name for the greater Venus's looking-glass.

Avornus, a name of the black alder.

Avrancum, egg-shells.

Avraric, mercury.

Axea commissura, a species of articulation.

Ayborzat, galbanum.

Aycapher, burnt copper.

Aycophos, burnt brass.

Azaa, red marl.

Azac, an Arabian name for *Gum Ammoniacum.*

Azadirachta, a species of *Melia.*

Azagor, verdigrise.

Azamar, vermillion, or native cinnabar.

Azane, or *Azar*, a drop.

Azarnet, a name for *Auripigmentum.*

Azedarach, the bread tree, a species of *Melia.*

Azedegrin, i. e. *Lapis Hœmatitis.*

Azeff, scissile alum.

Azeg, vitriol.

Azemafor, red oxid of lead.

Azemasor, native cinnabar.

Azimar, burnt copper.

Azob, i. e. *Alumen Saccharinum.*

Azoch, a name given by Paracelsus to the *Mercurius Philosophorum*, or quicksilver extracted from any metalline ore.

Azom, boiled butter.

Azoth, the same as *Azoch.* Paracelsus also signifies by it, the universal remedy prepared of the sun, moon, and mercury. *Azoth* is also taken for the liquor of sublimed mercury mixed with vitriol and salt, and so sublimed; which is also called *Aqua permanens*, *Crystalli philosophorum*, and *Luna physica.* *Azoth* is also a name for brass. It sometimes signifies the mercury of any metallic body.

Azragar, verdigrise.

Azub, alum.

Azur, red coral.

Azurium, a chemical preparation of Albertus Magnus, consisting of mercury, sulphur, and muriated ammonia.

Azutum, the Armenian stone.

Azymar, native cinnabar.

Azymos, (αζυμος, from α, *priv.* and ζυμη, *ferment*), unfermented bread, as sea-biscuit.

B.

Babuzicarius, (from βαϐαζω, *to speak inaccurately*), the night-mare.

Bacanon, cabbage-seed.

Baccar, a name of the *Baccharis.*

Bacchia. So Linnæus calls the *Gutta Rosacea.*

Bacchia, a name of the ivy.

Baccinia, i. e. *Vaccinia.*

Bacculi, lozenges shaped into short rolls. Hildanus uses it for an instrument in surgery.

Bacoba, the *Banana.*

Badatis, the herb *Clava Herculis.*

Badiza aqua, Bath water.

Baducca, a species of *Capparis.*

Badukka, the *Baducca.*

Bæos, (βαιος). In Hippocrates it means few; but in P. Ægineta, it is an epithet for a poultice.

Bæothryon, a species of *Scirrhus.*

Bahei coyolli; the *Areca*, or *Faufel.* Ray.

Baillement, yawning or stretching.

Balanghas, a species of *Sterculia.*

Balannium, oil of the ben-nut.

Balanocastanum; the *Bulbocastanum.*

Balanos. See Adipsos.

Balanos, (*βαλανος*), properly, an acorn; but in Hippocrates, De Affectionibus, an oak. In Theophrastus, it expresses any glandiferous tree. It expresses also suppositories and pessaries, and is a name of the glans penis.

Baldness. See Hair.

Ballia mucca pira, the *Momordica.*

Balistæ os, (from *ϐαλλω, to cast*), the *Astralgaus.*

Balneabilis, an epithet for such waters as are proper for bathing.

Balsamelæon, balm of Gilead.

Balsami oleum, balm of Gilead.

Balsamina, a species of *Impatiens.*

Balsamina, the male balsam-apple; a species of *Momordica.*

Balsamita, the Oriental ox-eye-daisy; a species of *Chrysanthemum.*

Balux, a name for the golden sand of some rivers.

Bambax, cotton.

Ban arbor, the coffee-tree.

Bananiera, a name of the *Ficus Indica.*

Baptica coccus, kermes berries.

Baptus, a soft bituminous fossil, mentioned by Agricola.

Barach panis. Rulandus explains it by *Nitrum Salis.*

Baras. In M. A. Severinus, is the same as *Alphus* or *Leuce.*

Barba aronis, i. e. *Arum.*

Barba capræ, i. e. *Ulmaria.*

Barba hirci, i. e. *Tragopogon.*

Barba jovis, the silver bush; also a name of the *Sempervivum Majus*, and a species of *Anthyllis.*

Barbaria, rhubarb.

Barometz, Chinese polypody, a species of *Polypodium.*

Batcia, a name for the *Pastinaca Sylvestris.*

Bathmis, (*βαθμις*, from *βαινω, to enter*), a seat, basis, or foundation. By Hippocrates and Galen, a sinus or cavity of a bone which receives the protuberance of another at the joints, particularly of the *Humerus* and *Ulna.*

Bathypicron, the *Absinthium Latifolium.*

Batia, a retort.

Baticulæ, the greater *Samphire.*

Batinon moron, the raspberry.

Batrachioides, a sort of *Geranium.*

Batrachites, (*βατραχιτης*), toadstones.

Batrachium, crow-foot crane's-bill.

Battisecula, the lesser *Cyanus.*

Bauda, a vessel used for distillation.

Bdella, a horse-leech. By Dioscorides, a varicose vein.

Bdellerum, a horse-leech.

Bechion, or Bechium; the *Tussilago.*

Bechita, expectorating medicines.

Beesha, a species of the *Bambu.*

Behem, or Behemen; erroneously put for the *Balanus Myrepsica.* The glans unguentaria, is the Arabian *Ben.*

Bejuio, the bean of Carthagena.

Bellidiastrum, a species of *Doronicum;* and also of *Osmites.*

Belmuscus, i. e. *Abelmosch.*

Beluzaar, a Chaldee word for antidote.

Belzoe, or Belzoinum; gum Benjamin, and its tree.

Bem-tamara, the Egyptian bean.

Benedicta aqua, an old name for *Aq. Calcis Simp.* Also a water distilled from *Serpyllum.*

Benedictum vinum, i. e. *Vinum Antimoniale.*

Beneolentia, sweet-smelling medicines.

Bengi-eiri; a species of evergreen Indian *Ricinus*, which grows in Malabar.

Benivi arbor, Benjui, or Benivifera; the Benjamin tree.

Berenice, amber.

Berula, brooklime.

Bes, an eight ounce measure.

Besachar, a fungus or sponge.

Besasa, the wild rue.

Besenna, Rulandus explains by *Muscarum Fungus;* but probably a sponge, which is the nidus of some flies.

Besto, a name in Oribasius for *Saxifrage.*

Bex, (*βηξ*), a cough.

Bexugo, the root of the *Æmatitis Peruviana*, one drachm of which is sufficient for a purge.

Bexaguillo, the Peruvian ipecacuanha.

Bezahan, the fossile bezoar.

Bezoardicum joviale, i. e. *Bezoar* with tin; differing very little from the *Antihecticum Poterii.*

Bichichiæ, an epithet of certain troches of liquorice, &c. described by Rhazes.

Bihai, a species of *Musa.*

Biladen, iron or steel.

Bilis. For the reference to Jaundice, read Icterus.

Binoculus, a bandage for both the eyes.

Binsica, a Rabinical term, signifying a disordered imagination.

Byolychnium, (*βιολυχνιον*, from *βιοσ, vita*, life, and *λυχνιον, lumen*, light), a vague term used to signify *vital flame.*

Bios, (*βιος*), life, and its course. But sometimes it only means food.

Biote, (*βιοτη*), life. In an affected sense, the time of continuance of aliment in the body. Thus weak food has a *short life* annexed.

Bipula, a sort of worm mentioned by Aristotle.

Birao, the true *Amomum.*

Bisematum, the lightest, basest, and palest lead.

Blancnon, a name in Oribasius for fern.

Blaptisecula, (from *βλαπτω, to hurt*, and *seco*, to cut), a name for the *Cyanus;* because it injures the mowers' scythes.

Blatti, the wild Malabar plum-tree.

Blenna, (*βλεννα*), or *Blena*, a thick mucus descending from the brain, through the nostrils; indicating recovery.

Blepharoxyston, (*βλεφαροξυστον*, from *βλεφαρον, an eye-lid*, and *ξεω, to scrape off*). So Paulus Ægineta calls the *Specillum Asperatum.*

Blestrismus, (*βληστρισμος*), a restless tossing of the body, as happens in various diseases.

Bleta, an epithet for milky urine.

Bleti, (*ϐλετοι*), struck. So those were called who were suddenly seized with a suffocation or difficulty of breathing.

Blincta, red earth.

Blister. See Cantharides.

Bocium, the *Bronchocele.*

Boethema, a remedy.

Boethematica semeia, auxiliary signs in diseases; such as give hopes of a cure.

Boil. See Furunculus.

Bolchon, i. e. *Bdellium.*

Bolesis, coral.

Boleson, balsam.

Bolismus, used by Avicenna for *Bulimus.*

Bolu fabrilis, red chalk.

Bolus judaicus, a name for the *Althæa.*

Bombast, cotton.

Bon arbor, the coffee-tree.

Bona, or **Boona**, the kidney-bean.

Bona nox, a species of *Ipomœa.*

Bonarota, a species of *Pæderota.*

Bonduc, a species of *Guilandina.*

Bonduch indorum, *Bonduch Cinerea*; Molucca nuts, and bezoar nuts.

Borace, borax.

Borassus, the tender medullary summits growing on the great palm-tree.

Borborodes, (ϐορϐορωδες), feculent, or muddy.

Boridia, a sort of cookery of salt fish, eaten raw. Oribasius.

Borros, (ϐορρος), voracious. A voracious water, or such a one as begets hunger.

Boscas, a sort of dry tenacious pitch.

Bosci salvia, a kind of sage, so named from *Boscus*, a wood where it grew.

Botamum, washed lead.

Bothrion, (from ϐοθρος, *a ditch*), a small ditch; expressive of a small ulcer in the cornea of the eye. Also the *Alveoli.*

Botin, turpentine; or a balsam of it.

Botothinum, in Paracelsus, the flower of a disease.

Botou, *Botua;* the *Pareira Brava.*

Boubalios, the wild cucumber. According to some, the *Pudendum Muliebre.*

Bovillæ, the measles.

Brabe, a herb mentioned by Oribasius.

Brabyla, Damascene or Hungarian plums.

Bracherium, a truss for a hernia; used by the barbarous Latin writers, probably from *brachiale*; a bracelet.

Brachychronius, (ϐραχυχρονιος, from ϐραχυς, *short*, and χρονος, *time*), applied to a disease continuing but a short time.

Brachypnæa, (ϐραχυπνοια, from ϐραχυς, *short*, and πνεω, *to breathe*); short breath, but at long intervals.

Brachypotæ, (ϐραχυποται, from ϐραχυς, *short*, or *small*, and ποτος, *drink*), little drinkers.

Brasiletto, logwood.

Brasma, immature black pepper; or such as is hindered from ripening. Bauhine.

Brasmos, fermentation.

Brassidellica ars, the curing of wounds, by applying the herb *Brassidella.* Paracelsus.

Brathu, the herb savine.

Brochthus, (ϐροχθος), the throat; also a small kind of drinking vessel.

Brutia, named from the place where procured, a resinous pitch, of which they make the *Oleum Pisinum.*

Buceras, or **Buceros**; fenugreek.

Buceras, a species of *Pucida.*

Bucranion, (from ϐȣς, *an ox*, and κρανιον, *a head*), the *Antirrhinum*, because it resembles an ox's head.

Bucton, the hymen.

Buffeli, a ring made of buffalo's horn, worn on the ring-finger for the cramp.

Bugantiæ, chilblains.

Bugones, (from ϐȣς, *an ox*, and γινομαι, *to be bred of*), bees; which the ancients thought were bred from the putrefaction of an ox.

Buna, a name for coffee.

Burac, various kinds of salt.

Burina, or **Burnea**; pitch.

Buris, a scirrhous *Hernia.* Avicenna.

Butina, turpentine.

Butios, the ancient quacks in Hispaniola.

Byrsa, a skin of leather for plasters.

Byrsodepsicon, (from βυρσα, *a skin*, and δεψεω, *to curry leather*), *Sumach.*

Bysaucen, (βυσαυχην, from βυω, *to hide*, αυχην, *the neck*), stiff-necked people; or those who, by elevating their shoulders, hide the neck.

Bysma, (βυσμα, from βυω, *to stop up*, *obstruct*, *fill up*, *constipate*, *or stuff*), the covers or stopples of any vessels.

Byssus, (βυσσος), a name for the *Pudendum Muliebre.*

Byzen, (from ϐυζω, or ϐυω, *to fill up by stuffing*), the hurry in which the menses flow in menorrhagia. Hippocrates.

C.

Cabala. The cabalistic art.

Cabalator, or **Cabulatori**; a name for nitre.

Cabeb, or **Cabebi**, scales of iron.

Cabrusi, coming from Cyprus. The ancient Greeks had almost all their vitriols and minerals from this island; hence they sometimes called them *Cabrusi*, without any addition.

Cabureiba, or **Caburiiba**; names of the *Bals. Peruv.* or for the tree which affords it.

Cacagoga, ointments, that by being rubbed on the fundament, procure stools.

Cacamotictlanoquiloni, the purging potatoe.

Cachry, the seeds of the *Libanotis.*

Cachrys, according to Galen, parched barley. In Linnæus's botany, the name of a genus, of which there are three species.

Cacocholia, an indisposition of the bile.

Cacochroi, (from κακος, *ill*, and χροα, *colour*), such as have an ill colour in the face.

Cacochylia, indigestion or depraved chylification.

Cacopathia, (κακοϖαθια), an ill affection.

Cacophonia, (κακοφωνια), a depravity of the voice.

Cacopracia, (from κακος, *ill*, and ϖραττω, *to do or act*), a depravation in the chylopoietic viscera.

Cacorrythmus, (from κακος, *ill*, and ρυθμος, *order*), a disorderly pulse.

Cacosphyxia, (κακοσφυξια, from κακος, *ill*, and σχυξις, from σφυξω, *to beat like an artery*), a disorder of the pulse in general.

Cacostomachus, (κακοστομαχος), a bad stomach; or food that is bad for the stomach.

Cacothymia, (from κακος, *ill*, and ϑυμος, *the mind*), any vicious disposition of the mind.

Cacotrophia, (κακοτροφια, from κακος, *ill*, and τροφη, *nutriment*), vicious nutrition in general.

Cadel avanacu, i. e. *Moluccense Lignum*.

Cadmia, i. e. *Lapis Calaminaris*.

Cadmia factitia, i. e. *Tutia*.

Cadmia metallica, a name for cobalt.

Caducase, the vertigo.

Caduca. See Decidua.

Caducus morbus, the epilepsy.

Cæsia, a species of *Mimosa*.

Caf, Cafa, or Cafar; camphor.

Cagastrum; the morbific matter which generates diseases, and, that not innate, but adventitious. Paracel. The *cagastrum* produces pleurisy, pestilence, fever, &c.

Caguacu-apara, or *Caguacu-Ete*, the American Bezoar deer.

Caicu, i. e. *Terra Japonica*.

Calaba, a species of *Calophyllum*.

Calæ, Calæum, or Calæmum, a kind of Indian tin, reduced to an oxid, such as that of lead, &c.

Calamintha humilior, the ground-ivy.

Calamitis, fictitious *Cadmia*, fixed to iron rods, and so acquiring the figure of *a reed*. Applied also to *Pompholyx*, and to *Calamine*; and Agricola calls a marine stony plant thus.

Calamita alba, the white sandstone.

Calamita of rhases, the white load-stone.

Calcadinum, vitriol.

Calcadis, vitriolated zinc.

Calcanthos, or Chalcanthum, (from χαλκανθον), names for vitriol.

Calcantum, a kind of red ink.

Calcar, *Calcaneus*; also the furnace in a glass-house.

Calcaris flos, the lark-spur.

Calcarius lapis, lime-stone.

Calcator, vitriol.

Calcaton, troches of arsenic.

Calceum equinum, i. e. *Tussilago*.

Calchithios, verdigrise; also a *Marcasite*.

Calcinatum majus, substances dulcified by a chemical process, but not so in nature; such as preparations of mercury, lead, &c.

Calcinatum majus poterii, mercury dissolved in nitrous acid, and precipitated with sea-salt. Poterius used it in the cure of ulcers.

Calcinatum minus, any thing sweet by nature, and which speedily cures, as sugar, manna, &c.

Calcitrea, vitriol.

Calcitosa, litharge.

Calcithos, verdigrise.

Calculifragus, lithontriptic.

Caldus; used for *calidus* by Scribonius Largus.

Calichappa, the true white thorn.

Calidum innatum; innate heat.

Callæon, the gills of a cock, which Galen says is a food neither to be praised nor condemned.

Callecamenon, burnt copper.

Callena, a kind of salt-petre.

Calliblepharon, (from καλλος, *beauty*, and βλεφαρον, *an eye-lid*), medicines for the eye-lids.

Callicreas, the *Pancreas*.

Callionymus, (from καλλος, *beauty*, and ονομα, *a name*), the *Uranoscopus*.

Callitrichum, (from καλλος, *beauty*, and ϑριξ, *a hair*), the *Adianthum*.

Calmet, antimony.

Calochierni, a large species of *Atractylis*, common in Greece and Candy.

Calonia, Calonian myrrh. Hippocrates often prescribed it.

Calvus, bald. See Hair.

Canusa, crystal.

Calypter, (from καλυπτω, *to hide*), a carnous excrescence covering the hemorrhoidal vein.

Camara, the fornix of the brain; also the vaulted part of the auricle, leading to the external foramen; and the name of a species of *Lantana*.

Camarosis, (καμαρωσις, from καμαρα, *a tortoise*), an arched roof. A fracture of the skull, which appears like an arch of a vault, is so named.

Cambirea, the venereal bubo. Paracelsus.

Cambuca, in Paracelsus means the venereal cancer; by others a bubo, an ulcer, an abscess on the pudenda; also a boil in the groin.

Cambui, the wild American myrtle of Piso and Marcgrave.

Camehnia, the onyx stone.

Cames, silver.

Caminga, the *Canella Alba*.

Caminus, (καμινος), a furnace and its chimney. In Rulandus, a bell.

Camisia fœtus, the shirt of the fœtus, or *Chorion*.

Campe, (καμπη, from καμπτω, *to bend*), a flexure or bending; a joint or articulation. It is also used for the ham.

Campulum, (καμπυλον, from καμπτω, *to twist about*), distortion of the eye-lids.

Canabil, a medicinal bole, or astringent earth.

Cancrena; used instead of *Gangræna*, by Paracelsus.

Candela fumalis, a sort of candle made of odoriferous resins, to purify the air.

Canella cubana, i. e. *Canella Alba*.

Canella cuurdo, the true cinnamon tree.

Canicæ, coarse meal, food for dogs. *Panis canicaceus*, means very coarse bread.

Canna fistula, i. e. *Cassia Fistula*.

Cannabina, the *Datisca*. Tournefort.

Canoniai, (κανονιαι). Hippocrates De Aëre. Persons who have straight, and not prominent bellies.

Cantabrica, the *Lavender-leaved bind-weed;* discovered in the country of the Cantabri, in Spain. Pliny.

Cantabrum, bran. Cœlius Aurelianus.

Cantacon, the garden saffron.

Cantara, the St. Ignatius's bean plant.

Canthari figulini, earthen cucurbits.

Canthum, sugar-candy.

Cantion, an epithet for sugar.

Caova, the infusion called coffee.

Capella, a cupel or test.

Capiplenium, a barbarous word, meaning catarrh; but Baglivi uses it to signify that continual heaviness in the head, called by the Greeks *καϱηβαϱια*.

Capistratio, the *Phimosis.*

Capitellum, a head containing seeds; applied to mosses, &c. as in *Capitulum.* Also soapy water, or a lixivium.

Capnelæum, (*καπνελαιον*); in Galen, a resin. In Fœsius, called *capnelaion*, because of its smoaking when placed near the fire.

Capnias, (*καπνιας*, from *καπνος*, *a smoak*), jasper of a smoak colour. Also, a kind of vine which bears grapes, part white and part black.

Capnitis, tutty.

Capnoides, (from *καπνος*, *fumitory*, and *ειδος*, *likeness*), a species of fumitory.

Capnos, (*καπνος*), fumitory.

Capo molago, Guinea pepper.

Capricornus, a name for lead.

Capsella, in Marcellus Empiricus; *Viper's-bugloss.*

Capulum, (from *καμπτω*, *to bend*), a contortion of the eye-lids, or other parts.

Capur, camphor.

Carabe, amber.

Carcaros, a sort of fever.

Carcas, the *Cataputia*, or Barbadoes nut-tree.

Carcax, a large-headed species of poppy.

Carcer, a remedy for restraining the disordered motions of the body and mind; as in *Chorea Sancti Viti.* Paracelsus.

Carchesius, (*καρχησιος*), a bandage, noticed by Galen and Oribasius. Properly it is the top of a ship's mast.

Cardimelech, in Dolæus, a particular active principle in the heart, supporting the vital functions.

Cardiotrotus, one having received a wound in his heart.

Cardonet, the wild artichoke.

Carebaria, (*καρηϐαρια*, from *καρη*, *the head*, and *ϐαρος*, *heaviness*), an uneasy and somewhat painful heaviness of the head.

Carium terra, lime.

Carnicula, used by Fallopius for *Furuncula;* and, to signify in particular the flesh of the gums.

Caruncul oca; a suppression of urine from caruncles in the urethra.

Caryoti, a name in Galen, for the best dates in Syria, &c.

Casabonæ, the fish-thistle.

Casamum, a name in Myrepsus for the *Cyclamen.*

Caschu, i. e. *Catechu.*

Casibo, a species of *Privet.*

Cassa, a barbarous word in Fallopius for the *Thorax.*

Cassale vulnus, (from *Cas*, Arab. a breast), a term signifying a wound in the breast.

Cassadum, weak spiritless blood that is grumous, and hinders the free circulation. Paracelsus.

Cassibor, or Cassidbott; coriander.

Cassob, alkaline salt.

Cassoleta, a kind of humid suffumigation described by Marcellus.

Cassutha, dodder.

Casus, the same as *Symptoma;* sometimes put for a casualty, as a fall from an eminence. In Paracelsus it signifies a present distemper, and also, an entire history of a disease.

Catablema, (*καταϐλημα*). According to Galen, Hippocrates means by this, the outermost fillet, which secures the rest of the bandage.

Catachloos, (*καταχλοος*, from *χλον*, *grass*, or *green herb*). Galen expounds it "a very green colour." So of stools, and then, many read for this word *Catachola*, i. e. very bilious.

Catachriston, medicine applied by way of unction.

Cataclasis, (*κατακλασις*, from *κατακλαω*, *to break or distort*), by Galen, an affection of the eye, as when the eye-lids are distorted. By Vogel, a spastic occlusion of the eye.

Catacleis (*κατακλεις*, *subclavicle* from *κατω*, *below*, and *κλεις*, *clavis*, the clavicle). The first small rib of the thorax. Galen.

Catacores, (*κατακορες*), full, or abundant; and, when applied to stools, purely or intensely bilious. Hippocrates uses it in both senses.

Catagma, (*καταγμα*), a fracture. Galen says a solution of the bone is called *Catagma*, and that *Eclos* is a solution of the continuity of the flesh; that when it happens to a cartilage it has no name, though Hippocrates calls it *Catagma.*

Catagmatica, (from *καταγω*, *deduco*), catagmatics; or remedies proper for cementing broken bones.

Catalentia, used by Paracelsus for the epilepsy.

Catarrheuma, (*καταρρευμα*), i.c. *Catarrhus.*

Catarrhœcus, (*καταρροικος*), a word applied to diseases proceeding from distillations of rheum.

Catarrhopa phymata, (*καταρροπα φυματα*), tubercles tending downward; or, as Galen says, those that have their apex on a depending part.

Catarrhopos nousos, (*καταρροπος νȣσος*), a remission of the disease, or its decline; opposed to the paroxysm.

Catartismus, (*καταρτισμος*), according to Galen, a translation of a bone from a preternatural to its natural situation.

Catasarca, (*κατασαρκα*), i. e. *Anasarca.*

Cateiadion, a long instrument introduced into the nostrils, to provoke an hæmorrhage, for the cure of the head-ach. Aretæus.

Catellus cinereus, a cupel or test.

Catharmos, (*καθαρμος*; from *καθαιρω*, *to purge*), purgation by medicines; and the cure of a disorder by superstitious remedies.

Cathedra, in Hippocrates, the *Anus.*

Catinum alumen, pot-ash.

Catinus fusorius, a crucible.

Catischon, (*κατισχων*), one who is costive, or not easily purged.

Catma, the filings of gold.

Catocathartica, medicines that operate by stool.

Catomismos, (*κατωμισμος*, from *κατω*, *under*, and *ωμος*, *the shoulder*), a putting under the shoulder. P. Ægineta. It is that mode of reducing a luxated humerus, which is performed by taking the patient's arm and laying it over his shoulder; so that, by raising him from the ground, the weight of his body reduces the luxation.

Catta tripali, or *Catta Tirpali;* long pepper.

Catulotica, (*κατȣλωτικα*), medicines that cicatrize wounds.

Caverna, a name of the female pudenda.

Celsa. A term of Paracelsus, to signify what is called the beating of the life in a part.

Cementerium, a crucible.

Cenchramis, (κεγχραμις), a grain or seed of the fig.

Cenchros, (κεγχρος), millet.

Cenigdam; an ancient instrument, used for scarifying the head in epilepsies.

Ceniotemium, a remedy formerly used in venereal cases; supposed to be a mercurial purge.

Cenosis, (κενωσις, from κενος, *empty*), evacuation; must be distinguished from *Catharsis*. *Cenosis* imports a general evacuation; *Catharsis* means the *evacuation* of a particular humour which offends with respect to quality.

Centratio. Paracelsus expresses by it the degenerating of a saline principle, and contracting a corrosive and exulcerating quality. Hence *Centrum Salis* is said to be the principle and cause of ulcers.

Cephalartica, medicines that purge the head.

Cephaline, (κεφαλινη), that part of the tongue which is next the root, and nearest the fauces.

Cephalonosos, (from κεφαλη, *a head*, and νοσος, *a disease*), a term applied to the *Febris Hungarica*.

Cepini, vinegar.

Cepula, large myrobalans.

Cerasiatum, a purging medicine in Libavius, so called, because the juice of cherries formed a part of it.

Cerasma, (κεϱασμα), a mixture of cold and warm water, when the warm is poured into the cold.

Cerato-malagma, a cerate.

Cerchnos, (κεϱχνος), wheezing. See *Renchos*.

Cerchodes, persons who labour under a dense breathing.

Cerebella urina. Paracelsus thus distinguishes urine which is whitish, of the colour of the brain, and, from which he pretended to judge of some of its distempers.

Ceria, or Ceriæ; the flat intestinal worms.

Cestristis vinum, wine impregnated with *Cestrum*, i. e. betony.

Chaita, properly quadrupeds; but Rufus Ephesius expresses by it the hair of the hind head.

Chalasis, (χαλασις, from χαλαω, *to relax*), relaxation.

Chalcanthum, vitriol calcined to redness.

Chalcute, burnt brass.

Chalicraton, (χαλικρατον) from χαλις, signifying pure wine, and κεϱαννυμι, *to mix*), wine and water.

Chalinos, the cheeks on each side, contiguous to the angles of the mouth.

Chamæraphanum. So Paulus Ægineta calls the upper part of the root *Apium*.

Chaomantia signa, in Paracelsus, those prognostics that are taken from observations on the air; and the skill of doing this, he calls *Chaomancia*.

Chaosda. Paracelsus uses this as an epithet for the plague.

Charabe, i. e. *Succinum*.

Charantia, a species of *Momordica*.

Charistolochia, mugwort.

Charta emporetica, soft and porous paper, for filtering.

Charta virginea, a name of the *Amnios*.

Chasemie, loss of the sense of smelling.

Chasme, (χασμη), yawning.

Chedropa, (κεδροπος), a general term for all sorts of corn and pulse.

Cheilocace, (from χειηος, *a lip*, and κακον, *an evil*), the lip-evil, a swelling of the lips; also, according to Le Dran, a canker in the mouth or lips.

Cheimetlon, (from χειμα, *winter*), a chilblain.

Cheimia, cold, shivering.

Cheirapsia, (χειϱαψια, from κειρ, *the hand*, and απτομαι, *to touch*), scratching.

Cheiriater, (from χειρ, *a hand*, and ιατρος, *a physician*), a surgeon.

Cheirisma, (χειρισμα), handling, or a manual operation.

Cheirixis, (χειριξις), surgery.

Cheironomia, an exercise mentioned by Hippocrates. It consisted of peculiar gesticulations of the hands.

Cheizi. Paracelsus means by it quicksilver, when he speaks of minerals; and flowers, when he speaks of vegetables.

Chela, (χηλη), a forked probe, mentioned by Hippocrates, for extracting a polypus from the nose. In Rufus Ephesius, it is the extremities of the cilia; but most commonly it is used for claws, particularly of crabs. It also signifies fissures in the heels, feet, or pudenda.

Chelidon, (χελιδων), the swallow; also the hollow at the bend of the arm.

Chelone, (χελωνη), a tortoise. A part of a surgical machine mentioned by Oribasius.

Chelonion, (χελωνιον), a humpback; so called from its resemblance to the back of a tortoise.

Chelys, (χελυς), the breast; so called because in its figure like the back of a tortoise.

Chelyscion, (χελυσκιον), a short dry cough.

Chema, (χημη). By Blancard said to be a certain measure of the Greek physicians, supposed to contain two small spoonfuls. The Athenians had one of two drachms, and another of three.

Chernibion, in Hippocrates, an urinal.

Chezanance, (χεζαναγκη, from χεζω, *to go to stool*, and αναγκη, *necessity*); any thing that creates a necessity to go to stool. P. Egineta gives this name to an ointment, with which the anus is to be rubbed for promoting stools.

Chiadus, in Paracelsus, the same as *Furunculus*.

Chibur, a name for sulphur.

Chimethlon, a chilblain.

Chimolea laxa; the powder separated from the flowers of saline ores. Paracelsus.

Chioli; in Paracelsus, the same as *Furunculus*.

Chiton, (χιτων), a coat or membrane.

Chliasma, (χλιασμα), a warm fomentation, called also *Thermasma*.

Choana, (χοανη); properly a funnel, but used to signify the *Infundibulum*.

Choenicis, (from χοινικις, *the nave of a wheel*), the trepan; so called by Galen and P. Egineta.

Choerades, (from χοιϱος, *a swine*), the same as *Strumæ*.

Choeradolethron, (from χοιρος, *a swine*, and ολεθρος, *destruction*), hog's-bane; a name in Aetius for the *Xanthium*, or louse-bur.

Cholades. So the smaller intestines are called, because they contain bile.

Choloma, (*χωλωμα*, from *χωλος*, *lame or maimed*); any distortion of a limb. Galen in Hipp. More particularly, it is taken for a halting or lameness in the leg.

Chora, (*χωρα*), a region. Galen, De Usu Part. expresses by it particularly the cavities of the eyes; but, in other of his writings, he intimates by it any void space.

Chordapsus, (*χορδαψος*); the colic, when seated in the small intestines.

Chortos, (*χορτος*); perfect grass, which is fit to be mowed and made into hay.

Christos, (*χριστος*, from *χριω*, *to anoint*); whatever is applied by way of unction.

Chros, (*χρως*). Galen says that the Ionians mean by this word, all that is of flesh in our own bodies, i. e. all but bones and cartilages.

Chryssaticum, an epithet of a sort of *Passum*, recommended by P. Ægineta to be drank with the seed of *atriplex*, for the jaundice.

Chybur, a name for sulphur.

Chyluria, a discharge of whitish mucous urine.

Chylisma, (*χυλισμα*, from *χυλος*, *juice*), in Dioscorides, signifies expressed juice.

Chylus, (*χυλος*, *the chyle*). In general, it is a juice inspissated to a middle consistence between humid and dry. In Hippocrates this word is used to express the juice and forbile liquor of barley, which was called *strained ptisan*.

Chymiatria, (from *χυμια*, *chemistry*, and *ιατρεια*, *healing*); the art of curing by chemical medicines.

Chytlon; a plentiful inunction with oil and water. Hipp.

Cibur; sulphur.

Cicis; by Hipp. and Theophrastus sometimes put for *κηκις*, *a gall.*

Cinclisis, (*κιγκλισις*, or *Cinclismos*, from *κιγκλιζω*, *to shake or wag*); a small and repeated motion. Hipp.

Cineritium; a cupel.

Cinctus; the diaphragm.

Cinnioglottus cinnatus. So Paracelsus expresses the total destruction of mineral bodies.

Cinzilla. So Paracelsus calls the disorder which others call *Zona.*

Cion, (*κιων*). So Aretæus calls the *Uvula;* also a swelling or relaxation of it. Hippocrates so names a carunculous excrescence in the pudendum muliebre.

Cionis, (*κιονις*), a painful swelling of the uvula.

Circumlitio; in general, any medicine applied by way of unction; but, more particularly appropriated to ophthalmic remedies, with which the eye-lids are anointed.

Circumossalis; a name for the *tunica conjunctiva oculi.* Le Dran calls the *periosteum* thus.

Cissa, a depraved appetite.

Cisterna, a cistern; a name given to the fourth ventricle of the brain, and to the concourse of the lactiferous tubes in the breasts of women who give suck.

Citharus. According to Hesychius it fignifies the breast, side, and a species of fish.

Citrinatio, complete digestion; and, according to Rulandus and Johnson, it signifies resurrection.

Clasis, (*κλασις*, from *κλαω*, *to break*); a fracture.

Clasma, (*κλασμα*, from *κλαω*, *to break*); a fracture.

Claudicatio; halting, limping, or staggering, as when one leg is shorter than the other.

Clavus oculorum; a callous tubercle on the white of the eye, thus named from its figure. Celsus.

Cleidion, (*κλειδιον*); the name of an epithem in Aetius. An epithet also of a pastil in Galen and P. Ægineta, and sometimes used to signify the *Clavicula.*

Clepsydra, (*κλεψυδρα*, from *κλεπτω*, *to conceal*, and *υδωρ*, *water*), properly, an instrument to measure time, by the dropping of water through a hole, from one vessel to another; but used to express a chemical vessel perforated in the same manner. It is also an instrument used by Paracelsus, to convey suffumigations to the uterus.

Climacterical years, certain observable years, supposed to be attended with a considerable change in the body; as the 7th, 21st, 49th, 63d, and the 81st; being severally multiplications of 7 and 9, which two last are called the *grand climacterics.* Aulus Gellius tells us, that this whimsy first came from the Chaldeans, and thence, very probably, to Pythagoras, who was very fond of the number seven in his philosophy.

Clinopetes, (*κλινοπετης*), one who, on account of great weakness, or any disorder, is obliged to lie in bed, or on a bed.

Clonodes, (*κλονωδης*), an epithet denoting a sort of pulse which is vehement and large, at the same time unequal in one and the same stroke.

Clunes; the nates.

Clunesia; inflammation and pain of the anus.

Clydon, (*κλυδων*), a sense of fluctuation and flatulency in the stomach.

Cnipotes, (*κνιφοτης*), itching. Some say it signifies a dry ophthalmy.

Cocca baptica, or Cocci radicum; the Kermes berries.

Cochone, (*κοχωνη*), in Galen, the juncture of the ischium, near the nates; whence, says he, all the adjacent parts about the seat are called by the same name. Hesychius says it is the part of the spine which is adjacent to the os sacrum.

Cocilio; a weight of eleven ounces.

Cockle. See Schorl.

Coction, in a medicinal sense, that alteration, whatever it be, or however occasioned, which is made in the crude matter of a disease, whereby it is either fitted for a discharge, or rendered harmless to the system. This is often brought about by nature, i. e. the *via vitæ*, or the disposition of the matter itself, or else by proper remedies, which may so alter its bulk, figure, cohesion, or give it a particular determination, so as to prevent any farther ill effects, or drive it quite out of the body. That time of a disease wherein this action is performing, is also called its state of *coction.*

Codoscelæ. So Fallopius calls venereal buboes in the groin.

Cœla; the hollow of the eyes, or rather above and below the eyelids. The *cœla* of the feet are the hollow parts adjacent to the heels.

Cœlia. (*κοελια* from *κοιλος*, *hollow*, signifies any cavity). If *ανω* is joined with it, it signifies the stomach, and sometimes the thorax; and *η κατω* joined with it is the lower belly or intestinal canal, from the cardia to the anus.

Cœloma, (*κοιλωμα*, *hollow*); an ulcer in the cornea of the eye.

Cœlostomia, (from κοιλος, *hollow*, and στωμα, *the mouth*), a defect in speaking, when a person's speech is obscured, by sounding as if his voice proceeded from a cavern.

Cœnotes, (from κοινος, common). The physicians of the methodic sect asserted that all diseases arose from relaxation, stricture, or a mixture of both. These were called *cœnotes*, viz. what diseases have in common.

Cohol, in Avicenna, expresses dry collyria, for the eyes, in fine powder.

Coilima, a sudden swelling of the belly from wind.

Colatoria lactea. Astruc says they were formerly called glands, and are situated in the third and internal tunic of the uterus; and, that they are vesiculo-vascular bodies.

Colligamen; a ligament.

Colloboma; the growing together of the eye-lids.

Collodes, (from κολλα, *glue*); glutinous.

Colobomata. In Celsus this word is expressed by *curta*. Both the words signify a deficiency in some part of the body, particularly the ears, lips, or alæ of the nostrils.

Colophonia, (κολοφωνια), or according to Scribonius Largus, *Colofonia*, is now commonly used for any pitch or rosin, made by the exhalation of the thinner parts of terebinthinous juices; though Paracelsus seems to mean by it the *Terebinthina cocta:* but the ancients, particularly Galen, seemed to understand by it a soft kind of mastich, from *Chio*, probably our *Chio turpentine.*

Colotoides, (κολωτοειδης, from *colotes*, a lizard of that name); variegated like the skin of a lizard. This Hippocrates applied to the fæces.

Colpocele, a hernia forced into the vagina.

Colpoptosis, a bearing down of the vagina.

Comitialis, epilepsy; so named from the frequency of persons being seized with that disorder, in the assemblies called Comitia.

Commi, i. e. gum. When alone it signifies gum Arabic. The κομμι λευκον mentioned by Hippocrates, De Morb. Mulieb. is gum Arabic.

Communicant, by Bellini, is applied to fevers of two kinds affecting the same person; wherein, as one goes off the other immediately succeeds.

Completio, by ancient writers used in various acceptations: latterly, it signifies a *Plethora.*

Compunctio, i. e. *Paracentesis.*

Concausa, a cause that co-operates with another in the production of a disease.

Conductio, in Cœlius Aurelianus, a spasm, or convulsion.

Coneion, (from κωνος, *to turn round*), in Hippocrates, the *Cicuta;* thus named, because it produces a vertigo in those who take it.

Confœderatio; confluent.

Confluxio, (ξυρροια), used by Hippocrates and his interpreter Galen, in the same sense as we use consent, and transpirable; from a notion that parts at a distance have mutual consent with one another, and that they are all perspirable by many subtle steams. Paracelsus, according to his way, expressed the former by confederation.

Congelati, *Congelatici*, or *Congellatio;* persons afflicted with a catalepsy.

Conis, (κονις), dust, fine powder, ashes, a nit in the hair, scurf from the head, and sometimes it signifies lime.

Connatus, (συνγενης), used much by Hippocrates for what is born with a person; the same with *congenite*, as,

Connutritus, (συνγροφος), is what becomes habitual to a person from his particular nourishment, or what breaks out into a disease in process of time, which gradually had its foundation in the first aliments, as from sucking a distempered nurse or the like.

Conquassatio, in pharmacy, a species of comminution, or, that operation by which moist concreted substances, as recent vegetables, fruits, the softer parts of animals, &c. are agitated and bruised, till reduced to a pulp.

Contorsio, (from *contorqueo*, to turn aside), contortion. In medicine, this word signifies, 1. the iliac passion; 2. an incomplete dislocation; 3. a dislocation of the vertebræ of the back sideways, or crookedness of them; 4. a disorder of the head, in which it is drawn to one side.

Contralunaris, by Dietericus, applied to a woman who conceives during the menstrual discharge.

Copiscus, a sort of frankincense.

Copriemetos, (from κοπρος, *dung*, and εμεω, *to vomit*); one who vomits up his excrements.

Coprostasia, a constriction of the belly.

Copula, a ligament.

Coracobotane, (from κοραξ, *a crow*, and βοτανη, *a plant*), a name for the *Laurus Alexandrina.*

Cordinema, (κορδινημα), yawning and stretching.

Cordolium, the heart-burn.

Core, (κορη), the pupil of the eye.

Coremata, (κορηματα), brushes and besoms; in P. Ægineta used to signify medicines for cleaning the skin.

Cornesta, or Cornuta, a retort.

Corrago; borrage.

Coræ, or Corsæ, the temples.

Coryphæ, (κορυφη), the vertex.

Cosmet, a name for antimony.

Cosmos, (κοσμος), in Hippocrates, the order and series of critical days.

Cossi, worms that breed among planks; also tubercles in the face.

Cossum, a malignant ulcer of the nose, mentioned by Paracelsus.

Costiveness. See Obstipatio.

Cotis, according to some, the back part of the head; others say, it is the hollow of the neck.

Cotonea, the quince.

Couros. So Hippocrates called the child in the womb when perfected there.

Cow-pox. See Inoculation.

Crade, in Hippocrates, the branch of a fig-tree.

Crambeion, by Erotian, an old Sicilian word for hemlock; but in Hippocrates it signifies a decoction of cabbage.

Craspedon, a relaxation of the uvula, when it hangs like a thin oblong membrane.

Crea, the spine of the *Tibia*, or shin.

Cremnoi, (from κρημνος, *a precipice*), the lips of an ulcer; also, the labia pudendi.

Crepatura, in Paracelsus, an internal hernia.

Crepinum. Paracelsus means by this word tartar.

Crespulum, in Myrepsus, the herb called ox-eye.

Crimnodes, (κριμνωδης, or κριμνον, *bran*), an epithet for urine which deposits a branny sediment.

Crimnon, (κριμνον), in Dioscorides, a coarse sort of meal produced from zea and wheat. Galen says that κριμνα, are the largest particles of torrified barley, which have escaped due contusion in the mill.

Cryomixus, (κριομυξος), an epithet for persons abounding with mucus in the nose.

Crocus indicus; turmeric.

Crommyon; an onion.

Crommyoxyregmia; acid and fœtid eructations having the taste of onions.

Crotchet, an instrument for extracting the child piece-meal, where natural delivery is impossible. See Pl. XIX. Vol. II. fig. 3 and 10.

Crotone, (κροτωνη), a fungous excrescence on trees; but, by a metaphor, applied to excrescences on the periosteum.

Crymodes, (κρυμωδης, from κρυμος, *cold*), an epithet for a fever, wherein the external parts are cold.

Crypsorchis, (from κρυπτω, *to hide*, and ορχις, *a testicle*), when the testicles have not descended into the scrotum.

Cryptopyica, *Ischuria;* a suppression of urine from a retraction of the penis.

Crypsorchis, (κρυψορχις), a retraction or retrocession of one of the testicles.

Crystalli, eruptions about the size of a lupine, white and transparent, which sometimes break out universally; also called *Chrystallinæ*, and, by the Italians, *Turoli.*

Cteis (κτεις, *pecten*). *Ctenes*, in the plural number, implies those teeth which are called incisores.

Cuema, (κυημα), conception; or rather, as Hippocrates signifies by this word, when the complete rudiments of the fœtus are formed.

Culbicio, a sort of strangury, or rather heat of urine.

Culter, the third lobe of the liver.

Culus, the anus.

Cunealis sutura; that by which the os sphenoides is joined to the os frontis.

Cuphos, (κυφος), light. Applied to aliments, it imports their being easily digested; when to distempers, that they are mild.

Custom. See Habit.

Cyathiscus, (κυαθισκος, from κυαθος, *a cup*), the hollow part of a probe, formed in the shape of a small spoon, as an ear-picker.

Cybitos, (κυϐιτος), the cubitus.

Cycima, a name for litharge.

Cyclopion, (κυκλωπιον, from κυκλοω, *to surround*, and ωψ, *the eye*); the white of the eye.

Cyclos, a circle: in Hippocrates it signifies the cheeks, and the orbits of the eyes.

Cyclus metasyncriticus, a long course of remedies, persisted in with a view of restoring the particles of the body to such a state as is necessary to health.

Cyllos, (κυλλος, from κυλλοω, *to make lame*), in Hippocrates, one affected with a kind of laxation, which bends outwards, and is hollow inward. Such a defect in the tibia is called *Cyllosis*, and the person to whom it belongs, is called by the Latins *Varus*, opposed to *Valgus.*

Cymatodes, by Galen and some others, an unequal or fluctuating pulse.

Cynanthropia, (from κυων, *a dog*, and ανθρωπος, *a man*), used by Bellini, to express a particular kind of melancholy; when men fancying themselves changed into dogs, imitate their actions.

Cynococtonum; wolf's-bane.

Cynocytis; the dog-rose.

Cynodectos, (κυνοδηκτος). So Dioscorides calls a person bit by a mad dog.

Cynodesmion, (κυνοδεσμιον, from κυων, *a dog*, and δεσμος, *a band*), the frænum of the glans penis. Sometimes it signifies the lower part of the prepuce.

Cynolissa, used by Leister, in the same sense as *Rabies Canina.*

Cynolopha. So Pollux calls the asperities of the vertebræ, and beginning of the spine of the back; being prominent in dogs.

Cyophoria, (from κυος, *the fœtus*, and φερω, *to carry*), gestation; applied to a woman in her pregnancy.

Cyphoma, (κυφωμα, from κυφοα, *to bend*), a gibbosity, or incurvature of the spina dorsi; the vertebræ inclining preternaturally outwards.

Cyrbasia, properly the tiara worn by the Persian monarchs. In Hippocrates, a sort of covering for the breasts of women.

Cyrenaicus; applied to the juice of the laserpitium of the ancients, (from the country where it mostly flourished), by Scribonius Largus, Ægineta, and some others; also by Sanctorius in his Aphorisms.

Cyrseon; the podex or anus.

Cyrtoides; gibbous.

Cyrtoma, (from κυρτος, *humpbacked*); any preternatural tumor or gibbosity. In Vogel's Nosology it signifies a particular flatulent tumor of the belly.

Cyrtonosus; the rickets.

Cyssaros, (κυσσαρος); the podex or anus.

Cyssotis, inflammation of the anus.

Cysteolithos, (from κυστις, *the bladder*, and λιθος, *a stone*), calculus in the bladder.

Cyptoptosis; the inner membrane of the bladder, when protruding into the urethra.

D.

Daceton, (from δακνω, *to bite*), an epithet for such animals as hurt by biting.

Dachel, in Boerhaave, the *Palma major.*

Dacneron, (from δακνο, *to bite*), biting; an epithet for a collyrium in Trallian.

Dacrydium, i. e. *Diagridium.*

Dacryodes, (δακρυωδης, from δακτρος *a tear*); a weeping ulcer.

Dacryoma, a coalition of one or more of the puncta lachrymalia.

Dacryopæos; such things as cause the tears to flow, as onions, &c.

Dactiletus; the *Hermodactyl.*

Dactylethra, (δακτυληθρα), a

machine shaped like a finger, and introduced into the throat to excite vomiting.

Dactylion, (δακτυλιον), web-fingered.

Dædalus, a name given to mercury on account of its volatility with heat; from a person so called, who invented wings to fly with.

Daphnelæon, (from δαφνη, *the bay-tree*, and ελαιον, *oil*), oil of bay-berries. Dioscorides.

Daphnites; a name for the best pieces of Cassia.

Daphnoides; the same as *Daphne*.

Daratos, (δαρατος), unfermented bread.

Darchem, a name for fine cinnamon.

Darsini; the Arabian name for the ordinary sort of true cinnamon.

Darta, a tetter, or ring-worm; or the itch.

Dasymma, (δασυμμα); the *Ophthalmia Trachoma* of Sauvages, when tettery.

Daura; black hellebore. Paracelsus.

Daveridon, the oil of spike.

Deambulatio, strictly, walking; by Hippocrates applied to inquietude of the mind.

Debus. So Paracelsus calls a medicine, which is given against anger.

Decidentia; a change in diseases, whereby they are prolonged.

Decimana, a kind of erratic fever, returning every tenth day.

Declinatio, used when a disease abates. In Avicenna, an imperfect dislocation.

Decollatio, denotes a part of the cranium cut off, with the teguments, in a wound of the head.

Decurtatus, by some applied to a pulse growing weaker every stroke, until an entire cessation; or if it recover, it is called *Pulsus decurtatus reciprocus.* Galen.

Depensiva. In Paracelsus these are cordials.

Defluvium, a falling off of the hair.

Degmos, (δηγμος, from δακνω, *to bite*), a biting pain in the cardia, perceived in the heart-burn, &c.

Dejectoria; purging medicines.

Deinosis, (from δεινοω, *to exaggerate*). Hippocrates applies this word to the supercilia, importing their enlargement.

Delacrymativæ; medicines which dry the eyes by first discharging tears: such are onions, &c.

Delapsia, (from *delabo*, to slip down); a falling down of the anus, uterus, or intestines.

Delphys, (δελφυς); the uterus.

Demotivus lapsus; sudden death.

Dendrolibanus; rosemary.

Denodatio; dissolution.

Dentarpago; the instrument otherwise called *Dentagra.*

Dento, one whose teeth are very prominent, or who is full-mouthed.

Depuratoria, depuratory; an epithet given by Sydenham to a fever which prevailed in 1661 and 1664. He called it thus, because he observed that nature regulated all the symptoms in such manner as to fit the febrile matter for expulsion in a certain time, either by a copious sweat or by insensible perspiration.

Dertron, (δερτρον), according to Fœsius, the abdomen or omentum: in Linden and Coronarius, the small intestines.

Descensorium, a furnace for the distillatio per descensum.

Desipientia; the symptomatic phrenitis.

Desme, (from δεω, *to bind or tie*), in Moschion, the same as *manipulus*, or *fasciculus.*

Desmidion, (δεσμιδεον), a diminutive of *desme;* signifies a small handful.

Desmos, (δεσμος), in Hippoc. De Fract. an affection of the joint after a luxation, like a tie or ligature, whereby the limb is rendered incapable of bending or stretching out.

Desudatio, (from *desudo*, to sweat off); a profuse and inordinate sweating from any cause.

Deuteria, (δευτερια), a poor kind of wine, which the Latins call *Lora;* also, adhesion of the placenta.

Deuterion, (δευτεριον), the secundines.

Dextans; a ten ounce measure or weight.

Dia, in Greek, signifying *of* or *with*, is frequently prefixed, in the name of some medicines, to the principal ingredient; as *Diascordium*, *Diasenna*, &c.

Diabebos, (διαβεβως), the ankle bones. Hippoc.

Diabolus metallorum, a name for tin, which, when incorporated with other metals, prevents their being reduced but with the greatest difficulty.

Diabrosis, (from διαϐρωσκω, *to eat through*), an erosion of the skin, from acrid matter.

Diacatholicon, sometimes called *Catholicon*, (from δια, *of*, and καθολικος, *universal*), the universal purge; an electuary originally prescribed by Nicolaus, to carry off all kinds of humours.

Diaceltatesson, the name of Van Helmont's purging preparation of antimony. By it, Paracelsus seems to mean a vomiting excited by mercury. Some use this word to signify quicksilver dissolved in alcahest.

Diacenos, (from κενος, *empty*), an epithet of porous bodies, such as sponge, pumice-stone, &c.

Diachalasis, (from διαχαλαω, *to relax*); formerly used to signify the opening of the sutures of the skull.

Diacheirismos, (διαχειρισμος, from χειρ, *a hand*); any manual operation.

Diachelidonium, (from χελιδων, *a swallow*), a preparation of swallows.

Diachorema, (διαχορημα); all sorts of excretions from the body, but most frequently those by stool.

Diachrista, (from χριω, *to anoint*); medicines applied to the fauces, palate, uvula, and tongue, to absterge phlegm. P. Ægineta.

Diachysis, (διαχυσις, from χυω, *to fuse or melt*); fusion.

Diachytica, in Dioscorides, medicines that discuss or resolve.

Diachytos, (διαχυτος), an epithet for wine, prepared of grapes that were dried seven days, and pressed on the eighth.

Diacinema, (from διακινεω, *to move asunder*); a slight dislocation.

Diaclysma, (from διακλυζω, *to wash out, or rinse*); generally signifies a gargarism.

Diacochlacon, (from κοχμακος, *flints*), an epithet for milk in which red hot flints have been extinguished. This is said to be sudorific.

Diacodium, (from δια, and κωδια, *a poppy head*); a syrup made with the heads of white poppies.

Diacope, (from διακοπτω, *to cut through*), a deep cut or wound, or the cutting of any part.

Diacrisis, (διακρισις, from δια-κρινω, *to judge or distinguish*), the judging of diseases and their symptoms.

Diacurcuma, (from *Curcuma*, a word which Fuchsius thinks Mesue used for saffron); a name of several antidotes used in Myrepsus, of which saffron is an ingredient.

Diacydonium, marmalade of quinces.

Diadexis, (διαδεξις), i. e. *Metastasis.*

Diadoche, (διαδοχη); *Diadexis.*

Diæretica, (from διαιρεω, *to divide*); corrosive medicines.

Dialepsis, (διαληψις, from διαλαμβανω), the same as *Apolepsis.* Hippocrates means by it the space left in a bandage for a fracture, in which the dressings are applied to wounds.

Dialthæa, an ointment in Myrepsus, like our ointment of althæa.

Diamassema, (διαμασσημα, from μασσομαι, *to chew*); a masticatory.

Diambræ, (*Pil. vel Spec.*) i. e. *Pil. vel Pulv. Aromat.* from the ambergrise included in the composition.

Diamnes, an insensible and involuntary discharge of urine.

Diamotosis, (from δια, and μοτος, *lint*); the introducing of lint into a wound.

Dianancasmos, (from αναγκη, *force or necessity*); the forcible reduction of a luxated part. So Hippocrates also calls an instrument for restoring a distorted spine.

Diapedesis, (from δια, *per*, through, and πηδαω, *salio*, to leap), such a rupture of the sides of a vessel, from an internal cause, as leaves considerable interstices between the fibres through which the contents escape. It also expresses a transudation of blood through the coats of an artery.

Diapente, a composition so called because it consisted of five ingredients.

Diaphlyxis, (διαφλυξις), in Galen's Exegesis, expounded by effusions.

Diaphora, (διαφορα, from διαφερω, *to differ*), difference. In medicine, the characteristic marks and signs which distinguish one disease from another. It also signifies a corruption of food in the stomach; as in *Dyspepsia.*

Diaphthora, (διαφθορα, from φθερω, *to corrupt*), an abortion. In Hippocrates it signifies the corruption of the fœtus.

Diaphylacticos, (from φυλασσω, *to keep*); a preservative or prophylactic.

Diaphysis, (διαφυσις), an interstice, partition, or intervening substance. Galen explains it to be a nervous and cartilaginous protuberance in the middle of the joining of the tibia with the os femoris, which enters that large sinus, and makes a separation between the lower heads and processes of the os femoris, which are inserted into the sinus of the tibia. This substance only appears in recent subjects. In other places the *diaphysis* is spoken of as a cavity, chink, &c. for the reception of some other part.

Diaplasis, (from διαπλασσω, *to fashion*); conformation. It signifies the duely replacing a luxated or fractured bone.

Diaplasma, (from διαπλασσω, *to smear over*); an unction or fomentation applied all over the body.

Diapnoe, (διαπνοη); perspiration.

Diaporema, (διαπορημα, from διαπορεω, *to be in doubt*); anxiety in distempers.

Diapterosis, (from πτερον, *a feather*); the cleaning of the ears with a feather.

Diapyema, (διαπυημα, from πυον, *pus*); an abscess or suppuration.

Diapyemata; suppurating medicines.

Diapyesis, (διαπυησις); in Sauvage's Nosology, a kind of abscess in the eye, causing blindness.

Diapyetica, (διαπυητικα), suppurating medicines.

Diaria febris, the diary fever, or a fever of one day. See Ephemera.

Diarrhochæ; the interstices betwixt the circumvolutions of a bandage.

Diarrhage, (διαρραγη); a fracture, in particular, of the temporal bones.

Diascillion. So M. Empiricus calls the vinegar and oxymel of squills.

Diascinci; a name for *Mithridate.*

Diasostica, (from σωζω, *to preserve*); that part of medicine which relates to the preservation of health.

Diasphage, (διασφαγη); an interstice. Hippocrates expresses by it the interval betwixt two branches of a vein.

Diasphyxis, (διασφυξις, from σφυζω, *to strike*); the pulsation of an artery.

Diatritarii, and Diatritos, (διατριτος). Abstinence during three days was one of the points in practice by which the first methodics distinguished themselves from other physicians. This term of three days they called *diatritos*, and not the abstinence itself; and from this circumstance the methodics had the name of *diatritarii.* On the third day they gave such medicines as they thought proper, and not before. Cœlius Aurelianus gives the name *diatritos*, not only to the space of three days, but also to the third day in particular.

Diaulos, (διαυλος), a kind of exercise in which the person runs a straight course both ways.

Diazoma, (διαζωμα, from δια, and ζωννυμι, *to surround*); a name for the diaphragm.

Diazoster, (διαζωστηρ), a name of the twelfth vertebra of the back; so called from ζωστηρ, *the belt*, which lies upon it.

Diemeac, in Paracelsus, a kind of spirit, which he says resides in stones.

Diexodos, (from δια, and εξοδος, *a way by which any thing passes*), in Hippocrates, the descent or passage of the fæces by the anus.

Difflatio; transpiration.

Dihæmaton, (from αιμα, *blood*); the name of an antidote, in which was the blood of many different animals.

Diipetes, (διιπετης), in Hippocrates, applied to semen, and signifying a sudden or immediate defluxion.

Dinica, (from δινεω, *to turn round*); medicines against a vertigo.

Dinos, (δινος), the same with vertigo; together with a failure of the limbs, proceeding from the same causes as the apoplexy, though in a less degree.

Diobolon, (διωβωλον); i. e. the weight of ℈i. It is also called *Gramma.*

Diogmus, (διωγμος), a vehement palpitation of the heart.

Dionysiscus, (διονυσισκος), horned; an epithet for those who have bony excrescences, like horns, growing out of the temples.

Dioptrismos, (διοπτρισμος); an operation that consisted in dilating the natural passages with a dioptra.

Diorthrosis, (from ορθος, *right*, or from διορθροω, *to direct*), the restitution of a fractured limb into its natural situation.

Dioxelæum, a malagma, in which oil and vinegar were united.

Diphryges, (διφρυγες, from δις, *twice*, and φρυγω, *to torrify*; being as it were twice roasted), or *Disphrygos*; scoria. There are three kinds: 1. Metallic, produced only in Cyprus; dried and then burnt, whence its name. 2. The dross in working copper. 3. Pyrites calcined to redness.

Dipnoos, (from δις, *double*, and πνεω, *to breathe*), an epithet of wounds that penetrate into some cavity, or quite through a part, or that have two orifices.

Dipseticus; an epithet for such things as cause thirst.

Dipyrites, or Dipyros, (from δις, *twice*, and πυρ, *fire*), bread twice baked; by Hippocrates recommended in dropsies.

Diradiation, or Irradiation, strictly, to dart out light; but applied by some anatomists to the sudden invigoration of the muscles by the animal spirits.

Discreta purgativa; in Fallopius, that sort of purging which evacuates a particular humour.

Disciforme; the knee-pan.

Discussio; a diophresis.

Disseptum; the diaphragma.

Divulsio urinæ, an irregular separation of urine; in which the sediment is divided, ragged, and uneven.

Dochme, (δοχμη), a Greek measure of four fingers breadth.

Dodecatheon; an antidote of P. Ægineta, consisting of twelve simples.

Dodra, a kind of potion among the ancients, made of nine ingredients.

Dogga; an Arabic term for *Paronychia*.

Dolicholithos, (from δολιχος, *a kidney-bean*), in Velschius, certain blackish stones from Tyrol, of the shape of a kidney-bean, which emit an odorous effluvium upon attrition.

Dragma, (δραγμα); a handful.

Dragmis, (δραγμις), a pugil, or what may be contained in three fingers.

Draptos, (δραπτος); dilacerated.

Dropax, (δρωπαξ); an external stimulating form of medicine, applied as a plaster; causing redness, heat, and tumor in the part. Pitch, galbanum, &c. are used for this purpose.

Drostobatanon; betony.

Drosomeli; manna.

Drowning. See Resuscitation.

Dudasali; a species of snakewood.

Duella; a weight of eight scruples.

Duenech, a name for antimony.

Duenez, the filings of steel.

Dulegh, used by Paracelsus and Helmont for a sort of spongy stone generated in the body.

Dynamis, (from δυναμαι, *to be able*); the power from whence an action proceeds. Galen often uses this word for a composition of a medicine, sometimes particularly of an approved one.

Dyota; the circulatory vessel otherwise called a pelican.

Dysalthes, (from δυς, *difficulty*, and αλθω, *to cure*); difficult of cure.

Dysanagogos; tough viscid matter, which is difficultly expectorated.

Dyscrasia, (from δυς, *bad*, and κρασις, *temperament*), dyscracy; an ill habit of body, as a cachexy, &c.

Dyscritos, (δυσκριτος, from δυς, *difficult*, and κρισις, *a crisis*), difficult to be brought to a crisis; or brought only to an imperfect crisis.

Dyselces, or Dyselcia, (from δυς, *difficult*, and ελκος, *an ulcer*); persons whose ulcers are difficult to heal. The latter word more properly signifies ulcers difficult to cure.

Dysemeti, (from δυς, *difficult*, and εμεω, *to vomit*) those who vomit with difficulty.

Dyshæmorrhois, a suppression of the bleeding piles.

Dysiatos, (δυσιατος, from δυς, *difficulty*, and ιαωμαι, *to heal*); difficult of cure.

Dysodes, (from δυς, *bad*, and οζω, *to smell*). Hippocrates means by this word a fœtid disorder of the small intestines. It is also the name of a *malagma*, and an *acopon*, which Galen and Paulus describe.

Dystherapeutos, (from δυς, *difficulty*, and θεραπευω, *to heal*); difficult to heal.

Dystocia, (δυστοκια, from δυς, *difficulty*, and τικτω, *to bring forth*); difficulty in labour.

E.

Ebel; the seeds of sage, or of juniper.

Ebiscus, the marshmallow.

Ebriecatum, the partial loss of reason, as in drunkenness. Paracel.

Ebesmech, in Langius, a name for quicksilver.

Ecbolica, (εκβαλλω, *to cast out*); medicines which cause abortion.

Ecbrasmata, (from εκβρασσω, *to cast out violently*); fiery pustules on the surface of the body.

Ecbyrsomata, (from βυρσα, *the skin*), protuberances of the bones at the joints.

Eccathartica, (from καθαιρω, *to purge*), in Gorræus, remedies applied to the skin, to open the pores; in other words, deobstruents: sometimes expectorants, and purgatives also, are thus called.

Ecclisis, (from εκκλινω, *to bend, or turn aside*), a luxation.

Eccopeus, (from εκκοπτω, *to cut*), an ancient instrument, of the same use as the modern raspatory.

Eccope, (from εκκοπτω, *to cut off*); the cutting off of any part.

Echetrosis, in Hippocrates, the white briony.

Echinides; what was used by Hippocrates for purging the womb with.

Echos, (ηχος), in Hippocrates, the same as *Tinnitus Aurium*.

Echisis; a fainting or swooning.

Eclectos; a linctus.

Eclysis, (εκλυσις); a universal faintness.

Ecpepiesmenos, (from εκπιεζω, *to press out*); applied to ulcers with protuberating lips.

Ecphraxis, (from εκφραττω, *to remove obstruction*), an opening of the pores.

Ecphyas, (from εκ and φυω, *to produce*), an appendix or excrescence; by some, the *appendicula vermiformis*.

Ecphyse, flatus from the bladder through the urethra, and from the womb through the vagina.

Ecphysesis, (from εκφυσαω, *to breathe*), quick expulsion of the air out of the lungs.

Ecphysis, (from εκφυω, *to produce*), an apophysis, appendix, or process; also a name for the duodenum.

Ecpiesma, (from εκπιεζω, *to press out*), the same as *magma;* also the expressed juice of the plants of which the magma is made. Also a kind of fracture of the cranium, in which the bones are shattered, and press inwardly, on the membranes of the brain.

Ecpiesmos, (from εκπιεζω, *to express*), implies expression; but it is also a great prominence of the eye-ball, caused by an afflux of humours.

Ecpleroma, (from εκπληροω, *to fill*); in Hipp. hard balls, adapted to fill the arm-pits, while, by the help of the heels, placed against the balls, and repressing the same, the luxated os humeri may be reduced.

Ecplexis, (from εκτλησσω, *to terrify or astonish*); stupor or astonishment, from sudden external accidents.

Ecpnoe, (from εκϖνεω, *to breathe*), expiration; or that part of respiration in which the air is expelled from the lungs.

Ecptoma, (from εκπιπτω, *to fall out)*, a luxation, the exclusion of the secundines; and speaking of corrupt parts, a falling off. It is also a hernia in the scrotum, and a prolapsus uteri.

Ecpyema, (εκπυημα), a copious collection of pus, from the suppuration of a tumor.

Ecrexis, (from ρηγνυμι, *to break*), a rupture. In Hippocrates, a rupture or laceration of the womb.

Ecrythmos, (εκρυθμος), applied to the pulse, signifies that it is disorderly or irregular.

Ecroe, (from εκρεω, *to flow out*), an efflux, or the course by which any humour which requires purging is evacuated.

Ecrusis, (from εκρεω, *to flow out*), in Hippocrates, an efflux of the semen before it receives the conformation of a fœtus; called an *efflux*, to distinguish it from abortion.

Ecsarcoma, (from σαρξ, *flesh*), a fleshy excrescence.

Ecstrophius, (from εκστρεφω, *to invert*); an epithet for a medicine to make the blind piles appear outwardly.

Ectasis, (from εκτεινω, *to extend*); an extension of the skin, the reverse to wrinkling.

Ectexis, (from εκτηκω, *to liquify or consume*); emaciation.

Ectelynsis, (from εκθηλυνω, *to render effeminate*), softness; applied to the skin and flesh, when lax, and to bandages, when not sufficiently tight.

Ecthlimma, (from εκθλιϐω, *to press out against*), an ulceration caused by pressure of the skin.

Ecthlipsis, (from εκθλιϐω, *to press out against*), elision or expression; said of swelled eyes, when sparks of light seem to flash in them.

Ecthyma, (from εκθυω, *to break out*), a pustule or cutaneous eruption.

Ecthymata, (εκθυματα); pimples, pustules, or other cutaneous eruptions.

Ectopocystica ischuria; in Sauvages' Nosology, a suppression of urine from a rupture of the bladder.

Ectomon; black hellebore.

Ectrimma, (from εκτριϐω, of τριϐω, *to rub*); attrition, or galling. In Hippocrates, an exulceration of the skin about the os sacrum.

Ectrope, (from εκτρεπω, *to divert, pervert, or invert*), any duct by which the humours are diverted and drawn off. In P. Ægineta it is the same as *Ectropium*.

Ectrosis, (from εκτιτρωσκω, *to miscarry*), a miscarriage.

Ectrotica, (from εκτιτρωσκω, *to miscarry*), medicines to procure abortion.

Ectylotica. So Horstius calls medicines that destroy callosities.

Eczema, (from εκζεω, *to boil)*; an hot painful pustule.

Edentulus; without teeth.

Edes, a name for amber.

Edic, or Edich; iron.

Edra, a fractured bone, exhibiting also an impression from the instrument by which it was broken.

Effides; ceruse.

Effila; freckles.

Effractura, a species of fractured cranium, when the bone is broken and much depressed.

Eilamides, (from ειλεω, *to involve*); the meninges or membranes of the brain, viz. the dura and pia mater.

Eilema, (from ειλεω, *to form convolutions*). In Hipp. De Flatibus, it signifies painful convolutions of the intestines from flatulence. Sometimes it signifies a covering. Vogel says, it is a fixed pain in the guts, as if a nail was driven in.

Eileon, (from ειλεω, *to wind*), in Gorræus, a name for the intestinum ileum.

Eileos, (from ειλεω, *to form convolutions*); the iliac passion.

Eisbole, (from εις, *into*, and βαλλω, *to cast*), strictly, an injection; but used for the access of a distemper, or of a particular paroxysm.

Eisenman, a species of iron, of a scaly texture, not rubbing into scales.

Elambicatio; a method of nalyzing mineral waters to investigate their virtues.

Elaphopila; hair in the stomach of a stag, formed into a ball.

Elaphoscorodon; stag's, or viper's garlic.

Elaquir; red vitriol.

Elas maris, or Elos maris; burnt lead.

Elasis, i. e. elastic.

Elasma, (ελασμα, from ελαυνω, *to agitate*); a term used to express a glyster-pipe.

Electrodes, (from ηλεκτρον, *amber*); an epithet for stools which shine like amber.

Elersna, i. e. *Molybdæna.*

Elhanna; i. e. *Alcanna.*

Elhanne arabum, the eastern privet.

Eligii morbus; a fistula.

Eligma; a linctus.

Elipsis; the scoria of silver.

Eloanx, or **Elome**; auripigmentum.

Elopitinum; vitriol.

Eluvies, in Pechlinus, the humour discharged in leucorrhœa.

Emborisma; an aneurism.

Embregma, (from εμϐρεχω, *to moisten*); an embrocation.

Embroche, (from εμϐρεχω, *to make wet*), i. e. *Embrocatio*, vel *Fomentatio.*

Embrontetos, (from ϐροντη, *thunder*); properly, one thunderstruck; from a similarity of effect, applied to apoplectic persons.

Embryothlastes, (from εμϐρυον, *fœtus*, and θλαω, *to break*), a crotchet; or an instrument to break the bones of a fœtus, to effect its delivery.

Emmenia, (from μην, *a month*), the menses.

Emmotos, (from μοτος, *lint*); an epithet for persons, parts of the body, or disorders that require lint for the cure.

Emodia; a stupor of the teeth.

Emphractica, (from εμφρασσω, *to obstruct*); such topics as obstruct the pores when applied to the skin.

Emphragma, (from εμφρασσω, *to obstruct*), an obstruction. In Hippocrates, the parts of a child presenting unnaturally; because they obstruct the birth.

Empneumatosis, (from εμπνεω, *to blow into, or inflate*); an inflation of the stomach, uterus, or other parts.

Emprion, (from εμπριω, *to saw*), saw-like; a kind of pulse mentioned by Galen, in which the artery is unequally distended in different parts.

Emptysis, (from εμϖτυω, *to spit upon*). Aretæus limits this word to a discharge of blood by spitting, when it comes only from the mouth, or fauces.

Empyros, (εμπυρος), one labouring under a fever.

Enæmos, (from αιμα, *blood*). So Hippocrates and Galen call styptic medicines.

Enarges, (from αργος, *white*); in Hippocrates, an epithet to dreams.

Enarthrosis. For the reference "See Articulatio," read "See Joint."

Encardion, (from καρδια, *the heart*); the pith of vegetables.

Encardium premnou, (εγκαρδιον πρεμνου); the heart and marrow of the trunk. Dioscorides improperly calls thus, the tender medullary substance on the tops of the great palm tree.

Encatalepsis, (εγκαταληψις), the *Catalepsy.*

Enceris, (from κηρος, *wax*); bits of wax found in plasters as they cool.

Encharaxis, (from χαρασσω, *to scarify*); scarification.

Encheiresis, (from χειρ, *a hand*); in Galen, used as part of the title to one of his works on dissection. The word imports the manual treatment of any subject.

Enchiloma. So Lemery says an elixir is sometimes called.

Enchondros, (from χονδρος, which signifies both *a grain* and *a cartilage*); implies both granulated and cartilaginous.

Enchorios, (from εν and χωρος, *a region or country*); endemic.

Enchrista; liquid medicines for anointing any part with.

Enchyma, (from εγχεω, *to infuse*); infusion, or a sanguine plethora.

Enchymosis, (εγχυμωσις), blushing; also an extravasation of blood, which makes the part livid. Thus, but improperly, it is synonymous with *Ecchymosis.*

Enchytos; an epithet for any thing infused into any cavity of the body.

Enclysma; a clyster.

Encolpismos, a uterine injection.

Encymon, (from εγκυω, *to conceive*); with child.

Endedinemenos, (from ενδινεω, *to turn round like a vortex*), applied to the eyes which preternaturally turn in their orbits.

Endeixis; an indication.

Endesis, (from δεω, *to tie*); a ligature, band, or connexion.

Enellagmenos, (from εναλλαττομαι, *to interchange*); applied to the joints of the vertebræ, because of their alternate or mutual reception and insertion.

Eneos, (ενεος); vain, empty, or useless. The Greeks call ενεοι, those who are unable to perform the common offices of life, such as the dumb, deaf, &c.

Energumeni, (ενεργȣμενοι); in some authors, a possession by evil spirits.

Engisoma, (εγγεισωμα); an instrument formerly used about fractures of the cranium; also the same as *Engisomata.*

Engisomata; fractures of the cranium, in the middle of which the bone presses on the membrane of the brain, and makes the appearance of γεισον, *the eaves of a house*, from εγγιζω, *to draw near.*

Engomphosis; *Gomphosis.*

Engonios, (from γωνια, *an angle*); in Hippocrates, the bending of the arm at a right angle.

Enixa; a woman in child-bed.

Enixum Paracelsi, sal; the caput mortuum of spirit of nitre, joined with vitriolic acid. It is much the same as the *kali tart.*

Enneaphyllum, (from εννεα, *nine*, and φυλλον, *a leaf*); *Helleboraster.*

Enochdianus, in Paracelsus, one who equals Enoch in longevity.

Ens parvum sapientium; a soap made by mixing alkali with distilled vegetable oil.

Ens primum solare; i. e. *Antimonium.*

Entada; a species of *Mimosa.*

Entale; a vessel.

Entali; fossil alum.

Entatica, (εντατικα); medicines that provoke venery. Cælius Aurelianus calls them *Satyrica.*

Entera. So Hippocrates calls the bags in which were inclosed medicines for fomentations.

Enteradenes, (from εντερον, *an intestine*, and αδην, *a gland*); the intestinal glands.

Enterenchytæ, (from εντερα, *the viscera*, and εγχυω, *to infuse*); instruments for administering clysters.

Enteron, (from εντος, *within*); internal, and an intestine. But in Hippocrates, Epid. vi. sect. 4. ap. 3. *enteron* signifies simply the *colon.*

Enthemata, (from εντιθημι, *to put in*); medicines applied immediately to recent wounds, in order to prevent inflammation, and stop an hæmorrhage.

Enthetos, (from εντιθημι, *to put in*), any thing introduced; but particularly what is put up the nose, to restrain hæmorrhage.

Enthlasis, (ενθλασις) a contusion, with the impression of the instrument by which it happened.

Entrichoma, (from εν and τριχωμα, *the hair*); the edge of the eye-lid, on which the hairs grow.

Entyposis, (from εντυποω, *to make an impression*, of τυπος, *a type or image formed by impression*); the acetabulum of the humerus.

Enyposapros, (from εν, *within*, υπο, *a preposition*, which in composition is a diminutive one, and σαπρος, *putrid*); applied to the spittle of hepatic patients.

Eon, (ηων); the whole compass of the eye.

Epacmastica, (επακμαστικος); a continual putrid fever that still increases.

Epacogion, (επαγωγιον); a name in Dioscorides for the prepuce.

Epanadidontes pureti; fevers whose heat is not biting to the touch in the beginning, but become more so as they advance.

Epanadiplosis, (from διπλȣς, *reduplication*); the reduplication of a fit of a semi-tertian fever:—that is, the renewal of a cold fit before the hot fit is ended.

Epanastasis, (επαναστασις); a tumor or tubercle.

Epancylotus, (from αγκυλος, *crooked*); a sort of bandage in Oribasius.

Epanthisma, (from ανθος, *a flower*); an efflorescence.

Epaphæresis, (from επι, importing *repetition*, and αφαιϱησις, *a removal*); in Galen, expresses a repeated evacuation by bleeding.

Eparcemos; an epithet for a person affected with that disorder of the eye called *Argemon*.

Eparita; a sort of earth.

Eparma, or **Eparsis**, (from επαιρω, *to elevate*), any kind of tumor; but frequently applied to the parotis.

Epasmastica febris. A fever is thus termed by Bellini, and others, while it is in its increase.

Epencranis; a name for the cerebellum.

Ephebæon, (εφηϐαιον); the pubes.

Ephedra; the name of an instrument for reducing luxations.

Ephedrana; the nates.

Ephelcis, (from ελκος, *an ulcer*), the crust of an ulcer; or a small abrasion, or bloody fragment, coughed up.

Ephialtes, (from εφαλλομαι, *to leap upon*); the night-mare.

Ephialtia; a name for the *Pæonia*.

Ephodos, (from επι and οδος, *a way*); in Hippocrates, signifies: 1. the passages by which the excrements of the body are evacuated: 2. the periodical attack of a fever, from the common use of it to express the attack of thieves: 3. the access of similar or dissimilar things, which may be useful or hurtful to the body.

Epiala; a kind of tertian fever.

Epialos, (επιαλος), an ardent fever, in which both heat and cold are felt in the same part at the same time. Galen. The ancient Latins call it *Quercera*.

Epibole, (from επιϐαλλω, *to press upon*); the night-mare.

Epicanthides, (επικανθιδες), the two angles of the eyes.

Epicarpium, (from επι, *upon*, and καϱπος, *the wrist*), medicines of any kind applied to the wrists; but generally in cataplasms or plasters.

Epicerastic, (from επι, *above*, and κεϱαννυμι, *to correct*); a medicine that corrects sharp humours.

Epicholos, (επιχολος, from χολη, *bile*); bilious.

Epichordis, (from επι and χορδη); the mesentery.

Epicœlis, (επικοιλις); the upper eye-lid.

Epicrasis, (επικρασις); a critical evacuation of bad humours, or an attemperation of bad ones. When a cure is performed by alteratives, it is called *per Epicrasin*.

Epictenion, (from επι, *upon*, and κτεις, *pubes*); the part above the pubes.

Epicyema, (from κυω, *to conceive*), in Hippocrates, a fœtus; also a mole.

Epicyesis, (from κυω, *to conceive*); superfœtation.

Epideris; the clitoris.

Epidosis, (επιδοσις), a preternatural enlargement of the parts.

Epidrome, (from επι, *upon*, and δρεμω, *to run*); an afflux of humours, as when a ligature is made on any part.

Epigennema, (from επιγενναω, *to generate redundantly, or anew*). Sometimes it signifies a symptom; at others, any thing grown over another, as when the saliva is thickened and forms a fur on the tongue.

Epiginomena, (from επιγινομαι, *to succeed or supervene*), in Galen, those symptoms which naturally may be expected in the progress of a disease: but Fæsius says, they are accessions of some other affection to diseases, which never happen but in malignant cases.

Epiglossum; a name for the *Laurus Alexandrina*.

Epiglottum; an instrument mentioned by Paracelsus for elevating the glottis.

Epigloutis, or **Epiglutis**, (from επι, *above*, and γλȣτος, *the buttock*); the superior part of the buttock.

Epigonatis, (from επι, *upon*, and γονυ, *a knee*); the patella.

Epigounides; the muscles inserted into the knees.

Epimorios, (from μειρω, *to divide*), superpartial. By Galen used as an epithet of the difference of pulses, with respect to their inequality of time.

Epimulis, (επιμυλις); the knee-pan.

Epineneucos, (from νευω, *to nod or incline*), denotes a pulse which beats unequally in different parts of the artery; also called *Perineneucos*. Galen says it is frequent in hectics.

Epinephelos, (from νεφελη, *a cloud*), cloudy; an epithet applied to the *enæorema* in the urine, which is like a cloud.

Epinotion, (from επι, *upon*, and νωτος, *the back*); the shoulder-blade.

Epios, (ηπιος), mild or gentle; applied by Hippocrates to some epidemic fevers.

Epiparoxysmus; when more exacerbations occur than are usual in a fever.

Epipechy, (from επι, *above*, and πηχυς, *the cubit*), the parts of the arm above the cubit.

Epipephycos, (from επι, *upon*, and φυω, *to grow*); a name of the *Tunica conjunctiva*.

Epiphænomenos, (from επι, importing *addition*, and φαινομενον, *a phænomenon or sign*); an adventitious symptom not appearing till the disease is formed. It seems to be the same as *Epiginomenos*.

Epiphlebos, (from επι, and φλεψ, *a vein*); one whose veins are prominent.

Epiphlogisma, (from επι, and φλογιζω, *to inflame*, of φλοξ, *a flame*); a violent inflammation.

Epiphlogisma, in Hippocrates, a name for the shingles; also a burning heat in any part.

Epiplasma, (επιπλασμα), i. e. *Cataplasma*. Also a name for an application of wheat meal, boiled in *hydrelæum*, to wounds.

Epiploomphalon, (from επιπλοον, *the omentum*, and ομφαλος, *the navel*); a hernia umbilicalis.

Epiploscheocele; a hernia, in which the omentum descends into the scrotum.

Epipogium; a species of *Satyrium*.

Epipolæus, (επιπολαιος); slight, or gentle. Hippocrates applies it to disorders not dangerous.

Epipolasis, (επιπολασις), a redundance and fluctuation. In chemistry, it is when what is sublimed, ascends only to the surface, and there settles.

Epiporoma, (from εϖιϖωροω, *to harden*); any indurated tumor in the joints; a callous concretion, or tophus, affecting the joint.

Episarcidium, (from σαρξ, *flesh*); the same as *Anasarca*.

Epischion, (from εϖι, *upon*, and ισχιον, *ischium*); the os pubis.

Episeion, (εϖισειον); the pubes.

Epistasis, (εϖιστασις). See *Epischesis*. Also the substance on the surface of the urine.

Epistrophalus, (from εϖι, *upon*, and ϛρεφω, *to turn about*); applied to the first vertebra of the neck, because it turns about upon the second as upon an *axis*, which therefore was so called by the ancients. Some, though improperly, call the second thus. It is also written *Epistrophea* and *Epistrophis*.

Epitasis, (εϖιτασις); in Hippocrates, the beginning and increase of a paroxysm.

Epitedeuma, (εϖιτηδευμα); the way of living which a person prescribes to himself. Cœlius Aurelianus calls it *Vitæ affectiones*, and Celsus *Vita proposita*.

Epithesis, (εϖιθεσις); in surgery, the cure of crooked limbs by means of instruments.

Epocheteusis, (εϖοχετευσις), a derivation of the juices to the other parts.

Epomis, (from εϖι, *upon*, and ωμος, *the shoulder*); *Acromion*.

Epomphalium, (from εϖι, *upon*, and ομφαλος, *the navel*); any application to the navel.

Epode, or Epodos, (from εϖι, *over*, and ωδη, *a song*); the curing distempers by incantation.

Erection. See Semen.

Eregmos, (from ρηγνυμι, *to break*); any leguminous fruit decorticated and broken into pieces. Fœsius says it is bean meal.

Ereumena ura; urine that assumes a cloudiness in the middle.

Ereuxis, (ερευξις); eructation.

Ergasima; the worst sort of myrrh.

Ergasterium, (from εϱγος, *a work*); a laboratory; or that part of a furnace in which are the cupel, alembic, retort, &c. containing the matter to be acted upon.

Erineos; the wild fig-tree.

Erix; the superior part of the liver.

Errhipsis, (from ριϖτω, *to precipitate*); with respect to the body, signifies a loss of strength.

Erythroeides, or *Erythroides*, (from εϱυθρον, *red*, and ειδος, *appearance*), the *tunica vaginalis testis*.

Esaphe, (from εσαφαω, *to feel with the fingers*), the touch; or examination of the mouth of the womb.

Esebon; common salt.

Esoche, (εσωχη); a tubercle within the anus.

Essatum potentiale; the medicinal virtue which resides in vegetables and minerals.

Essatum vinum, alkohol impregnated with the medicinal virtue of vegetables.

Euanasphaltos, (from ευ, *well*, and ανασφαλλω, *to recover the strength*); one who is soon restored to health.

Euanthemon, in Galen, the same as *Anthemis* and *Chamæmelum*.

Euboica nux; the wall-nut.

Euembolos, (from ευ, *well*, εν, *in*, and βαλλω, *to cast*); one expert at setting fractured bones.

Euemeti, (from ευ, *importing facility*, and εμεω, *to vomit*); those who vomit easily.

Euexia, (from ευ, *well*, and εξις, *habit*), a sound and healthy constitution; in opposition to cachexy, or a bad habit.

Eugeos, (from ευ, *well*, and γη, *the earth*); the uterus, so named from its fertility. Also a name of the hymen.

Eule, (ευλη); properly, a worm that is bred in ulcers.

Euodia, (or ευωδη), in opposition to *Dysodes*, is used by Hippocrates in his Epidemics, to express an healthful or agreeable disposition; as also, a ready method for obtaining any end. By Scribonius Largus it is applied to a particular collyrium.

Euphoria, (from ευ, *well*, and φεϱω, *to bear*); used by some to express that ease with which some bear the course of a distemper, or the operation of a medicine; also the aptitude of some things to particular operations.

Euporista, (from ευ, *well*, and ϖορεω, *to afford*); medicines easily prepared.

Eurythmia, (from ευ, *well*, and ρυθμος, *harmony*); the proper state of the pulse.

Eusarcos, (ευσαρκος), in Galen, and others, a due proportion of flesh, not too lean nor too corpulent.

Eusplanchnos, (ευσπλαγχνος); applied by Hippocrates to persons supposed to have sound viscera. Ευ is put to several things to express the goodness of their condition; as *Eutaxia*, for a healthful state, *Euthanasia*, for an easy or happy death, &c.

Euthesia, (ευθεσια), in Galen, an innate strong habit of body.

Euthyporos, (from the Gr. ευθυς, *straight*, *direct*); an epithet of extension, to reduce a broken bone.

Euzomen; the herb *Rocket*.

Everriculum, in Paré, a sort of spoon used to empty the bladder from gravel, &c. after lithotomy.

Evistiola. In Paracelsus it seems to import a leprous disorder in the nape of the neck.

Exæresis, (from εξ, *out of*, or *away*, and αιϱο, *to remove*); that part of surgery which consists in removing superfluities; as by amputation of redundant parts, &c.

Exalma, (from *εξαλλομαι, to leap out*), in Hippocrates, the starting of the vertebræ out of their places.

Exambloma, (εξαμβλωμα), or *Examblosis*; a miscarriage.

Exanguis, bloodless; applied by the ancients to the nerves, cartilages, bones, and other parts which appeared white.

Exanthropia; in Wedelius, the third degree of melancholy.

Exarma, (from *εξαιρομαι, to be elevated*); an elevated tumor.

Exarsio; a hot intemperature, such as happens in hectic fevers.

Exarthrema, (from *εξ, out of*, and *αρθρον, a joint*); a luxation.

Exarthros, (εξαρθρος); an epithet for a person whose joints are large and prominent.

Excipulum, in chemistry, a receiver.

Exclusorium, a medicine which causes abortion.

Exechebronchos, (εξεχεβρογχος); an epithet for a person who has a prominent throat.

Execheglutos, (εξεχεγλȣτος), one who hath prominent buttocks.

Exelcosis, (from *ελκος, an ulcer*); ulceration.

Exerama, (εξεραμα), the matter ejected by vomiting.

Exipoticos, (from *εξιπτοομαι, to be pressed out*), an epithet for digesting or deterging medicines.

Exitura; a suppurated abscess. Paracelsus applies it to all sorts of putrid excrements.

Exocystis; a prolapsus of the internal membrane of the bladder.

Exonchoma, (from *εξ, out*, and *ογχος, a tumor*); any large and prominent tumor.

Exoneirosis, (from *εξ, out*, and *ονειρος, a dream*); in Linden, a species of gonorrhœa, or *Pollutio nocturna*, when the semen involuntarily flows in sleep.

Exos, a leech; also a fish from which isinglass is obtained.

Exsuccasio; an ecchymosis.

Extraversio, in chemistry, the rendering manifest any thing saline, alkaline, or acid, concealed in mixed bodies; being the reverse to one species of concentration.

Extrinseci, the external parts, particularly the limbs; also painful disorders in the external parts of the body.

F

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Farctura, in pharmacy, the stuffing of any exenterated animal, or excavated fruit, with medicinal ingredients to preserve it.

Fasting. For "See Abstinence," read "See Hunger."

Ferina; that delirium in which the patient rages violently, and is furious.

Fermentation. For more on this subject, see the article Animal substances.

Fersæ; the measles.

Flemen; a tumor of the foot, about the ankle. Sometimes it signifies a callous furrow in the hands or feet.

Fleresin; a name for the gout.

Fodina; the labyrinth of the ear.

Fontale acetosum, in Paracelsus, the same as *Acidulæ*.

Fracture. For "See Skull," read "See Fissure."

Friesel; a German name for the miliary fever.

Frigeraria; the putrid fever.

Furcella; the ensiform cartilage.

Furor uterinus. See Nymphomania.

G.

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Gabirfa, a kind of myrrh, mentioned by Dioscorides.

Gæodes, a species of *Ætites*; or round *Belemnites.*

Galactia, a redundance in the secretion of milk.

Galactodes, (γαλακτωδης), in Hippocrates, signifies both milk-warm, and a milky colour.

Galactophora, or **Galactopoetica**, (from *γαλα, milk*, and *ποιεω, to make*); medicines to increase the milk.

Galæna inanis; bismuth.

Galatoposia; the curing by a milk diet.

Galbei, or **Galbeum**; a sort of medicated bracelets worn by the Romans.

Galbulus. When the skin of the body is naturally yellow.

Galeaniones; persons having one arm shorter than the other.

Galeanthropia. (from *γαλη, a cat*, and *ανθρωπος, a man*); a species of madness in which the patient imagines himself to be á cat.

Galiancon; one arm shorter than the other.

Gamphele, (*γαμφηλη*, from *γαμφος, crooked*); the cheek, or the jaw.

Gangamon, a name for the omentum; from its supposed likeness to a fishing net, which the Greeks call *γαγγαμων*. Some call that contexture of nerves about the navel thus.

Gargale, (*γαργαλη*), *Gargalos*, or *Gargalismos*; irritation or stimulation.

Gargathum; a bed on which lunatics, &c. were formerly confined.

Garon, (γαϱον), or *Garum*, a kind of pickle prepared of fish. At present, *garum* signifies the liquor in which fish is pickled.

Geison, (γεισον), properly the eaves of a house, but used figuratively for the prominent part of the eye-brows.

Gelasinos, (γελασινος, from γελως, *laughter*), an epithet for the incisores, because those teeth are shewn in laughing.

Gelasmus; the Sardonic grin.

Gemursa; an excrescence between the toes.

Geneias, the downy hairs which first cover the cheek; also the name of a bandage under the chin.

Genugra, a name in Paracelsus for the gout in the knee.

Geranium, the name of a bandage.

Gerula, in Paracelsus, a monstrous plant.

Geryon; quicksilver.

Gingibrachium, and **Gingipedium**, names for the scurvy; because the gums, arms, and legs are affected with it.

Gingidium; a species of *Daucus.*

Gingihil; i. e. *Zingiber.*

Gir; quicklime.

Girmer; tartar.

Glabella; the space betwixt the eye-brows.

Glanculoso-carneus; an epithet, by Ruysch, applied to some excrescences in the bladder.

Glecnon; pennyroyal.

Glechonites; wine of pennyroyal.

Glene, (γληνη), strictly, the socket of the eye; but by some used for that cavity of a bone which receives another within it.

Gleucos, (γλευκος); must. Sometimes it also signifies sweet wine.

Gliscere, to increase gradually, as fire does; by some physical writers applied to the natural heat and increase of spirits; and by others to the periodical exacerbations of fever.

Glischrocholos, (γλισχϱοχολος); an epithet for bilious viscid excrements.

Glisomargo; white chalk.

Glossagra; a rheumatic pain in the tongue.

Glossocatochos, (from γλωσσα, *tongue*, and κατιχω, *to hold*); an instrument in P. Ægineta for depressing the tongue.

Glossocele; an extrusion of the tongue.

Glossocoma; a retraction of the tongue.

Glossocomon, (from γλωσσα, *a tongue*, and κομεω, *to guard*); a case, for containing fractured limbs.

Gluttupatens; an epithet for the stomach.

Glutia, (γλȣτια), the two small protuberances in the brain, called *Nates.*

Gnidius; applied by Hippocrates, and others since, to some medicinal precepts written in the island of Gnidos.

Gonagra, (from γονυ, *the knee*, and αγϱευω, *to take*); the gout in the knee.

Gone, (γονη), the semen: but in Hippocrates it means the uterus.

Gongrona, (γογγϱωνη), a round tubercle in the trunk of a tree. It means any hard round tumor of the glandular parts, particularly a bronchocele, or other hard tumor of the neck.

Gongylion, (γογγυλιον); a pill.

Gonoides, (from γονη, *seed*, and ειδος, *form*); i. e. resembling seed. In Hippocrates, often an epithet for the fæces, and for the contents of the urine, when there is something in them, which resembles the seminal fluid,

Gramia; the sordes of the eyes.

Gramme, (γϱαμμη); the iris of the eye.

Gratterona; i. e. *Aparine.*

Gravatio; i. e. *Caros.*

Gnossus; an unripe fig.

Gynæcia, (γυναικεια, from γυνη, *a woman*); signifies the menstrua, and sometimes the lochia.

Gynæcium, (γυναικειον, from γυνη, *a woman*), a seraglio; also a name for *Antimony.*

Gynecomaston, (γυναικομαστον), an enormous increase of the breasts of women; as *Gynæcomastos* denotes a man whose breasts are large, like a woman's. Also tumors on women's breasts are thus called.

Gynæcomystax, (from γυνη, *a woman*, and μυσταξ, *a beard*); the hairs on the female pudenda.

H.

Habena; the name of a bandage for keeping the lips of wounds together.

Hadid; iron.

Hæcceitas; the *quinta essentia* of the chemists.

Hæmalops, (αιμαλωψ, from αιμα, *blood*, and ωψ, *the countenance*); the livid marks of sugillations in the face and particularly in the eyes.

Hæmatoporia; a tabes from poverty of blood.

Hæmatia, (αιματια), or **Hæmation**; an epithet for a sort of *Garum*, made of the intestines of fish macerated in salt.

Hæmatochysis, (from αιμα, *blood*, and χεω, *to pour out*); a term used by Willis to signify an hæmorrhage.

Hæmato-pedesis; a bloody sweat.

Hæmato-phlœbœstasis, (αιματοφλοιϐοιστασις), i. e. blood-making; a function formerly attributed to the liver, which was supposed to convert the chyle into blood.

Hæmatops, *bloody eyes:* strictly used, by some, for any bloody suffusion of the eyes from external injury. But Hippocrates uses it frequently in a more lax sense, for any concreted or stagnant blood.

Hæmitritæa, or **Hæmitritæus**, (ημιτριταιος), the semitertian fever.

Hæmocerchnus, (αιμοκερχνον); blood brought up from the fauces, with a noise, or rattling; or bloody excretions discharged in a dry form.

Hæmodia, (αιμωδια); a stupor of the teeth with pain.

Halation, (αλατιον), a purging medicine prepared with salt, and to be used as salt, at table.

Halchemia; the art of fusing salts.

Halcyonium, the oily or bituminous spume of the sea.

Halices: pandiculation after sleep, or upon awaking.

Halinitron, in Hoffman, Paracelsus, and others, a name for nitre.

Halmyrax; a sort of nitre produced in the valleys of Media.

Halmyris; a species of sea-cabbage.

Halmyrodes, (αλμυρωδης), *salsuginosus;* by Hippocrates applied to a particular fever, attended with sharp brackish sweats.

Halotechnics; the art of extracting salts and their spirits.

Handal, or **Handala**; bitter apple.

Hapsis, (αψις); the sense of feeling. Also connection with respect to bandages. And αψις φρενων, in Hippocrates, signifies madness, delirium, or loss of reason.

Hapsicoria; a sort of loathing of food.

Harmos; the flesh betwixt the teeth.

Harpaga; amber.

Harpastrum; a kind of exercise with a ball.

Harpax, amber; also a mixture of quick-lime and sulphur.

Harundo; the Indian reed.

Hasacium; sal ammoniac.

Hastellæ; splints used in fractures.

Haud; wood. The Arabs call the Agalochum thus, by way of eminence.

Heautontimoreumenos; a self-tormentor.

Hebdomedaria; one of the *febres erraticæ.*

Hebe, (ηϐη); a word used for the first hair appearing about the genitals; for the parts themselves; but more justly, for that period at which it first appears. Hence custom appropriated it almost solely to the latter, or to signify youth in general.

Hedra, (εδρα), the anus; also the fæces. It sometimes signifies the basis of an abscess, or that part which is subject to be converted into pus. In Hippocrates, it sometimes signifies a species of fracture.

Hedricos; an epithet for remedies appropriated to the anus.

Hedychroi, (ηδυχροοι); a name for sweet troches.

Hedyosmos; a name for mint.

Helcydrion; a small ulcerous pustule.

Helcyster, (from ελκω, *to draw*), a hook for extracting the fœtus.

Heleagnus; a species of *Gale.*

Heleniastrum; bastard elecampane.

Helioscopios; the sun-spurge.

Heliotropium indicum; potatoes.

Helocapolin; a sort of cherry.

Helotis; the *Plica Polonica.*

Hemiobolion, or **Hemiobolon**, (ημιοϐολιον), i. e. half an obolus.

Hemiolion, (ημιολιον); the same as *Sesquialtera.* But in Galen it particularly signifies an ounce and a half.

Hemionis, (ημιονις, from ημιονος, *a mule*); mule's dung.

Hemionium; a name for the *Asplenium.*

Hemiplexia, (ημιπληξια), the same as *Hemiplegia;* or, according to some, when one half of the body is apoplectic.

Hemirhombion, (ημιρομϐιον), or **Hemitomon**, a sort of bandage mentioned by Hippocrates; called also *Semirhombus*, from its figure.

Hepateros, (from ηπαρ, *the liver*); an epithet for a sort of dysentery, in which bloody water is evacuated.

Heracleios, **Heracleius**, or **Herculeus Morbus**, (from Ηρακλεης, *Hercules*), Herculean; an epithet applied to epilepsy and mania, denoting the uncommon force of their attacks: a name also for the load-stone.

Heracleoticon, origanum; so called from *Heraclea*, where the best was produced.

Herpeton, (ερπητον), in Hippocrates, a creeping pustule or ulcer.

Heterorhythmos, in Galen, a species of the αρυθμος, which is any irregularity of the pulse; this restraining it to that particular sort, where it beats like one of a greater or lesser age; as if a child hath a pulse like one more advanced in years, or the contrary.

Hidrocritica, (from ιδρως, *sweat*; and κρινω, *to judge*); signs taken from sweat.

Hidronosos, or **Hidropyretos**; names for the *Sudor Anglicanus.*

Hidrotica, or **Hidrotopsea**; *Sudorifics.*

Hiera diacolocynthidos, an electuary, so called from the colocynth contained in it.

Hieranosos; convulsion. Some express by it, a continual kind of convulsion, without pain or loss of sensibility.

Hieropyr; the same as *Erythema.*

Himantosis, (αιμαντωσις), relaxation, lengthening, or smallness of the uvula.

Himas, (ιμας), properly a leather thong; but in medicine, a laxness of the uvula. It differs from the *Cionis*, which is when the uvula is thickened.

Hin, **Hing**, or **Hingish**, the Indian and Persian names for *Asafœtida*, and the plant which affords it.

Hippace, (ιππακη), the rennet of a colt; also the name by which the ancient Nomades, a people of Scythia, called the cheese made of mare's milk.

Hippocrates's sleeve; a woollen bag, made by joining the two opposite angles of a square piece of flannel, in the form of a pyramid. It is used for straining syrups and decoctions.

Hippolapathum; monk's rhubarb.

Hippomanes, (from ιππος, *a horse*, and μαινομαι, *to be mad*), a name for the *Cynocrambe;* which makes horses mad if they eat it. With some it signifies the secundines of a mare. The fleshy substance which sometimes adheres to the forehead of a new-foaled colt, is also thus named.

Hippomarathrum, (from ιππος, *a horse*, and μαραθρον, *fennel*); horse-fennel. A name also of the English saxifrage; and of a species of *Seseli.*

Hippuris. See **Equisetum.** Hippocrates applied this name to disorders supposed to proceed from much riding; as debility and gleet.

Hira, by some, the intestinum jejunum; others extend it to all the intestines; and others mean by it all the abdominal contents

Hirapitanga Brasiliensibus; Brasil-wood.

Hirculus; a species of saxifrage.

Hircus, a goat. *Hircosi* are persons remarkable for salacity, like that animal; especially those just come to puberty.

Hirquus; the great angle of the eye.

Hispanicum viride; verdigrise.

Hispiditas, hairiness in general; but used to signify either the disease called *Phlalangōsis*, or that called *Dislichiasis.*

Hoitziloxiti; balsam of Peru.

Holcimos, (from ελκω, *to draw*); applied to what may be drawn out, and still preserve its continuity. It is also spoken of the liver affected with a tumor. Galen.

Holera, an old name for *Cholera.*

Holippæ, thin cakes of flour and sugar. Some dispensatories direct purging and other *Holippæ.*

Holotonicos, (from ολος, *whole*, and τεινω, *to stretch*); spoken of a universal convulsion, or a rigor of the whole body. It is the same as *Tetanus.*

Holquahuilt; cinchona bark.

Homa, an anasarcous swelling.

Homonopagia; the head-ach.

Homoplatæ; the shoulder-blades.

Homotonos, (ομοτονος, *equal*, or rather *equable*); said of such distempers as keep a constant tenor of rise, state, and declension; and particularly applied by Galen, to those continued fevers, which are by others called ακμαστικαι.

Homunculus. Paracelsus digested semen masculinum in a glass placed in a dunghill, and produced something like a man, as his disciples asserted. This was called *homunculus Paracelsi.*

Hordeaceum vinum; beer.

Hortus, a garden; Rolfinkius, Macreen, and others, apply it to the privities of a woman.

Hyanche, (from υς, *a swine*, and αγχω, *to strangle*), a quinsey, with tumor on each side of the throat; so called, because swine are subject to such swellings.

Hybanthus; a species of *Viola.*

Hydatodes, or Hydatoides, (from υδατος, the genitive case of υδωϱ, *water*, and ειδος, *likeness*), watery; an epithet for wine much diluted; for limpid urine; for the aqueous humour of the eye, and that of the skin in *Anasarca.*

Hyderos, (υδερος), dropsy; by Galen particularly applied to *Anasarca.*

Hydrelæum, (υδρελαιον); oil and water mixed.

Hydrenterocele, (from υδωρ, *water*, εντερον, *an intestine*, and κηλη, *a tumor*), a dropsical tumor and hernia together.

Hydrocelodes; suppression of urine from a rupture of the urethra into the scrotum.

Hydronosos, (from υδωρ, *water*, and νοσος, *a disease*); *Sudor Anglicanus.*

Hydropege, (from υδωρ, *water*, and πηγη, *a spring*); spring-water.

Hydrophysocele, (from υδωρ, *water*, φυσν, *flatus*, and κηλη, *a hernia*); a hernia from a mixture of water and air.

Hydropneumosarca, (from υδωρ, *water*, πνευμα, *spirit, or wind*, and σαρξ, *flesh*); a tumor or abscess, from a mixture of flatulent, or aqueous and carneous, substances.

Hydropeides, (from υδρωψ, *a dropsy*, and ειδος, *resemblance*); applied to aqueous excretions, or dropsies.

Hydropyretos, (from υδωρ, *water*, and πυρετος, *a fever*), in Blanchard; the same as *Sudor Anglicanus.*

Hydrorosaton, (from υδωρ, *water*, and ροδον, *a rose*); a drink made of water, honey, and the juice of roses. P. Ægineta.

Hydrorodinon, (υδροροδινον), water mixed with the oil of roses.

Hydrosaccharum, (υδροσακχαρον), sugar and water; answering to the *Hydromel*, by changing honey for sugar.

Hydrosarcocele, (from υδωρ, *water*, σαρξ, *flesh*, and κηλη, *a tumor*), or Hydrosarca, a species of *Hernia*, composed of flesh and water.

Hydroticus, (υδρωτικος, from ιδρως, *sweat*), or Hydrotice; a medicine to promote sweat.

Hypaleiptron, (υπαλειπτρον); a sort of spatula for spreading ointments with.

Hypaleipton, (υπαλειπτον), a ligament.

Hypercrisis, (from υπερ, *over or above*, and κρινω, *to separate*), or Hyperecrisis, a critical excretion above measure; as when a fever terminates in a looseness.

Hyperephidrosis, (from υπερ, *excess*, and ιδρως, *sweat*); immoderate sweating.

Hyperinesis, (υπερινησις), or Hyperinos; i. e. *Hypercatharsis.*

Hyperoa, (from υπερ, *above*); the palate.

Hypersarcoma; a polypus in the nose, or a fleshy excrescence.

Hypexodos, (from υπο, *under*, and εξοδος, *passing out*); a flux of the belly.

Hypexocos, (υπεξωκος); signifies the membranes which are spread under other parts, as the pleura within the chest, &c.

Hypnobates, or Hypnobatasis, (υπνοϐατης, from υπνος, *sleep*, and βαινω, *to go*); one who walks in his sleep. See Somnambuli.

Hypnologica. It teaches the due regulation of sleep and waking.

Hypnopœos, (υπνοποιος, from υπνος, and ποιεω, *to cause*); such medicines as procure sleep.

Hypocapnisma, a suffumigation.

Hypocarodes, or Hypocarothis; one who labours under a low degree of carus.

Hypocerchnaleon, (from υπο, and κερχνος, *an asperity of the fauces*), a stridulous kind of asperity of the fauces and trachea.

Hypocheomenos, (υποχεομενος), one who labours under a cataract.

Hypochyma, or Hypochysis, (from υπο and χυω, *to pour*); a cataract.

Hypocoelon, (from υπο, *under*, and κοιλον, *the cavity above the upper eye-lid*); the cavity under the lower eye-lid.

Hypocophosis, (υποκωφωσις); the *Cophosis*, but in a less degree.

Hypocranium, an abscess, so called because seated between the skull and the dura mater.

Hypodeiris, (υποδειρις); in Rufus Ephesius, the extremity of the fore-part of the neck.

Hypodermis; the clitoris.

Hypoglottides, (υπογλωττιδες), a kind of lozenge, to be held under the tongue until dissolved.

Hypoglutis, (from υπο, *under*, and γλȣτος, the *nates*); the fleshy part under the nates towards the thigh. Some say it is the flexure of the *coxa*, under the nates.

Hypomia, (from υπο, *under*, and ωμος, *shoulder*); in Galen's Exegesis, the part subjacent to the shoulder.

Hyponomos, (from υϖονομος, *a phagedenic ulcer*), a subterraneous place; a term applied to a deep phagedenic ulcer.

Hypopedium; a cataplasm for the sole of the foot.

Hypophasia, or Hypophasis, from υποφαινομαι, *to appear a little*); a sort of winking when the eye-lids are nearly closed: or it is when a little of the white of the eyes appear in sleep.

Hypophasis, (υποφασις); a symptom that consists in closing the eyes in sleep, but so, that a part of the eye appears, and a slight motion of the eye is perceived.

Hypophora, (from υϖοφεϱομαι, *to be conveyed underneath*); a deep fistulous ulcer.

Hypophthalmion, (υποφθαλμιον), the part under the eye which is swelled in a cachexy or dropsy.

Hypopia; sugillations in the parts under the eyes.

Hypopleurios, (υποπλευϱιος), the pleura.

Hyporinion, (υποϱινιον); for the parts of the upper lip below the nostrils.

Hyposarcidios. See Hyposarca.

Hypospadiæus, (υποσπαδιαιος); the urethra terminating under the glans.

Hypospathismus, (υποσϖαθισμος); an operation for removing defluxions in the eyes; thus named from the instrument employed.

Hyposphagma, (υποσφαγμα), or Aposphagma; an extravasation of blood in the tunica adnata of the eye.

Hypostaphyle; laxity of the uvula.

Hypostasis, (υποστασις, from υφιστημι, *to subside*); a sediment, as the sediment in urine.

Hypotheton; a suppository.

Hypoxylon; a species of *Clavaria.*

Hypozoma; a name for the *Diaphragm.*

Hypsiloides, (υψιλοειδες), a name of the *Os Hyoides*; also of the *Basioglossus* muscle. See Hyoglossus.

Hyptiasmos, (υϖτιασμος), a supine decubiture; or a nausea with inclination to vomit.

Hypulus, (υϖȣλος, from υϖο, *under*, and ȣλη, *a cicatrix*); an ulcer under a cicatrix.

Hyssopites; wine impregnated with hyssop.

Hyssopus capitata; wild thyme.

Hysteralges, (υστεϱαλγης); any thing that excites pain in the uterus. Hippocrates applies this word to vinegar; and others signify by it, the labour-pains, generally called *false pains.*

Hysteroloxia; obliquity of the womb.

Hysteron, (υστεϱον); the secundines.

Hysterophyse, i. e. *Physometra.*

Hysterophorus; a species of *Parthenium.*

I.

Jabotapita; a species of *Ochna.*

Jacinthus. See Hyacinthus.

Jagra; a sort of sugar, got from the juice of a species of palm-tree.

Jamblici sales; a preparation so called from Jamblichus, its inventor.

Janitor; a name for the *Pylorus.*

Janitrix; a name for the *Vena Portæ.*

Jatraleiptes, (from ιατϱος, *a physician*, and αλειφω, *to anoint*); one who undertakes to cure distempers by external unction. Galen makes mention of such in his time, particularly one Diotas; and Pliny informs us, that this was first introduced by Prodicus, of Selymbria, a disciple of Æsculapius.

Jatrochymicus, (ιατϱοχυμικος); a chemical physician, called *Chymiater*, who cures by means of chemical medicines.

Jatroliptice, (ιατϱολειπτικη), the cure of diseases by unction and friction.

Jatrophysicus; an epithet applied to some writings which treat of physical subjects with relation to external medicines.

Ibirace. See Guaiacum.

Ibiræum; a wild species of liquorice found in Brasil.

Ibira patanga; the *Lignum Brasilium.*

Ibiscus, the marsh-mallow.

Ibixuma; *Saponaria Arbor.*

Icago; the cocoa palm-tree.

Icthya, (ιχθυη), the skin of the *Squatina*, or monk-fish; also the name of a blunt-hook for extracting the fœtus.

Icterus albus; the white jaundice. The chlorosis or green-sickness is sometimes thus called.

Idiotropia. See Idiosyncrasia.

Jecur uterinum, a name given to the *Placenta* by some, from the supposed similitude of its office with that of the liver.

Jecoraria vena; the hepatic vein.

Jetica; the Brasilian name for Spanish potatoes.

Igasur; i. e. *Nux Vomica.*

Ignis calidus, a hot fire: so some call a gangrene: also a violent inflammation approaching to a gangrene.

Ignis frigidus; a cold fire. So sphacelus has been called, because the parts so affected become cold as the surrounding air.

Ignis persicus; a name for the erysipelas; also of the carbuncle.

Ignis sacer; a name of the erythema and erysipelas, and of a species of *Herpes.*

Ignis silvaticus; a name of the *Impetigo.*

Ignis sapientium; the heat of horse-dung.

Ignis volagrius, or volaticus, a name of the *Impetigo.*

Ignye, or Ignys; the ham.

Ilaphis, in Myrepsus, a name for burdock.

Ilech, in Paracelsus, seems to mean a first principle.

Ilejdos, in the Spagyric language, the atmospheric air.

Ileon cruentum. In this disease, as well as in the scurvy, the breath is fetid, the gums recede from the teeth, hæmorrhages of the nose happen, and sometimes there are ulcers in the legs, but the patient can move about his business very well. Hippocr.

Iliadum, or Iliadus, the first matter of all things; consisting of mercury, salt, and sulphur, Paracelsus's three principles. His *iliadus* is also a mineral spirit, contained in every element, and the supposed cause of diseases.

Iliaster, in Paracelsus, the occult virtue of nature, whence all things have their increase.

Ilingis, (*ιλιγγος*, from *ιλιγξ*, *a vortex*); a vertigo in which all things turn round, and the eyes grow dim.

Ilisicus, in Avicenna, madness caused by love.

Illinctus; a linctus.

Illicio; i. e. *Enthlasis.*

Illos, (*ιλλος*); the eye.

Illosis, (*ιλλωσις*), a distortion of the eyes.

Illutamentum, an external medicine, like the *Ceroma*, with which the limbs of wrestlers were rubbed, especially after bathing.

Illutatio, a besmearing any part of the body with mud, and renewing it as it grows dry, with a view of heating, drying, and discussing.

Illys, (*ιλλυς*); a person who squints.

Ilys, (*ιλυς*); the fæces of wine; an epithet for sediment in stools or urine, which resemble the fæces of wine.

Imbecillitas oculorum. Celsus speaks of the *Nyctalopia* by this name.

Immersus, sunk, or hid; a term given by Bartholine, and some other anatomists, to the *Subscapularis* muscle.

Impia herba; cudweed.

Impluvium; an embrocation.

Impuber, is said of such as have not yet hair upon their privy parts, or are at an age short of puberty.

Incendium, an ardent fever; or sometimes any burning heat.

Incensio, the same as *Incendium*; also a hot inflammatory tumor.

Incerniculum; a strainer or sieve. In anatomy, a name for the pelvis of the kidney.

Incide, (from *incido*, to cut). Medicines are said thus to do, which consist of sharp particles, as acids, and most salts. Some expectorants are said to incide or cut the phlegm, when they break and occasion its discharge.

Indiana radix, i. e. Ipecacuanha.

Indica camotes; potatoes.

Indicating days; the same as critical days.

Indicum lignum; logwood.

Indicus; sweet and bitter costus.

Indicus mor[illegible], the venereal lues.

Indusium, a shirt: also the amnios.

Ingravidation; the same as impregnation, or going with child.

Inhumation, that kind of digestion which is performed by burying the materials in dung, or in the earth.

Inion, (*ινιον*), the occiput. In Blancard it is the beginning of the spinal marrow: others say, it is the back part of the neck.

Injaculatio. So Helmont calls a violent spasmodic pain in the stomach, with an immobility of the body.

Innominati nervi; a name of the fifth pair of nerves.

Inophyllum; a species of *calophyllum.*

Inspissation. See Succus.

Intercurrent fevers. Those which happen in certain seasons only, are called stationary; but others are called by Sydenham, intercurrents.

Intercus, (from *inter*, between, and *cutem*, the skin); the *Anasarca.*

Interdentium; the intervals between teeth of the same order.

Interdigitum; a corn betwixt the toes.

Interfæmineum; the perinæum.

Interlunius morbus; the epilepsy.

Internuntii dies; critical days.

Internus; a name of the laxator membranæ tympani.

Interpellatus morbus; in Paracelsus, a disease attended with irregular or uncertain paroxysms.

Interpolatus dies, in Paracelsus, the days interpolated betwixt two paroxysms.

Interseptum; the uvula, and the septum narium.

Intrinseci; painful disorders of the internal parts.

Introcessio; i. e. *Depressio.*

Inustion, sometimes used for hot and dry seasons; but most commonly, by surgeons, for the operation of the cautery.

Inverecundum os, i. e. *Os Frontis.*

Ion; the violet.

Ionia; ground-pine.

Jonthlaspi; a species of *Clypeola.*

Iosacchar, (*ιοσακχαρ*); sugar of violets.

Iotacismus; a defect in the tongue or organs of speech, which renders a person incapable of pronouncing certain letters.

Ioui; a restorative alimentary liquor, prepared in Japan, from the gravy of half-roasted beef.

Iralha; a species of palm-tree.

Iria; a species of Cyperus.

Iringus; i. e. Eryngo.

Is, (*ις*, *a fibre*). Its plural is *ινες*. Hippocrates used this word indifferently for a fibre and a nerve; and other writers have done the same.

Isada. So the Spaniards and Portuguese call the *Lapis nephriticus.*

Isaros; a name for the arum.

Isatodes (*ισατωδης*); of the colour of woad.

Isca, a fungus of the oak, or hazel, &c. The ancients used it as the moderns use moxa.

Ischæmon, (*ισχαιμον*, from *ισχω*, *to restrain*, and *αιμα*, *blood*); a name for any styptic.

Ischæmum; a species of *Andropogon.*

Ischnophonia, (from *ισχνος*, *slender*, and *φωνη*, *the voice*), shrillness of voice; frequently an hesitation or stammering; the *psellismus hæsitans* of Cullen.

Ischnotis, (*ισχνωτης*); leanness.

Isnardi, a species of *Centaurea.*

Isora, the screw-tree, a species of *Helicteres.*

Isotoni. See Acmasticos.

Isthmion, (ισθμιον), the narrow passage between the mouth and gullet: the fauces.

Ithmoides, falsely, for *Ethmoides.*

Itinerarium, the catheter: also a staff used in cutting for the stone; so named by Hildanus.

Iva pecanga; i. e. *Sarsaparilla.*

Juices. See Succus.

Juices, animal. See Fluids.

Jupiter, a name for tin; because supposed under the government of that planet.

K.

KAATH; the *Catechu.*

Kadanaku; common aloes.

Kækuria; the gum-elemi tree.

Kalmii; a species of *Hieracium.*

Kanki; a species of *Mimusops.*

Karabitus; an Arabic term for a phrenitis, or delirium.

Karfe; with the Arabians, the best sort of true cinnamon.

Kayl; sour milk.

Kenne; the name of a stone generated in the eye of a stag.

Kerva oleum; i. e. *Ol. Ricini.*

Kik, or Kiki; the palma christi plant.

Kleinia; a species of *Cacalia.*

Kolerus; a dry ulcer.

Kolto; i. e. *Plica Polonica.*

Kurudu; the true cinnamon-tree.

Kymia; a cucurbit.

Kymit elevatum; white sublimed cinnabar.

Kymolea; the slime gathered under grind-stones.

Kyna; i. e. *Opoponax.*

L.

LABARIUM; looseness of the teeth.

Labis, (λαβις, from λαμβανω, *to lay hold on*); any forceps.

Lablab; a species of *Dolichos.*

Labour. This article should have referred also to pl. xiii. as should article Labour, preternatural, to all the figures in pl. xiv.

Labrusca; the wild Virginian vine.

Laccopedon. So the Athenians call the lax part of the scrotum.

Laceratura; a lacerated wound.

Lacertuli, bundles; of fibres, &c.

Lacertus; that part of the arm from the shoulder to the elbow.

Laconicum; a stove, bagnio, or sweating room.

Lactica; the Arabian name for *Typhus.*

Lacticinia; aliments prepared of milk.

Lactucimina; aphthæ.

Lactumen; achor.

Lactumina; little ulcers or crusts on the skin, chiefly happening to children at the breast.

Lada; black pepper.

Lada chilli; Guinea pepper.

Læmos, (λαιμος); the œsophagus.

Lagaros, (λαγαρος), an epithet for the right ventricle of the heart.

Lagon, (λαγων); the flank.

Lagostoma; the hare-lip.

Lamac; gum arabic.

Lambdacismus, the defect in speech, otherwise called *Psellismus Lallans*, in which the letter L is pronounced too liquid, and often in the place of R.

Laonica curatio; a cure for the gout by topical remedies.

Lapara, (from λαπαζω, *to empty*, because this part falls in as if empty); the flanks.

Laparocele; a rupture through the side of the belly.

Lapidellum, or Lapidellus; a kind of spoon, for taking out small stones and gravel from the bladder in lithotomy.

Laqueus gutturis; a malignant inflammation of the tonsils.

Larbason; antimony.

Latten; brass.

Laucania; the œsophagus.

Laurosis, the spodium of silver; so called from the silver mines of Mount Laurus.

Lavacra; washes, or cosmetics.

Lavipedium; a bath for the feet.

Lazari morbus, or malum; the elephantiasis, or leprosy.

Lebbeck; the Egyptian mimosa.

Lecheneon; a name for the torcular Herophili.

Lectisternium, a term used for all the apparatus necessary for a sick person in bed.

Lectualis, (from κλινη, *lectus*, a bed); one whose distemper confines him in bed; the same as *Clinicus.* It also denotes the disease which confines the patient to his bed.

Lectuli, couches. In these, chaff was mixed with medicinal ingredients coarsely powdered, that their qualities might be absorbed into the body whilst the patient lay on them.

Leiopodes, (λειοποδες), splay-footed; when the middle of the inside of the foot is not hollow, but plane.

Leiphæmii, (λειφαιμοι, from λειπω, *to be deficient*, and αιμα, *blood*); those who have too little blood.

Leipodermos, (from λειπω, *to be deficient*, and δερμα, *the skin*); one who has lost his prepuce.

Leipopsychia, (from, λειπω, *to leave*, and ψυχη, *the soul or life*), a fainting fit, a languor, &c. It is synonymous with *Adynamiæ*.

Lenos, (ληνος), in Hippocrates, a channel or excavation, made in some machines for making extension, to reduce a fractured bone. Herophilus called the *Torcular Herophili* thus.

Lenticula; a freckle or sunburn, such as is seen on the face, arms, &c. See Ephelis.

Lentico, a freckly or scurfy eruption upon the skin; that especially common to women in child-bearing.

Leonina lepras, or Leontiasis; a variety of *Elephantiasis*.

Lepidoeides, (from λεπει, *a scale*, and ειδος, *shape*), applied to some of the sutures of the head, as is *Lepidosorcoma* by M. Aurel. Severinus, to some fleshy excrescences resembling scales in shape. *Lepidoeides* particularly denominates the squamous suture of the skull.

Lepidosarcoma. See Lepidoeides.

Leporinum rostrum; the slip of flesh often seen between the divisions of the hare-lip.

Leptophonia; *Paraphonia Clangens*.

Leros, (ληρος); a slight delirium.

Leseoli morbus. So Paracelsus calls the jaundice; and its remedy *Leseolus*, without saying what the latter is,

Leuce, (λευκη), by the Latins called *Alba Vitiligo*, and *Lepra Alba;* a species of leprosy, where the eruption are whiter and smoother. See Alphus.

Leucorrhois; that species of *Diarrhœa*, in which there is a too copious discharge of mucus. Also when in the piles the discharge is not bloody but mucous.

Levisanus, a species of *Brunia;* and a species of *Protea*.

Libanotus; frankincense.

Libdo: the itch.

Lichanos; the fore-finger.

Lichenastrum; a kind of moss.

Ligatura veneris, a name for *Camphor;* from a supposition that it checks the venereal appetite.

Limoctonia, (λιμοκτονια), is used by Hippocrates, and some others of the ancients, to express the utmost distress from hunger.

Lingodes. Fevers are so called that are much attended with a hiccough.

Linosyris, German goldilocks; a species of *Chrysocoma*.

Lippii, Egyptian small purple flowering centaurea; a species of *Centaurea*.

Lipopsychia. See Leipopsychia.

Liquor siriniacus; *Gum Benjamin*.

Lithagogus, (from λιθος, *a stone*, and αγω, *to bring away*); a medicine that expels the stone.

Lithoides, (λιθοειδης, from λιθος, *a stone*, and ειδος, *form*), an epithet for the os petrosum; so called from its hardness.

Loch, or Lohoch; Arabian names for those forms of medicines now called *Lambatives*, *Linctuses*, &c.

Logas, (λογας); the white of the eye.

Lonchoton; a name for vitriol.

Lophanthus, Chinese hyssop; a species of *Hyssopus*.

Lordosis, (λορδωσις). It is when the spine bends towards the fore parts; when applied to the bones of the legs, it signifies bow-legged. It is a name for the *Lumbago*, and the *Tabes Dorsalis*.

Lorina matricis, an epilepsy; or a convulsive disorder, proceeding from the uterus.

Loxarthrus; a supple joint.

Lues deifica, one of the pompous names for the epilepsy.

Lues neurodes convulsiva; the mild typhus.

Lumbrici; the round worms.

Lumbrici lati; tape-worms.

Lunætria, in the old chemical jargon; a species of hectic, curable in one period of the moon.

Lupus, the wolf; figuratively applied to an eating ulcer, like *Phagedæna*. The cancer is thus named by some.

Lupus philosophorum; *Antimony*.

Lycanche; a species of *Quincy*.

Lycanthropia, (from λυκος, *a wolf*, and ανθρωπος, *a man*), lycanthropy; a species of melancholy, or madness, by some called *erratic melancholy*, because the patient cannot rest in any one place. Aëtius calls it *Cynanthropy;* and Oribasius says, these patients, in the night time, imitate wolves, wandering about the tombs till day-break.

Lycium; a name of the Indian thorn.

Lycoctonum, the yellow poisonous aconite; a species of *Aconitum*.

Lygistum; a species of *Petesia*.

Lygmos, (λυγμος); a hiccough.

Lygismos, (from λυγιζω, *torqueo*); a luxation.

Lynceus, (from *lynx*, a creature supposed of a quick sight); a collyrium to strengthen the eyes; and hence also a quick-sighted person is said to be *lynceus*, or lynx-eyed.

Lyncourion, (from λυγξ, *a lynx*, and ȣρον, *urine*); according to Dr. Watson, *Tourmaline*.

Lyngodes, (λυγγωδεες); the hiccoughing quotidian fever.

Lyssa, (λυσσα, or λυττα), strictly, canine madness, communicable by a dog's bite; but more laxly applied to the bite of any venomous creature. Thence the *Pulvis Antilyssus*, in the former London Dispensatory, took its name as a remedy in such cases.

Lythron, (λυθρον). Dust mixed with sweat; but Hippocrates occasionally expresses by it, the menstrual blood.

M

Macapatli. i. e. *Sarsaparilla.*

Machæria; peach-kernels.

Macropnœa, or Macropnus, (*μακροπνοια*, from *μακρος long*, and *πνεω*, *to breathe*); one who fetches his breath at long intervals.

Madefaction, properly, soaked with moisture; whence *madida* is said, by some, of any thing made tender by infusion or decoction.

Madelion; bdellium.

Madisis, (*μαδισις*); baldness.

Mæmacylon; the fruit of the arbutus.

Magaliaize, i. e. *Manganese.*

Magistery; a very fine powder made by solution and precipitation, as of bismuth, lead, &c.

Magistral's, applied to medicines; the same with *Extemporanea.*

Magma, (*μαγμα*); dregs or residuum, after infusion or distillation.

Magnes albus, white load-stone; a sort of rocky marl.

Magnes arsenicales, arsenical magnet; a composition of equal parts of antimony, sulphur, and arsenic, fused together.

Magnes epilepsiæ; native cinnabar.

Magnésia opalina; the name of a sort of liver of antimony.

Magnus morbus, the great disease. Hippocrates so calls the epilepsy.

Mahaleb a species of *Prunus.*

Mahmoudy; i. e. Scammonium.

Mala alsyria; the citron.

Mala æthiopica; a species of *Lycopersicon.*

Mala cotonea; the quince.

Mala insana nigra, the fruit of the black-fruited night-shade. See Melongena.

Malacia, (*μαλακια*; a depraved appetite, when such things are coveted as are not proper for food. The etymology of the term seems doubtful.

Malacticos, (*μαλακτικος*); emollient.

Malagma, (from *μαλασσω*, *to soften*), synonimous with *Cataplasma.* Formerly, however, *malagmas* were made of many other ingredients.

Malagreta, or Malagueta; grains of Paradise.

Malamiris; a species of *Piper.*

Malax, or Malaxatio, (from *μαλασσω*, *to soften*); the softening of any thing.

Malazissatus; one whose testicles are concealed in his body.

Male; the arm pit.

Malis; a purulent ulcerous tumor, with pain from an insect in it: or a pungent pain from an insect lodged in a part without ulcer or tumor.

Maltheorum, i. e. *Sal Gem.*

Malum mortuum, a species of *lepra*, or scab, which renders the body livid, with crusty ulcers, void of sanies and of pain.

Mancurana; marjoram.

Mangaratia; ginger.

Maniguetta; grains of Paradise.

Maniodes; i. e. maniacal.

Mansorii musculi, (from *mando*, to eat), the same as *Masseters.*

Manus dei, an epithet for opium; and a name for a resolvent plaister described by Lemery.

Mappa; a species of *Ricinus.*

Marasmodes, (from *marasmus*, a consumption, and *ειδος*, *shape*); such fevers as leave the body greatly wasted.

Marcor; a preternatural drowsiness.

Marisca, the piles in a state of tumor; *Hæmorrhois tumens* of Cullen.

Marmorige, a variety of the *Pseudoblepsis Imaginaria*, in which sparks and flashes of fire are supposed to present themselves to the sight. See Pseudoblepsis.

Marmoreus tartarus; the hardest species of urinary *Calculus.*

Martial, an epithet for preparations of iron, or such as are impregnated with that metal; as the *Martial Regulus*, &c.

Maschale; the arm-pit.

Maschalister; a name for the second vertebra of the back.

Materiaturæ morbi, in Castellus, diseases of intemperance.

Matricalia; medicines appropriated to disorders of the uterus.

Meconium, (*μηκωνιον*, from *μηκων*, *a poppy*); properly, the condensed juice of poppies, or opium.

Medena, in Paracelsus, a species of ulcer.

Medianum; the *Mediastinum.*

Mediastina; inflammation of the mediastinum.

Mediastinum cerebri; the falciform process of the dura mater.

Medicamentaria, pharmacy; the art of making and preparing medicines.

Medicaster, a quack, or false pretender to the knowledge of medicine.

Medicina tristitiæ; an epithet given to saffron, from its cheering effects.

Medicinal, applied to *days* and *hours* by the ancients. See Medicine.

Medius venter, the middle venter; i. e. the thorax, or chest.

Meliana nosos, one species of the black disease of Hippocrates. In this the patient vomits black bile, which is sometimes bloody and sour. See Morbus niger.

Melanagoga, (from *μελας*, *black*, and *αγω*, *to lead*); medicines supposed to purge off black bile.

Melanchlorus, (*μελαγχλωρος*), a livid colour of the skin; the black jaundice.

Melca, (*μελκα*), Galen says, is a Roman word; and Constantine, lib. xviii. de Agricultura, says it is nothing but the whey of milk kept in an earthen pot, first seasoned with hot vinegar.

Melegeta, or Meleguetta, grains of Paradise.

Meleios, (*μηλειος*); a sort of alum, made in the island of Melos.

Meligeion, in Blancard, a fetid oleous discharge from a carious ulcer.

Melitismos, (*μελιτισμος*), a linctus prepared with honey.

Mellago; any medicine having the consistence and sweetness of honey.

Melon, (*μελον*), a disorder of the eye, when it protrudes out of the socket.

Melosis, (*μηλωσις*), in Hippocrates, that search into wounds which is made with the specillum, or probe.

Melotis, (μηλωτις); the lesser specillum. Also that ear-picker, otherwise called *Auriscalpium.*

Mendosus, by some used for spurius, or illegitimus; as *Mendosa Sutura,* the squamous or bastard suture, from *mendax,* counterfeit.

Menses philosophicus, a philosophical or chemical month. Some make it three days and nights, others ten, and others again reckon it thirty or forty days.

Mentulagra, a contraction of the erectores musculi of the penis, causing impotence; the same as Paulus Ammianus explains of the spadones. Grundpeckius calls the venereal disease thus.

Meron, (μηρος); the thigh.

Merus, used in the same sense as genuine, or unadulterated; as *merum vinum.*

Mesire, the diseased liver, mentioned by Avicenna, accompanied with heaviness, tumors, inflammation, pungent pain, and blackness of the tongue.

Mesomeria. So Rufus Ephesius calls that part of the body which lies between the thighs.

Mesophryon, (μεσοφρυον). So Rufus Ephesius calls that part of the face which lies betwixt the eyebrows.

Mesopleurios, (μεσοπλευριος); the internal muscles.

Metabasis, (μεταβασις), and *Metabole*; denote any change either in the curative indications, or the symptoms, of a distemper.

Metacinema, (μετακινημα); a removal of the pupil of the eye from its proper situation.

Metacondyli, (of μετακοδυλος, from μετα, *after,* and κονδυλος, *a knuckle*); the last joints of the fingers next the nails.

Metaphrenon, (μεταφρενον), the back; especially betwixt the shoulders.

Metaptosis, (μεταπτωσις), the change of one disease unto another; distinguished into a διαδοχη, when the translation proves salutary, as of congested matter from the nobler parts to those which it cannot hurt, but be critically exterminated; and a μεταστασις, which is a change for the worse, or without any such advantage.

Metal; a species of *Datura.*

Meteorismus; i. e. *Tympanites.*

Meteoros, (from μετα, and αειρω, *to elevate*); elevated, suspended, erect, sublime, tumid. Galen expounds pains of this sort, as being those that affect the peritonæum, or other more superficial parts of the body; these are opposed to the more deep seated ones.

Methemerinos, (μεθημερινος), a quotidian fever.

Metopion, (μετωπιον), or *Metopium;* American sumach, a species of *Rhus.* It is a name of the bitter almond, also of an oil, or an ointment made by Dioscorides, and thus called, because it had galbanum in it, collected from a plant called *Metopium.*

Metopon, or *Metopum,* (μετωπον); the forehead.

Metosis; a kind of amaurosis, from an excess of short sightedness.

Metrenchytes, (from μητρα, *the uterus,* and εγχυω, *to infuse into*), injections for the uterus; also, a womb-syringe.

Metrocelides, (from μητηρ, *a mother,* and κηλις, *a spot*); a mole or mark impressed, by the mother's imagination, on the fœtus.

Milphosis, (μιλφωσις), baldness of the eye-brows; also an increase of the flesh in the corners of the eyes.

Minium Græcorum; native cinnabar.

Miserere mei; a term applied to some colics, where the pains are most exquisite.

Misochymicus. Thus some were called, who professed themselves enemies to the chemists, and their conceits.

Miva; that form of medicine, not unlike a thick syrup, now called *Marmalade.*

Mobility, the power of motion inherent in certain parts of the living body, particularly the muscular fibres. See Muscular motion. It is so connected with irritability, that Dr. G. Fordyce treats of both at the same time in his Elements of Medicine. "May not," says he, "the contraction, or coming nearer one another, of the particles of a moving part, be called the *attraction of life?*" See farther on this subject under the article Irritability.

Mochlia, (μοχλια), a term used by the Greek writers for the reduction of dislocated bones; from the name of an instrument much used for that purpose, called by the Latins *Vectis,* a lever. Whence also *Hypomochlion.*

Mochlica; violent purges.

Mogilalia, (from μογις, *difficulty,* and λαλεω, *to speak*); a difficulty of speech; the *Psellismus Acheilos* of Cullen.

Mola, (μυλη); a name for the knee-pan, for the dentes molares, and for the jaws. It also signifies a grinder.

Molle; Indian mastich.

Mollificatio; a barbarous term for a palsy of the muscles in any part.

Molybdos; lead.

Molyza, a head of garlic; or garlic having a head not divisible into cloves.

Momiscus, the part of any of the dentes molares next the gum. The molares are also themselves called *Momisci.*

Monelli, a species of *Anagallis.*

Monogolon, in Paracelsus, the *Intestinum Rectum.*

Monomachon; the intestinum cæcum.

Monopagia, or *Monopegia,* a head-ach which affects only one point.

Morbus arquatus; the jaundice.

Morbus attonitus; the epilepsy.

Morbus coxarius. See *Arthropuosis.*

Morbus indicus, the Indian disease; i. e. the venereal disease.

Morbus niger. See Melæna.

Moro, a fleshy tumor resembling a mulberry.

Morsuli, medicines which were to be chewed in the mouth, as a lozenge; the word signifying a little mouthful.

Morta, i. e. *Pemphigus.*

Mortariolum, a sort of mould for making cupels; also a little mortar. In anatomy, the sockets of the teeth.

Mucocarneus, in M. A. Severinus, an epithet for a tumor; an abscess, which is partly fleshy and partly mucous.

Mulæ; pustules contracted either by heat or cold.

Mulsum, or **mulsus**, *Hydromel;* though sometimes it signifies wine sweetened with honey.

Musadi, muriated ammonia.

Mychthismos, (*μυχθισμος*, from *μυχθιζω*, *to mutter or groan*), in Hippocates, a sort of loud sighing during respiration, whilst the air is forced out of the lungs.

Myconoides; an epithet for an ulcer which is full of mucus.

Mycter; the nose.

Mycteres, (*μυκτηρες*); the nostrils.

Mydesis, (*μυδησις*, from *μυδαω*, *to abound with moisture*), in general, a corruption of any part from a redundant moisture; but Galen applies it particularly to the eye-lids.

Mydon, (*μυδων*); fungous flesh in a fistulous ulcer.

Mylacris; the knee-pan

Myle, (*μυλη*), the knee-pan; or a mole in the uterus.

Mylon; the *Staphyloma.*

Myocephalum, (of *μυοκεφαλον*, from *μυια*, *a fly*, and *κεφαλη*, *the head*), a humour in the uvea of the eye, resembling the head of a fly.

Myoclites. So Vogel calls inflammations in the muscles of the belly.

Myringa, or *Myrinx*; a barbarous word for the membrane of the tympanum of the ear.

Myrmecium; a moist wart, about the size of a lupine, with a broad base, deeply rooted, and very painful. It grows on the palms of the hands and soles of the feet.

Myron, (*μηρον*), an ointment, medicated oil, or unguent.

Myrton; the clitoris.

Myurus; an epithet for a sort of sinking pulse, when the second stroke is less than the first, the third less than the second, &c. Of this there are two kinds: the first is when the pulse so sinks as not to rise again; the other, when it returns again, and rises in some degree.

Myxosarcoma, a sort of tumor; also called *Mucocarnius.*

N.

Nacta, an abscess of the female breast.

Naducem. So Avicenna calls a mole in the womb.

Nai corona; cowhage.

Nakir, in Schenkins, a violent flatulence, which passes from one limb to another.

Napha; the orange flower.

Napi; mustard.

Narce, (*ναρκη*, whence *narcotica*), a torpor, or dullness of sensation. It also signifies a stupefaction of the senses by medicines, in order to render a person less sensible of pain.

Narcosis, (*ναρκωσις*, *stupor*); numbness, or stupefaction.

Nasale, or **Nasalia**, an errhine.

Nascale; a sort of pessary made of wool or of cotton.

Nascapthon; i. e. *Cascarilla.*

Nasda; i. e. *Naptha.*

Nasitas; a defect of the voice, by its passing through the nose.

Natta, a tumor of the wen kind; having a narrow basis. Linnæus speaks of it as rooted in a muscle.

Nauticus, a name for the *Tibialis posticus*, from its use to sailors in climbing.

Neapolitanum unguentum, Neapolitan ointment; the unguent. hydrarg.

Necessariæ res; the non-naturals.

Nedyia, (*νηδυια*); the abdominal viscera.

Nedys, (*νηδυς*); the stomach, or belly.

Nedyusa, (*νηδυȣσα*), an epithet for violent thirst.

Neprendes, properly sucking pigs; but applied to infants, or old people, who have no teeth.

Neiæra, (*νειαιρα*); the lower part of the belly.

Nelumbo; a species of *Nymphœa.*

Nenufar, or *Nenuphar*, a name for the water-lily; the oil of which is, by some, called *Oleum Nenupharinum.*

Nepenthe, (*νηπηνθης*), the name first given to an opiate or laudanum, by Zwingerus, from the great opinion he had of its universally giving ease.

Nephrothromboides; the suppression of urine, from coagulated blood in the kidnies.

Nerantia; an orange.

Neroniana; an epithet for venæsection, when more than one vein is opened in a day.

Nervalia ossa, the *Sinciput;* but some say the temple bones.

Neurometeres; the psoæ muscles.

Neurotrotos, (from *νευρον*, *a nerve*, and *τιτρωσκω*, *to wound*); one who labours under a wound of a nerve.

Nidor; the smell of burnt animal substances. Hence eructations which have a flavour like putrefied flesh, are called *nidorus.*

Nigra fabrilis; black lead.

Nisi, in Blancard, ginseng.

Nitrum causticum. The amber-coloured scoria arising in the purification of the regulus antimonii martialis with nitre, are a strong caustic alkali, and thus named.

Nitrum factitium, vel **nativum**; borax.

Nitrum stibiatum, vel **vitriolatum**; vitriolated tartar.

Nix fumans; quicklime.

Nix antimonialis; the white flowers of the regulus of antimony.

Nonana; an erratic intermittent fever, returning once in nine days.

Notiæus, (*νωτιαιος*, (from *νωτος*, *the back*); the spinal marrow.

O.

OBELÆA SAGITTALIS, (*οβελαια*, from *οϐελος*, *a dart*, *or spit*); an epithet for the sagittal suture of the skull.

OBLESIO, (from *ob*, against, and *lædo*, to hurt); an injury of any part.

OBOLUS, (*οϐολος*); a weight of about nine grains.

OBSIDIANA; the name given by Libavius to glass of antimony.

OCHREA; the fore part of the tibia.

OCHTHODES, (from *οχθος*, *callous*, *or tumid*); an epithet for the tumid lips of ulcers which are difficult to heal.

OCIMASTRUM; wild white campion.

OCTANA, an erratic intermittent, which returns every eighth day.

OCTAVUS HUMERI, the *Teres Minor*; which has been also called *Octavus humeri placentini musculus*.

OCCULARES COMMUNES, a name for the nerves called *Motores Oculorum*.

OCULARES EXTERNI; the *motores oculorum externi*.

OCULARIA; eye-bright.

OCULO-MUSCULARES; the nerves called *Motores Oculorum*.

OCULO-MUSCULARES EXTERNI; the nerves called *Motores Oculorum Externi*.

OCULUS BOVINUS. See PROPTOSIS.

OCULUS BOVIS; the great daisy.

OCULUS BUBULUS. See PROPTOSIS.

OCULUS CHRISTI, Austrian fleabane; a species of *Inula*.

OCULUS ELEPHANTINUS. See PROPTOSIS.

OCULUS GENU: the patella.

OCULUS LACHRYMANS; the *Epiphora*.

OCULUS MUNDI; a species of *Opal*, generally of a yellowish colour.

ODAXISMOS, (from *οδας*, *a tooth*); a biting sensation, pain, or itching in the gums. Hippocrates uses this word principally with respect to the gums, when the teeth are forcing a passage through them.

ODONTAGOGOS, a leaden tooth instrument, one of which, Forestus says, was hung up in the temple of Apollo, denoting, that such an operation ought not to be made, but when the tooth was loose enough to be drawn with a slight force.

ODONTIRRHŒA; bleeding from the socket after drawing a tooth.

OEDEMA OEDEMATODES, i. e. *Oedema*; or, according to some, the *Cold Oedema*.

OEDEMOSARCA, a species of tumor mentioned by M. A. Severinus, of a middle nature betwixt an *ædema* and *sarcoma*.

OENANTHE CHÆROPHYLLI FOLIIS; the *Oenanthe Crocata*.

OENANTHE CICUTÆ FACIE LOBELII; the *Oenanthe Crocata*.

OENAREA, (*οιναρεν*); the ashes prepared of the twigs, &c. of the vine.

OENELÆUM, (*οινελαιον*), a mixture of oil and wine.

OENOGALA, (*οινογαλα*, from *οινος*, *wine*, and *γαλα*, *milk*), a posset of wine and milk; or, according to some, wine that is milk-warm.

OENUS ANTHOSMIAS, (from *ονθος*, *a flower*, and *οσμη*, *a smell*); sweet-scented wines.

OENUS APODÆDUS; wine in which the *dais* or *tæda* are boiled.

OENUS APEZESMENUS, hot wine prescribed with garlic, salt, milk, vinegar, &c.

OENUS GALACTODES, wine and milk; or wine made milk-warm.

OENUS DEUTERUS; wines of the second pressing.

OENUS MALACUS, or *Malthacus*, soft wine; sometimes weak and thin, opposed to strong wine; or mild in opposition to austere.

OENUS MELICHROOS; wine in which is honey.

OENUS OENODES; strong wine.

OENOS SIRÆOS: i. e. *Sapa*.

OENOS STRAPHIDIOS LEUCOS; a white wine made from raisins.

OENOS TETHALASMENOS; wine mixed with sea-water.

OENOSTAGMA; spirit of wine.

OEPATA, the anacardium; also a tall tree in China.

OFFA ALBA, in Von Helmont, the white coagulation which arises from a mixture of a rectified spirit of wine and of urine.

OFFUSCATIO; the *Amaurosis*.

OLEAMEN, a thin oily liniment.

OLISTHEMA, (from *ολισθαινω*, *to fall out*); a luxation.

OMENTA; the membranes of the brain.

OMOCOTYLE; the cavity, in the extremity of the neck of the scapula, in which the head of the humerus is articulated.

OMOTRIBES, (*ωμοτριϐες*), and OMPHACINUM; oil expressed from unripe olives.

OMPHACION, (*ομφακιον*), or OMPHACIUM, was used for the juice of sour grapes; and by some applied to that of crab apples, called *Verjuice*.

OMPHACIUM; the juice of unripe grapes.

OMPHACITIS, (*ωμφακιτις*), a small gall; an excrescence of the oak.

OMPHACOMELI, (*ομφακομελι*); a sort of oxymel made of the juice of unripe grapes and honey.

OMPHAX; unripe grapes, or their juice.

ONAGRA; rheumatism in the elbow.

ONEIROGMOS, (from *ονειρωττω*); venereal dreams.

ONEIROGONOS, (*ονειρογονος*); an emission of the semen in sleep, that happens rarely.

OOEIDES, (*ωοειδης*); an epithet for the aqueous humour of the eye.

OPHRYS, (*οφρυς*); the lowest part of the forehead, where the eyebrows grow.

OPTHALMICI EXTERNI; the *Motores Oculorum*.

OPTHALMOPONIA; an intense pain in the eye, with intolerance of light.

OPTHALMORRHAGIA; bleeding from the eye or the eye-lid.

OPTHALMOXYSIS; a brushing of the eye.

OPTHALMOXYSTRUM; a brush for the eye. It was formerly made of the beards from barley or rye; and so drawn across the inside of the eye-lids, as to draw blood.

OPION, (*οπιον*); opium.

Opocalpason, (οποκαλπασον), or *Opocarpason*; the juice of a tree called *Calpasi*. It resembles myrrh, but is poisonous.

Opodeocele; a rupture through the foramen ischii, or into the labia pudendi.

Oppilatio, oppilation, a close kind of obstruction; for according to Rhodius, it signifies, not only to shut out, but also to fill.

Oppressio; the catalepsy.

Orchea, in Galen, the *Scrotum*.

Orchos, (ορχος); the extremities of the eye-lids, next the eye-lashes.

Orestion, in Dioscorides, the *Helenium*.

Orexis, (ορεξις), or *Orexia*. See **Anorexia**.

Oricia, a sort of turpentine-tree, so called from Oricus, a city of Epirus, near which it grew.

Orientalia folia; the leaves of senna.

Orthocolon, (of ορθος, *straight*, and κωλον, *a limb*); a stiff joint, in which the limb remains straight.

Oscheon, (οσχεον), the scrotum. Galen gives this name to the *Os uteri*.

Ostagra, (from οστεον, *a bone*, and αγρα, *a laying hold of*); a forceps to take out bones with.

Osteogenica; medicines which promote the generation of a callus.

Ostiorus; the pylorus.

Otenchytes, (from ωτος, the genitive of ους, *an ear*, and εγχευω, *to pour in*); a syringe for the ears.

Ova zephyria; eggs unimpregnated by the cock's tread.

Ovum philosophicum, or *Chycum*, is a glass body of an egg shape.

Oxalme, (οξαλμη; a mixture of vinegar and salt.

Oxycedrus, Spanish juniper; a species of *Juniperus*.

Oxycratum, (οξυκρατον), oxycrate; i. e. vinegar mixed with water, with the addition of a little honey.

Oxycroceum, (from οξυς, *acid*, and κροκος, *saffron*); a plaster chiefly of saffron, but no vinegar, except to dissolve some of the gums.

Oxygala, (οξυγαλα): sour milk.

Oxygarum, (οξυγαρον); a composition of garum and vinegar.

Oxyphlegmasia, (οξυφλεγμασια), an acute inflammation.

Oxyphœnicia, or *Oxyphœnicon*; tamarinds.

Oxyphonia, (οξυφωνια); the same as *Paraphonia Clangens*.

Oxyregma, (from οξυς, *acid*, and ερευγω, *to break wind*); an acid eructation.

Oxyrrhodinon, (οξυρροδινον); a composition of the oil of roses and vinegar.

Oxysaccharum, (οξυσαχαρον), a composition of vinegar and sugar.

Oxysal diaphoreticum; a preparation of Angelus Sala. It is a fixed salt of juniper, supersaturated with acid.

Oxytoca, (from οξυς, *quick*, and τικτω, *to bring forth*); medicines which promote delivery.

Oze, (οξη); a term sometimes used to signify a stench in the mouth.

P

P. P. is sometimes used in prescription, for *Pulvis patrum*, Jesuit's powder, (*cinchona*) so called, because they first brought it into Europe.

Pachys, (παχυς), thick; the name of a disorder described by Hippocrates, but not known by us.

Pacœira; the musa, or plantain tree.

Pædanchone, (from παις, *a child*, and αγχω, *to strangle*); a species of quinsy common among children.

Paidion, (ϖαιδιον). So Hippocrates calls the child in the womb when perfected there.

Palea de mecha; the *Juncus Odoratus*.

Palmos, (from ϖαλλω, *to beat*); a palpitation of the heart.

Paludapium; a name for the herb smallage.

Panacea duc. holsatiæ; kali vitriolatum.

Panacea duplicata; i. e. *Arcanum Duplicatum*.

Panacea vegetabilis; a name given to saffron.

Panchrestos (παγχρηστος), or **panchreston**; the same as *Panacea*.

Panchymagoga, (from ϖαν, *all*, χυμος, *succus*, humour, and αγω, *to draw*); medicines supposed to purge all humours equally alike.

Pancreatica; inflammation of the pancreas.

Pandalitium; a whitlow.

Panis cuculi; the *Acetosella*.

Panis porcinus; the *Cyclamen*.

Panochiæ; buboes in the groin.

Pantophobia; i. e. the *Hydrophobia*.

Papas, or **Pappus**; the potatoe.

Papillæ medullares; small eminences on the medulla oblongata.

Parcucullare. So Casserius calls the *Crico-Arytænoideus* muscle.

Paracmasticos, and **Paracme**; the declension of any distemper. Also, according to Galen, that part of life, where a person is said to grow old, and which he reckons from thirty-five to forty-nine, when he is said to be old.

Paracoe, (παρακοη); difficulty or dulness of hearing.

Paracope, (παρακοπη); in Hippocrates, a slight delirium.

Paragoge, (παραγωγη); that fitness of the bones to one another, seen in their articulations: and bones which are thereby easier of reduction, when dislocated, are, by Hippocrates, called ϖαραγωγοτερα.

Paralampsis, (παραλαμψις); a cicatrix in the transparent cornea of the eye.

Paralophia, (from παρα, *near*, and λοφος, *the eminence of the back*). Thus some anatomical writers express the lower and lateral part of the neck.

Paranœa; the same as *Vesaniæ*.

Paraphora; light-headedness in a fever: some use this word for a delirium in general.

Paraphrenesis; a delirium: also the paraphrenitis.

Paraphrosyne; i. e. *Mania*.

Parapoplexia; a slight apoplexy.

Pararthrema, (παραρθρημα); a slight luxation: also a tumor from protrusion, as an hernia.

Pararthremata, (pl. of *pararthrema*); a term synonimous with *Ectopiæ*.

Pararythmos, (παραρυθμος); a species of *Arythmos*, and expressing a pulse not suitable to the age of the person.

Parasphagis, (παρασφαγις); that part of the neck contiguous to the clavicles.

Parastemma, (from ϖαραστρεφω, *to distort, or pervert*); a perversion, or convulsive distortion of the mouth, or any part of the face.

Parencephalis, (from ϖαρα, *near*, and εγκεφαλος, *the brain*); the cerebellum.

Paristhmia, (from ϖαρα, and ισθμιον), a part of the throat; also the tonsils, or disorders of the tonsils.

Paristhmiotomus, an instrument to scarify the tonsils.

Paropiæ, (παρωπια); the external angles of the eyes.

Paroptesis, (from οπταω, *to roast*); a provocation to sweat, by making a patient approach the fire, or by placing him in a bagnio.

Parorasis, (παρορασις); an imbecility of sight.

Pasma, (πασμα); i. e. *Catapasma.*

Passa, in Paracelsus, a whitloe.

Passulatum, a term given to some medicines, where raisins are the chief ingredient, as the *electarium passulatum*, &c.

Passum; raisin-wine.

Pasta regia; a lozenge.

Pator narium; the sinus, cavity, or chasm of the nose.

Patrum cortex, *Cortex cinchonæ;* so called from the Jesuits, who first employed it in Europe.

Patursa; the venereal disease.

Paulus, an ancient physician, born in the island of Ægina, lived in the 7th century. He transcribed a great deal from Alexander and others; but his descriptions are short and accurate. He treats particularly of women's disorders; and was the first professed *man-midwife*, for such he was called by the Arabians. He begins his book with the disorders incident to pregnant women, treats also very fully of surgery, and gives some directions, according to Dr. Freind, not to be found in the more ancient writers.

Pechedion, (πεχεδεον); the perinæum.

Pechyagra; the gout in the elbow.

Pechys, (πηχυς); the elbow.

Pechytyrbe; an epithet for the scurvy.

Pecten; the pubes.

Pectusculum; the metatarsus.

Pediculatio, pediculation, or *Morbis Pedicularis;* by the Greeks called φθειριασις: a particular foulness of the skin, which is very apt to breed lice.

Pedicus; the *Extensor digitorum brevis.*

Pedion, (πεδιον); the sole of the foot.

Pedora; the sordes of the eyes, ears, and feet.

Pege, (πηγη) a fountain. The internal angles of the eyes are called *Pegæ.*

Pelada; a shedding of the hair from a venereal cause.

Pelioma, (πελιομα); an ecchymosis when liver-coloured.

Pelma, (πελμα), the sole of the foot; or a sock adapted to it.

Peltalis cartilago, (from *pelta*, a buckler); the scutiform cartilage of the larynx.

Pelvis aurium; the cochlea of the ear.

Pelvis cerebri, the infundibulum of the brain.

Pemphis; a species of *Lythrum.*

Pemptæus, (πεμπταιος); an ague that returns every fifth day.

Penæa; a species of *Polygala.*

Penidium, clarified sugar and starch, made up into small rolls, called barley-sugar.

Penis cerebri; the pineal gland.

Penis muliebris; the *Clitoris.*

Pentapharmacon, (from πεντε, *quinque*, five, and φαρμακον, *remedy*); any medicine consisting of five ingredients.

Pentaphylloides; barren strawberry.

Pepasmos, (πεπασμος); the same as concoction or maturation.

Pepastica; digestive medicines.

Pepita nux; St. Ignatius's bean.

Peplion, or Peplos; purging medicines for evacuating bile and phlegm.

Pepticos, (πεπτικος); peptic, i. e. promoting digestion.

Peracute, very sharp. Diseases are thus called when aggravated beyond measure.

Percepier; the herb parsley-piert, or parsley-breakstone.

Perdetum, in Paracelsus, the root of skirret.

Pereterion, from ϖεραω, *to dig through*); the perforating part of the trepan.

Periapta, (ϖεϱιαϖτα); people on whom amulets were fixed for the removal of a disease.

Peribole, (from ϖεριϐαλλω, *to surround*); sometimes signifies the dress of a person; at others a translation of the morbific humours to the surface of the body.

Pericarpia, from πεϱι, *circum*, about, and *carpus*, the wrist); medicines applied to the wrist.

Perichrisis, (περιχρισις); a liniment.

Perichrista, (πεϱιχϱιστα); any medicines with which the eye-lids are anointed, in an ophthalmia.

Periclasis (from περι, *about*, and κλαω, *to break*); a term used by Galen for such a fracture of the bone as quite divides it, and forces it through the skin. Or a fracture with a great wound, wherein the bone is laid bare.

Peridesmica, (*Ischuria*); a suppression of urine from stricture in the urethra.

Peridromos, (περιδϱομος); the extreme circumference of the hairs of the head.

Periestecos, (from περιεστημι, *to surround, or guard*); an epithet for diseases, signs, or symptoms, importing their being salutary.

Perigraphe, (περιγραφη); an inaccurate description or delineation. In Vesalius, *perigraphe* signifies certain white lines and impressions observable in the rectus abdominis muscle.

Perin (περιν); a testicle. Some explain it the *Perinæum*; others the *Anus.*

Perinæocele; a rupture in the perinæum.

Perinyctides, (περινυκτιδες); little swellings, little nipples; or, as others relate, pustules or pimples, which break out in the night.

Periphimosis, (πεϱιφιμωσις). See Phimosis.

Peripleumonia; i. e. *Peripneumonia.*

Perirrhœa, (ϖεριρροια); a reflux of humours from the system into any of the larger emunctories for its excretion, as in a dropsy, where water passes by the bowels or kidneys.

PERIRRHEXIS, (περιρρηξις); a breaking off, or separation round about, either of carious bone, or of a fleshy eschar.

PERISCYPHISMUS, (περισκυφισμος); an incision across the forehead, or from one temple to another, over the upper part of the os frontis. It was formerly used when a considerable inflammation or defluxion in eyes attended.

PERISTERMA, (from περι, *circum*, about, and *sternum*, the breastbone); expresses all on both sides that part.

PERISTOMA, or rather PERISTROMA, (περιστρωμα), properly, any covering; but applied by Pecquet to the villous coat of the intestines. It is the same which Bilsius calls *Muscum Villosum;* Bartholine, *Crusta Membranosa;* and De Graaf, *Crusta Vermicularis.*

PERISYSTOLE, (περισυστολη); pause or intermission between the systole and diastole, which many deny to be perceptible in healthy persons, but in the dying, is very sensibly felt.

PERITERION, (περιτηριον); the perforating part of the trepan.

PERITONA ORIXIS; a bursting of the peritonæum, and consequent hernia.

PERIZOMA, (περιζωμα), strictly, signifies a girdle; but by Hildanus, and some others, applied to instruments for supporting ruptures, which we call trusses. Some also express by it the diaphragm.

PERSISTENS FEBRIS; a regular intermitting fever, the paroxysms of which return at stated hours.

PES CAPRÆ, goat's-foot, a species of *Oxalis;* also a species of *Convolvolus.*

PES TIGRIDIS, tiger's-foot; a species of *Ipomœa.*

PETALODES, (πεταλωδες); by Hippocrates applied to urine which has in it flaky substances resembling leaves.

PEUCE, (ϖευκη); the pine-tree.

PEZA, (πεζα), the sole of the foot or the ankle. According to some, it is all under the tibia.

PHACODES, (φακωδης); used by Hippocrates for hypochondriacal persons, whose complexions are of a lentil colour; as *upophacodes*, is also applied by him to such as approach to such a complexion.

PHACOIDES, (φακωειδης), any thing in the shape of a lentil; is applied by Vesalius to the crystalline humour of the eye. Galen also makes mention of it.

PHACOPTISANA, (φακοπτισανη), a decoction of lentils, like the vulgar practice of boiling tares in drinks for raising the small-pox, &c.

PHACOSIS, (φακοσις); a black spot in the eye resembling a lentil.

PHALACROSIS, (φαλακρωσις); a decay of the hair.

PHALANGIUM; a name for several species of *Ephemerum.*

PHALANGOSIS, (φαλαγγωσις); a double or triple row of the eyelashes.

PHARYNGÆUM SAL; salt formed of tartar, nitre, and alum, in distilled vinegar. It was used for gargarisms in quinsies.

PHARYNGETHRON, (φαρυγγεθρον); the fauces or pharynx.

PHASEOLUS ZURATENSIS, a name for cowhage, the *Dolichos Pruriens.*

PHAUSINGES, (φαυσιγγες); red circles in the legs, excited by fire. It sometimes is used to signify other kinds of spots, as well as red ones caused by exposure to the fire.

PHELLODRYS; the laurel-oak.

PHELLOS; a species of *Quercus.*

PHELPHÆA; a species of *Lathræa.*

PHENGITES, (φεγγιτης); a luminous stone, capable of acquiring light, and dispensing it again.

PHYLADINAMOS, (φιλαδυναμος); an epithet of water, expressing its property of diminishing the strength.

PHILEMOT; the brown species of *Zinc Flos*; it is mineralized by sulphur, and often contains iron.

PHILIATROS, (φιλιατρος); a student in medicine.

PHILTRON, (from φιλεω, *to kiss*), a love potion, or medicine to excite love; also the cavity or depression of the upper lip, situated under the septum of the nose.

PHIMOSICA, ISCHURIA; a suppression of urine from a phimosis.

PHLASMA, (φλασμα); a contusion.

PHLEBOPALIE (φλεβοπαλιη); the pulsation of an artery.

PHLEBORRHAGIA, (from φλεψ, *a vein*, and ρηγνυμι, *to break*); a rupture of a vein.

PHLEMAGOGUE, (from *phlegma*, phlegm, and αγω, *duco*, to draw); a medicine to purge phlegm.

PHLEGMATIAS, (φλεγματιας); a beginning anasarca.

PHLEGMATORRHAGIA; a catarrh, or flux of thin phlegm from the nostrils.

PHŒNICIUS MORBUS, (φοινικινος); the elephantiasis.

PHŒNIGMUS, (φοινιγμος), red stains in the skin, as if with red wine.

PHOS, (φως), light; also the black circle about the pupil of the eye.

PHOSPHORUS; the name of a collyrium in Galen.

PHOXOS, (φοξος), the sugar-loaf shaped head.

PHRENISMUS, i. e. *Phrenitis.*

PHRENITIS APYREA; i. e. *Mania.*

PHRENITIS INANITORUM; madness from bodily indisposition.

PHRENITIS VOGELII; i. e. *Synochus.*

PHRICASMUS; shivering.

PHRICODES, (φρικωδης); a sort of semitertian fever. According to the ancients, a fever in which the patients trembled at the least breath of air.

PHRYCTE, (φρυκτη, in Latin *fricta*), simply, without its proper substantive, *Resina Colophonia*, or black resin; so called in distinction from the liquid sort called *Hygra.*

PHRYGIUS LAPIS, so called because the dyers in Phrygia used it. Its uses were the same as those of lapis calaminaris.

PHTHARTICOS, (from φθειρω, *to corrupt*); deleterious, or deadly.

PHTHERIASIS, (φθεριασις). See PHTHIRIASIS.

PHTHEIROCTONON, (from φθειρ, *a louse*, and κτεινω, *to kill*); a name for the staves-acre.

PHYLLITIDIS; a species of *Osmunda.*

PHYLLYREA; a species of *Cassine.*

PHYMOSICA ISCHURIA; a suppression of urine, from a phymosis.

PICROCHOLOS, (from πικρος, *bitter*, and χολη, *bile*); a person abounding with bitter bile, or one subject to anger.

PILA HYSTRICIS; the bezoar of the porcupine.

PILEUS, the *Cucupha*; in anatomy, the coif with which some children are born. It is called *Pileus*, *Pileolus*, *Galea*, and *Vitta.*

Pilmictio; a discharge of substances resembling hairs with the urine.

Piper chiapæ; Jamaica pepper.

Piper tavasci; i. e. *Cassia Caryophyllata.*

Piperina; by Hildanus applied to certain baths in Helvetia.

Pircal. So the Malabarians call an ulcerous swelling of the tibia.

Pissacum indicum; Barbadoes tar.

Pisselæum, (πισσελαιον, from πισση, *pitch*, and ελαιον, *oil*), the essential oil of pitch.

Pityroides; applied to a sediment in the urine, resembling bran.

Pladarotes, (πλαδαροτης); a fungous tubercle within the eye-lid.

Plaga, (πληγη), in a lax sense, any disease: but more strictly those which are external, and proceed from violence.

Platæ, (πλαται); the scapulæ.

Platanoide; the Norway maple, with plane-tree leaves. It is a species of *Acer.*

Plectrum, (πλεκτρον). Thus some call the sharp part of the os petrosum; and others apply it to other parts, as the uvula, the tongue, &c.

Plerotica, (from γλεροω, *to fill*), medicines called *Incarnatives.*

Pleurorthopnœa, according to Blanchard, a pleurisy in which the patient cannot breathe without keeping his neck erect.

Pleurosthotonos, *vel Tetanus Lateralis*; a sort of tetanus, in which the body is bent to one side.

Pneuma, (πνευμα); spirit, air, vapour, or the breath. Hippocrates often uses this word to signify a difficult or short breath.

Pnigmos, (πνιγμος), or *Pnigma;* the *Catarrhus suffocativus* of authors.

Podagra dentium; sometimes used for the tooth-ach.

Podagrica; the gout, with fever.

Polychrestum balsamum; a balsam of guaiacum.

Polymerisma; supernumerary limbs or parts.

Polymorphos, multiform; an epithet for the *Os Sphenoides.*

Polyurica ischuria; suppression of urine, from a neglect to discharge it.

Popularis; endemical, or epidemical.

Populeon; an old officinal ointment, prepared from the poplar leaves.

Porrus; the same as *Sarcoma.*

Portorarium; the duodenum, or the pylorus.

Posca; vinegar and water mixed.

Postbrachiale; the metacarpus.

Posthia, (ποσθια), of Galen; the *Ophthalmia Tuberculosa* of Sauvages, or that species of hordeolum which Sauvages calls *Siro*, viz. an inflammatory scirrhous tumour on the edge of the eye-lid. Some say it is the *Hordeolum Grando* of Sauvages.

Prehensio; the catalepsy.

Premnon, (πρεμνον); the extremity of the white of the eye.

Pressura: inflammation of the finger-end, from the effect of cold. It is an instance of *Phlogosis Erythema* of Cullen.

Procardion; the pit of the stomach.

Procto-leucorrhœa, the same as *Proctorrhœa;* but so named from the discharge resembling that of fluor albus.

Prodromus, (προδρομος); used in various senses, but chiefly for any one distemper that is the forerunner of another, as a vertigo is frequently the prodromus of an apoplexy.

Progerminus, applied by M. A. Severinus, to such abscesses, as arise rather from a redundancy of humours, than from putrid matter.

Proglossis, (προγλοσσις); the tip of the tongue.

Projectura; an apophysis.

Prolabium, (*pro*, before, and *labium*, the lip); the red part of the lips.

Prophasis, (φροφασις); i. e. *Procatarctic.*

Prora; the occiput.

Proræ sutura; the lambdoidal suture.

Prosarthrosis, or *Adarticulatio.*

Prostata; a suppository.

Prosthesis, (προσθεσις), or Prothesis, the substitution of artificial parts; as the applying a wooden leg, &c.

Protractor, an instrument to draw out any foreign bodies from a wound or ulcer, as the forceps do.

Psellotis; i. e. *Psellismus.*

Pseucrolusion; salt-water bathing.

Pseudo-asthma; an asthma excited by an abscess, or a vomica in the lungs.

Psida, or Psidium; pomegranate-peel.

Psilothron, (ψιλωθρον), a remedy to take away hair from the body; signifying the same with *Depilatory.*

Psilothrum; the *Byronia Alba.*

Psophos, (ψοφος); a crackling or rattling of the bones.

Psychagogica; in Schneider, those medicines which suddenly raise the spirits, in syncope, &c.

Psychrolutron, (ψυχρολουτρον); the cold bath, or washing in cold water; to restore the tone of the parts after warm bathing.

Pterna; the *Calcaneum.*

Ptysmagogue, (from πτυω, *spuo*, to spit); every flow of spittle, whether amounting to a salivation or not.

Pudendagra, (of *pudor*, shame), by some the venereal disease. Others define it pain or uneasiness in the genital parts of men or women, somewhat resembling a diarrhœa, but without a dysuria.

Puerilis morbus; the epilepsy.

Pulvinaria; cushions of chaff, mixed with medical ingredients coarsely powdered.

Purpura alba; a species of eruption to which those of a phlegmatic plethora are inclined.

Pycnotica; incrassating medicines.

Pyrenoides; the odontoid process of the second vertebra.

Pyrænus, (from πυρ, *fire*, and οινος, *wine*), rectified spirit of wine; so called because made by fire, or rather rendered totally inflammable.

Pyrotica; (from πυρ, *fire*); medicines actually or potentially hot, that burn the flesh, and raise an *eschar.*

Pyulcon, (πυουλκον, from πυον, *pus*, and ελκω, *to draw*); an instrument to fetch out the matter from the cavity of the breast, or any sinuous ulcer.

Q.

QUADRAGESIMUS DIES; the fortieth day. The ancients fixed on this day as the last to which acute distempers could extend, calling all those chronical which continued longer.

Quadriga, the *Cataphracta*; a bandage for the sternum and ribs.

Quartarius; a measure which contained about four ounces.

Quatrio; the astralagus.

Querqera, i. e. *Epialos.*

Quietales; diseases in which the voluntary and involuntary motions and senses are diminished.

Quina quina; the *Cinchona.*

Quincunx; a five-ounce measure.

Quisquilium; a grain of kermes.

R.

RACHITÆ. The semi-spinal muscles are thus called by some.

Radula; a wooden spatula.

Ramex; a hernia.

Ramex varicosus; a varicose hernia.

Receptarii medici. So Langius calls those who set up for physicians upon the stock only of a great many receipts, without being able to reason about their properties.

Reciprocation; when two diseases or symptoms alternately succeed one another.

Recrement, sometimes signifies any superfluous matter mixed with another that is useful; and sometimes such secreted juices as are afterwards of use to the œconomy.

Recrudescent, when any distemper returns that was gone off; as the paroxysms of intermittents.

Recursus; used by Bellini for the repetition of paroxysms in an intermittent.

Redintegration. Chemists thus call the restoring any mixed body or matter, whose form has been destroyed, to its former nature and constitution.

Regius morbus; the jaundice.

Renuentes, (from *renuo*, to nod backwards), the muscles *Rectus Major capitis* and *Minor*, thus called from their office.

Resumptiva; restoratives.

Revulsion, (from *revello*, to pull back); the calling back any humour by evacuation.

Revulsoria; means which procure revulsion.

Revivification, or fetching back to life. Chemists use this term to express the revivification of metals, &c.

Rhabdoides, (from *ραβδος*, *a straight twig*, and *ειδος*, *form*); a name for the sagittal suture.

Rhachissagra, (from *ραχις*, *the spine of the back*, and *αγρα*, *a prey*); gout in the spine.

Rhachiæi, (*ραχιαιοι*), or Rachitæ; the muscles belonging to the spine.

Rhicnosis, (*ρικνωσις*); lean and wrinkled.

Rhocas; the watery eye.

Rhochmos; snoring, or snorting, through the fauces.

Rhodon, (from *ροδον*, *a rose*). Some compositions wherein this is the chief ingredient, have their names from hence, as *Diarrhodon*, &c.

Rhodosaccharum, (from the former, and *saccharum*, sugar); the sugar of roses.

Rhœas, (*ϱοιας*); the watery eye.

Rhopalosis, (*ροϖαλωσις*); i. e. *Plica.*

Rhythm, (*ρυθμος*), expresses a certain number of pulses in any given time.

Rigation, i. e. *Irrigation*, or the sprinkling or moistening of any part.

Rigor nervosum; i. e. *Tetanus*

Ronchus, (*ϱογχος*); a snorting or snoring through the fauces.

Rosa sinensis; a species of *Hibiscus.*

Rosacea, or Rosata; names given to many compounds, where roses were the principal ingredients.

Rosalia, by Martian, in his notes on Hippocrates, a disease in children, not unlike the measles; exhibiting small red pimples of the bigness of millet-seed; probably the same as our *Febres Miliaris*, except in the colour of the eruption.

Rostriformis processus, (from *rostrum*, a beak, and *forma*, shape); the same as *Coracoides.*

Rostrum, the pipe which conveys the distilling liquor into its receiver in the common alembics; also a name for crooked scissars.

Rostrum leporinum, the piece of flesh betwixt the division of the hare-lip: the hare-lip is also thus named.

Rotator minor; the lesser trochanter.

Rotator major, or Rotator natis, the great trochanter.

Rythmus, (*ϱυθμος*), musical time or measure; by Herophilus applied to the pulse.

S.

Sabauda, the Savoy cabbage; a species of *Brassica.*

Sabdariffa; a species of *Hibiscus.*

Sacer. Some give this name to part of the *Transversalis Dorsi.*

Sacer ignis, the holy fire; a *Herpes exedens.*

Sacer morbus, a name given to the epilepsy.

Sacculus chyliferus; the same as *Receptaculum Chyli.*

Sacculus cordis; the *Pericardium.*

Saccus; the *Intestinum cæcum.*

Sacculi medicinales; bags of ingredients to be suspended in liquors in making diet-drinks.

Sacra herba; i. e. *Verbena.*

Sacra vena. This sometimes proceeds from the bifurcation of the *Vena Cava*, at others from the origin of the left *Iliaca*, and accompanies the artery of that name.

Salitura; a pickle made with salt; the same as *Muria* or brine.

Salsugo; any salt pickle, or brine.

Sampsychinon, (ϛαμψυχινον); a name given to an oil, and an ointment, wherein marjoram was the chief ingredient; from *Sampsuchus.*

Sandyx; ceruse burned till it resembles the red arsenic in colour. A red earth, the same probably as the red orpiment, had also this name.

Sanoides, (σανιωδης); where the breast is straitened or flattened, like *σανις, a table*; flat-chested.

Sapa, an old form of medicine like rob; but strictly, the rob of grapes.

Sapientiæ oleum; oil of bricks.

Sarcomphalus; a species of *Rhamnus.*

Sarcophyia, (σαϱκοφυια); a sarcoma.

Sarcotica, (σαρκωτικα); medicines that fill up ulcers with new flesh, the same as *Incarnatives.*

Sardiasis; involuntary convulsive laughing, or cynic spasm.

Scapellatum. See Scalpellatum.

Schænoprasum, chives; a species of onion.

Scelotyrbe, (from σκελος, *the leg*, and τυρϐη, *uproar*), pains in the legs that generally attend scorbutic habits; also used for the scurvy itself, and for antiscorbutic medicines.

Scelotyrbe festinans; a variety of idiopathic convulsion.

Scelotyrbe verminosa; a variety of symptomatic convulsion.

Schesis, (σχεσις), a disposition of the body accidentally contracted, not yet so fully confirmed, but that it may easily again be altered; in distinction from εξις, which is a confirmed habit. Hence also *Schetica Febris*, is one that will soon give way to remedies, contrary to the *hectica*, which is confirmed in the habit.

Sclerophthalmia, (σκληροφθαλμια), a lippitudo dura; the eye-lids turning out red, hard, and dry.

Sclerotics; medicines which harden and consolidate the parts.

Scoliosis, (ϛκολιωσις); a species of *Gibbus.*

Scopus, (ϛκοπος), scope; by some used in the same acceptation as *Intention* or *Indication:* but others have very critically distinguished them.

Scotodine, (σκοτοδινη), or *Scotodinos;* a vertigo attended with dimness of sight.

Scotomia, (σκοτωμια), the same as *Amaurosis;* a transitory blindness.

Scotos, (ϛκοτος); a darkness or dimness of sight.

Scrotum cordis; i. e. the *Pericardium.*

Secession, the going off by secretion; as the excrements are particularly said to be formed by the secession of those parts whereof they consist, from the animal fluids, through their proper outlets.

Sedantaria ossa, in Daventer, the protuberances of the coxendix.

Semispeculum, an instrument described by Hildanus for dilating the neck of the womb.

Separatorium, an instrument for separating the pericranium: also a vessel for separating liquors.

Sephiros, a corruption of *scirrhus*; used by Bencius about 1448.

Sicyedon, (σικυηδον); a transverse fracture.

Sideration, a sudden mortification, by the common people called a *blast;* or a sudden deprivation of sense, as in an apoplexy.

Sief; an ancient form of medicine, amongst the Arabians.

Simplex oculus, a bandage for one eye; when used for both eyes, it was rolled up into two heads.

Siphac, (Arab.); the *Peritonæum.*

Siriasis, (σιριασις); inflammation of the brain.

Sitiologia, (from σιτος, *aliment*, and λεγω, *to speak*); that part of medicine which treats of aliments.

Solen, (σωλην); a cradle for a broken limb. Also a tube or channel.

Solitarii; diseases affecting any one part of the body.

Spagyric medicine, the same as chemistry; the word importing to extract, collect, or gather together.

Spagyrist; a chemist.

Spanopogon, (σπανοπωγων); i. e. thinly bearded.

Sparadrap; an ancient name for what is called a *cere-cloth.*

Sparganosis, (σϖαργανωσις); a milk abscess.

Specillum, a probe; or other instrument for searching wounds. The *Specillum Matricis* did the same office with respect to matter obstructing the womb, or assisted in any manual operations relating thereto.

Sphacelismus, (σφακελισμος), inflammation of the brain.

Splanchnics; medicines that cleanse the bowels and viscera.

Spondylus, (σϖονδυλος). So some call the spine, from the fitness of the vertebræ, which move every way upon one another.

Spongoides, (from σϖογγος, *a sponge*, and ειδος, *forma*, shape), the *Os Cribriforme;* because hollow and porous like a sponge.

Stacte, (στακτη); myrrh that falls in drops from the tree. Also used for a more liquid kind of amber than common; whence in Scribonius Largus, Ægineta, and others, we meet with collyria, &c. wherein this was the chief ingredient, under the name of *Stactica.*

Staphis, (*σταφις*), strictly a grape, or a bunch of grapes; applied to many other things, especially to glandulous parts of the body, whether natural or diseased.

Staphyle, (*σταφυλη*); the *Uvula.*

Stationaria, stationary; applied by Sydenham to those fevers which happen when there are certain general constitutions of the years, which owe their origin neither to heat, cold, dryness, nor moisture, but rather depend on an inexplicable alteration in the earth; whence the air becomes impregnated with effluvia that subject the body to particular distempers, so long as that kind of constitution prevails, which, after a certain course of years, declines and gives way to another.

Steatocele, (from *στεαρ*, *suet*, and *κηλη*, *a tumor*); a *Hernia*, caused by suetty matter in the scrotum.

Stegnosis, (from *στεγω*, *to fix, or harden*); an obstruction of the pores.

Stenothoraces, (*στενοθωρακεσ*), persons with narrow chests, and on that account liable to phthisis.

Stomachica passio, an aversion to food, and even to the thought of it; accompanied with a nausea, anxiety, cardialgia, an effusion of saliva, and often a vomiting.

Stremma, (from *στρεφω*, *to turn*); a strain, or sprain, of the parts about a joint.

Strigmentum; the strigment, filth, or sordes, scraped from the skin, in baths and places of exercise.

Strychnomania; the disorder produced by eating the deadly nightshade.

Stygia, the name of a water made from sublimate. The *Aqua Regia* is also thus called from its corrosive qualities.

Stymatosis; bloody discharges from the pelvis.

Suboccipitales nervi. So the tenth pair of nerves are called, which proceed from the head.

Subtilization; the making any thing smaller, so as to rise in vapour.

Sububeres, infants that yet suck; in distinction from those who are weaned, who then are called *Exuberes*, from the two opposite prepositions *sub* and *ex*, and *ubera*, the breasts.

Succago; the rob of any fruit.

Succengens membrana; the *Diaphragm.*

Succubus; the same as *Incubus.*

Succussation, or Succussion, a shaking of the nervous parts procured by strong stimuli, like sternutatories, friction, &c.

Suppedanea, or Supplantalia, (from *sub*, under, and *planta*, the sole of the foot); substances applied for medicinal purposes to the sole of the foot.

Sycosis, (*συκωςις*); the *Ophthalmia Trachoma* of Sauvages, when its pustules are thick or scabrous.

Sycosis, (*συκωςις*), a fungous sort of ulcer: also the tumor on the anus called *Marisca.*

Symbole, (*ςυμβολε*), and *Symbolism*, are said either of the fitness of parts with one another, or of the nervous consent between them.

Symbologicæ; that part of pathology which treats of the signs and symptoms of diseases.

Synastomosis; a term used much in the same sense as *Anastomosis.*

Syncysis, (*συγχυσις*); when, from the violence of an ophthalmia, the cornea is left opake or corroded, and there is the appearance of confusion in the humours of the eye.

T.

Tabella, a morsel, or lozenge.

Tabum, is used by some authors to express a kind of matter arising from a decay of natural heat, or due circulation; very different from what is commonly understood by *pus*, which is a salutary maturation, whereas the other is also most commonly attended with gangrene.

Talpæ, and *Nates*, are tumors generally confined to the head, and consequent on the venereal disease. The *Talpæ* elevate the skin from the pericranium, and generally cause a foulness of the bone beneath; but the *nates* are usually seated in the neck.

Taraxis, (from *ταρασσω*, *to disturb*), a disorder of the eye, as when it is offended by smoke, or too hard rubbing.

Temperantia, or Temperata; signify often the same as sweeteners or correctors, and such things as bring the body to a due temperature.

Tenontagra, (from *τενων*, *a tendon*, and *αγρα*, *a seizure*); a species of arthritis seated in the larger tendons.

Tepidarium; a room belonging to the ancient bathing places where persons gradually prepared themselves for entrance or going out.

Terebra, (*τρυπανον*), often used for the trepan; but sometimes also for any instrument to perforate other bones with.

Teredum; the same with *Caries.*

Ternary, the number three, in Hippocrates, who divides the parts of a human body into *continentes*, *contentas*, and *impetum facientes*; though the latter is resolvable into the mechanism of the two former, rather than distinct in itself.

Terra cariosa, rotten-stone; a species of non-effervescent chalk, of a brown colour.

Terra damnata, vel mortua; condemned earth: the same as *Caput Mortuum*, or the residue of distilled matter.

Terthra; the middle and lateral parts of the neck.

Tertium sal; a neutral salt.

Tessera; the os cuboides.

Tetartophya; a continued quartan fever. Some reckon this amongst the remittents.

Therioma, (from *ϑηρ*, *fera*, a wild beast); a malignant ulcer.

Thlasis, (*θλασις*); a depression of the skull.

Thymion, (*θυμιον*); a small

wart rising upon the skin of the body, somewhat slender, but flat and hard and rough at the top.

Topinaria; the same as *Talpa;* a species of tumor on the skin of the head.

Torticollis; a kind of contraction, by which the neck is bent to one side.

Tortio; a strain in a joint.

Tortura; a wry mouth.

Tortura oris; the locked-jaw.

Toxitesia; mug-wort.

Trachelophyma; a bronchocele.

Triorchis; a person with three testicles: also a name for a species of *Orchis.*

Tripastrum appellidis; a machine for restoring fractures and dislocations; so named because it resembled one invented by Apellides and Archimedes, and because it was worked with three cords.

Tritæophya, (from *τριταιος*, *tertian*, and *φυω*, *of a like nature*) or Tritæus; an epithet of a fever much like a tertian, and taking its rise from it. Some call it a *Continued Tertian.* It is remittent or intermittent.

Tritæophya causus; the *Causus* of Hippocrates.

Trochloides; a particular kind of articulation, most remarkable in the first and second vertebræ of the neck. See *Trochoides.*

Tuba aristotelica; the Eustachian tube.

Tumidi; diseases that enlarge the body or some of its parts.

Turbinatum; the pineal gland.

Turundula, a tent for a wound; or any thing to be thrust into an orifice or cavity.

Typhodes, (*τυφωδης*); a kind of ardent fever, such as usually attends an erysipelas of any of the viscera.

Typhomania, (*τυφομανια*); in Galen's Exegesis, a complication of pleurisy and lethargy. Though delirious, the patient yet labours under a coma. Dr. Cullen reckons it a symptomatic kind of apoplexy.

Tyrosis, (from *τυρος*, *cheese*); a coagulation or curdling of milk in the stomach, like cheese.

U.

UNGUENTARIA; the nutmeg.

Uretero-thromboides; a suppression of urine, from clotted blood in the ureters.

Uretero-phlegmatica; suppression of urine from mucus in the ureters.

Uretero-pyica; a suppression of urine from *pus* in the ureters.

Uretero-stomatica; suppression of urine from obstruction in the lower orifice of the ureter.

Urethro-phymenydes; a suppression of urine from a membrane rendering the urethra imperforate.

Urethro-lithica; a suppression of urine from a stone obstructing the urethra.

Urethro-phlegmatica; a suppression of urine from mucus obstructing the urine.

Urethro-thromboides; a suppression of urine from coagulated blood in the urethra.

Urethro-pyica; a suppression of urine from pus obstructing the urethra.

Urethrelmintica; a suppression of urine from worms in the urethra.

Urethritica; a suppression of urine from inflammation in the urethra.

Urorrhœas; the urine passing from the urethra through some erosion in the perinæum.

Utriculus; the uterus.

V.

VACCARIA; the *Uva ursi.*

Vallum, the eye-brow; also a species of bandage.

Velamentum bombycinum, (from *bombyx*, a silk-worm); the interior soft membrane of the intestines.

Vesiculæ divæ barbaræ; the confluent small-pox.

Veternum; the anasarca.

Veternus; a lethargy.

Virga; sometimes used for the *Penis.*

X, Y, Z.

XERODES, (*ξηρωδες*), expresses any tumor attended with the property of dryness.

Xylon; the same as *Gossypium.*

Ypsilo-glossi; the muscles called *Basio-Glossi.*

Zaara; a name for the *Carus.*

Zaccharum, and according to some *Zuccharum*, anciently written for *Saccharum*, sugar.

Zenra; an ulcerated impetigo. Some express by it *Lepra.*

Zirach; quicksilver.

Zythogala, (*ζυθογαλα*), beer and milk, which together make *Posset-Drink;* a term often to be met with in Sydenham.

zz. The ancients signify *Myrrh* by these two letters, from *ζμυρνη*, a name for it common amongst them; but later writers use them only for *Zinziber*, ginger.

THE END.

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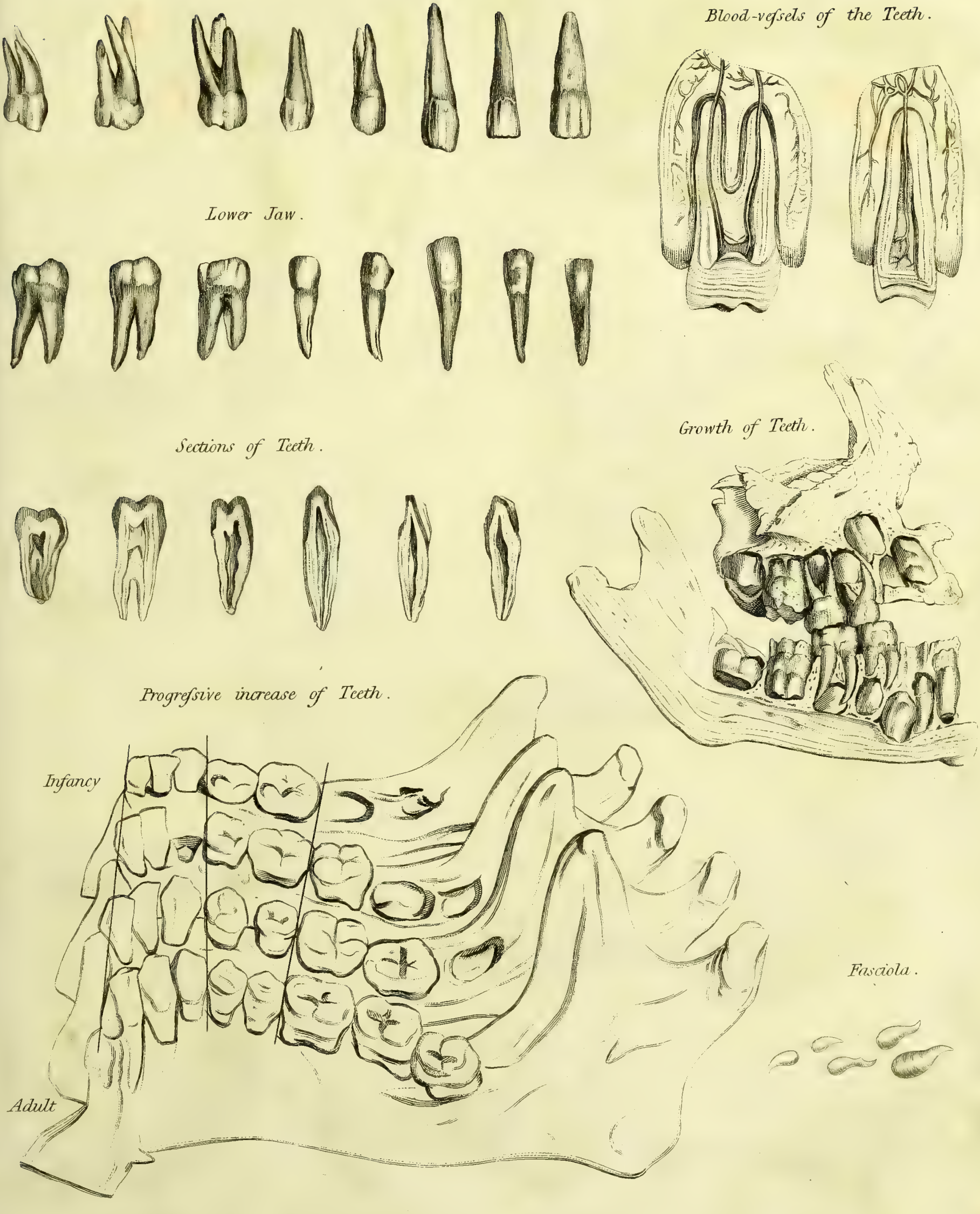
Dentes.



Upper Jaw.

Lower Jaw.

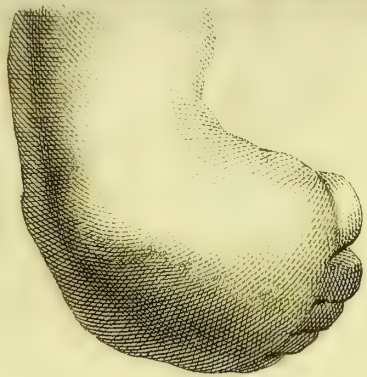
Blood-veſsels of the Teeth.

Sections of Teeth.

Growth of Teeth.

Progreſsive increase of Teeth.

Fasciola.



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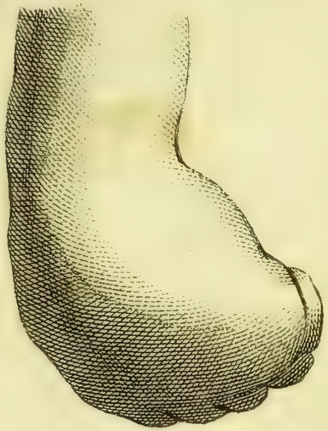

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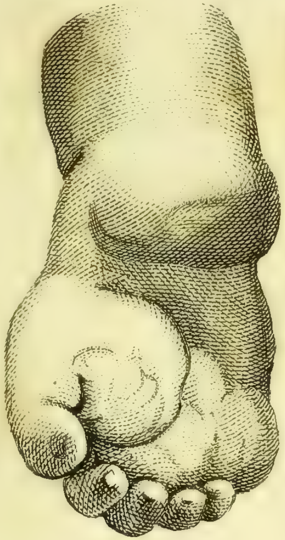

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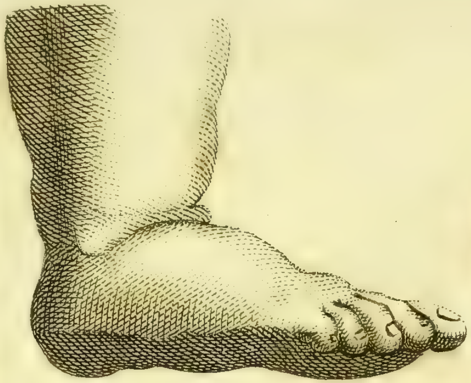

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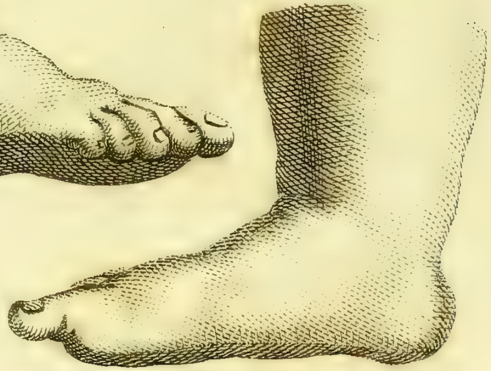

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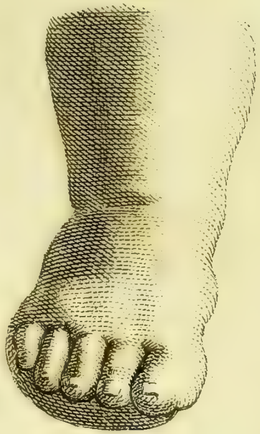

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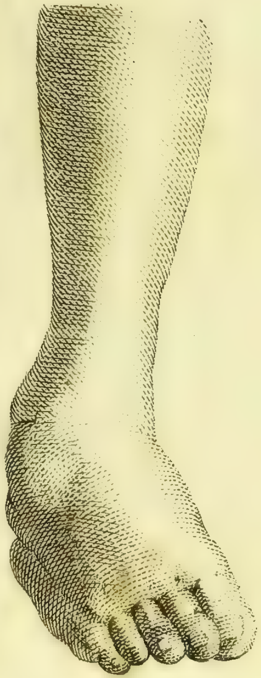

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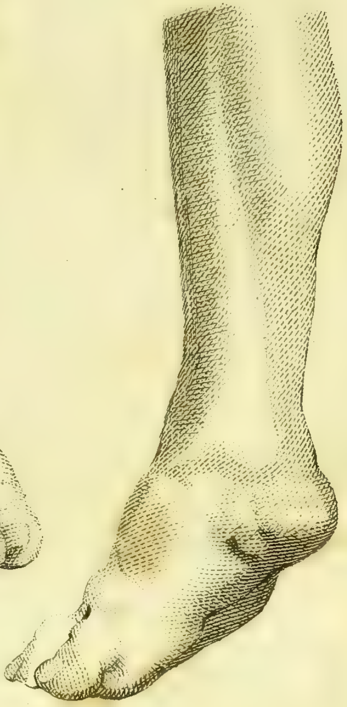

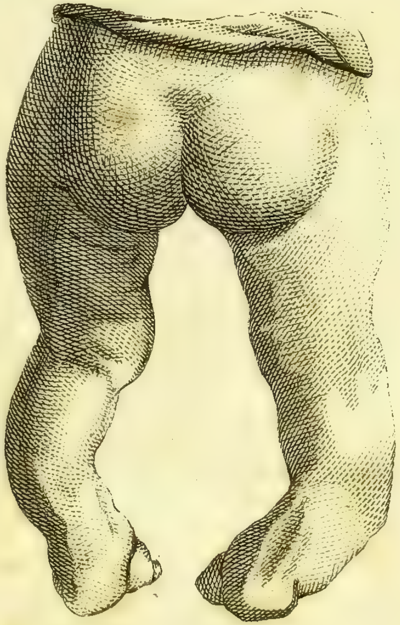

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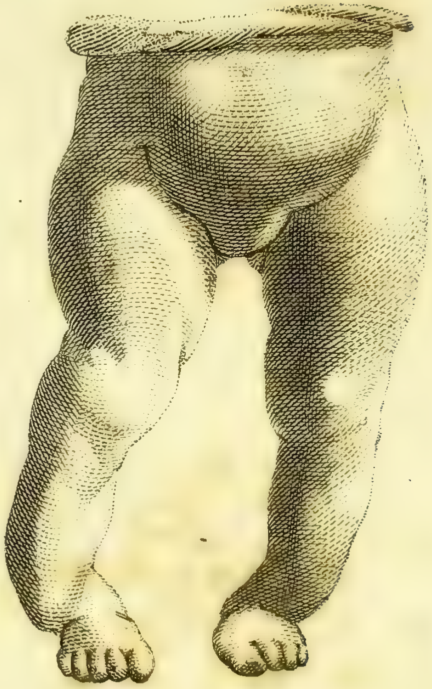

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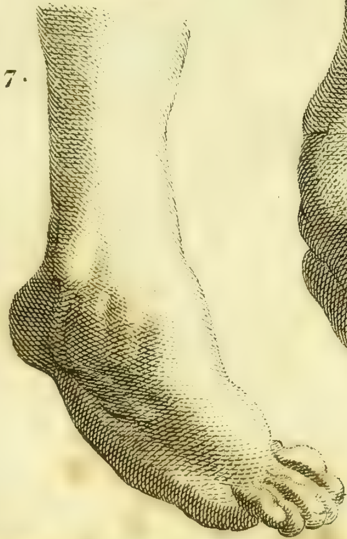
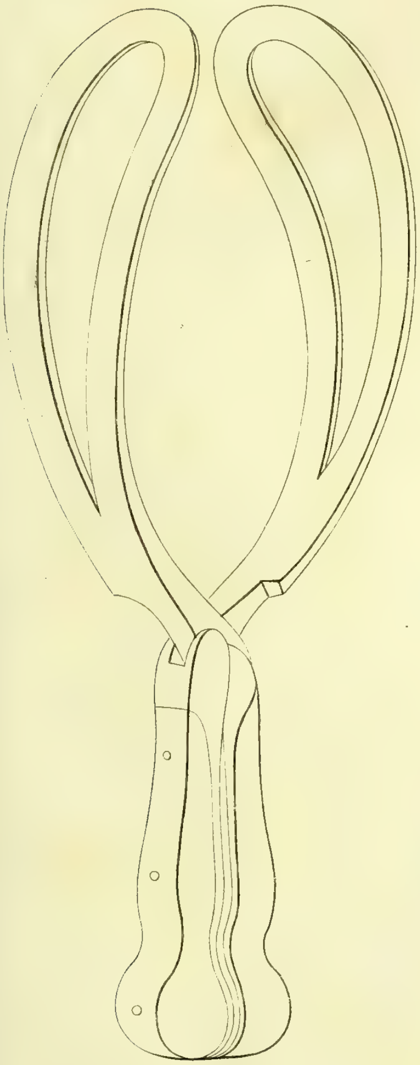
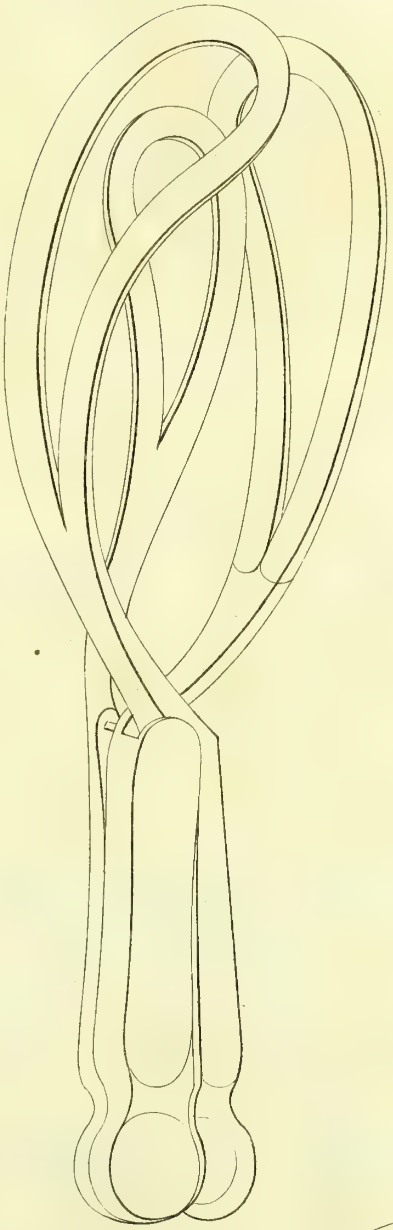


Forceps.

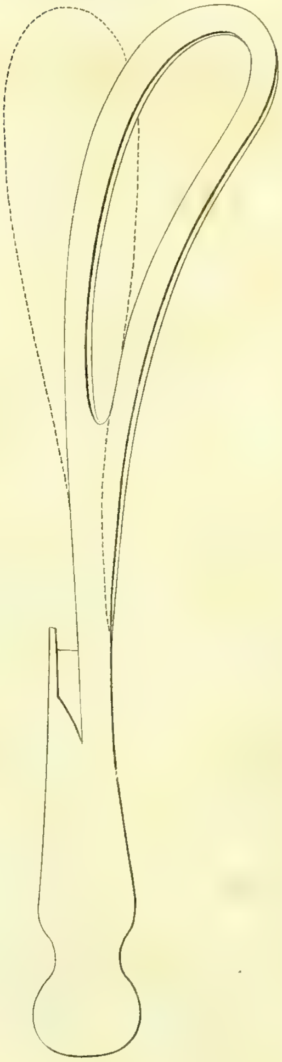
Dr. Denman's.



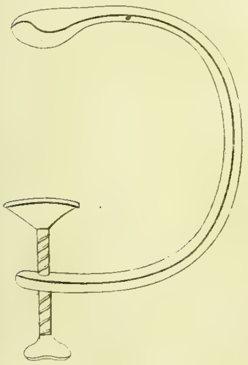
Dr. Leake's.



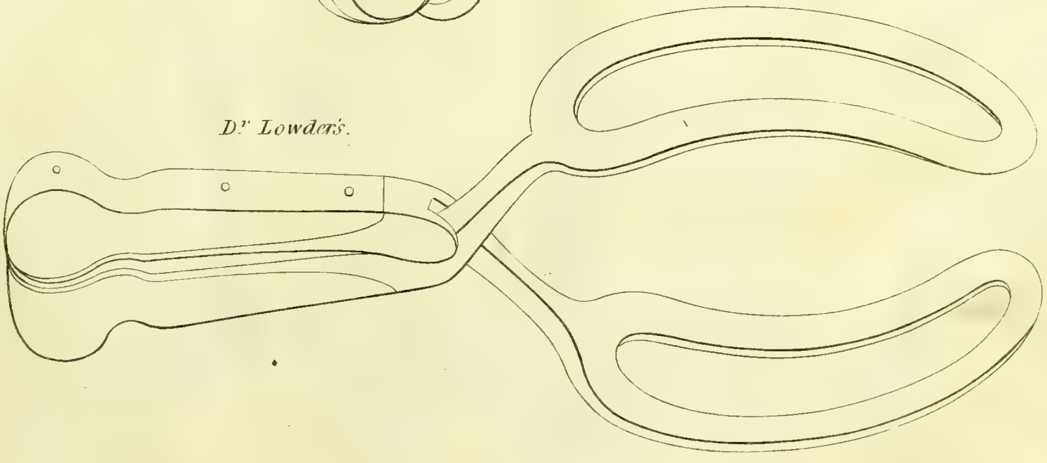
Dr. Osborne's single blade.



Mr. Moore's Compressor.



Dr. Lowder's.



Mutlow del. et sculp.

Fracture.

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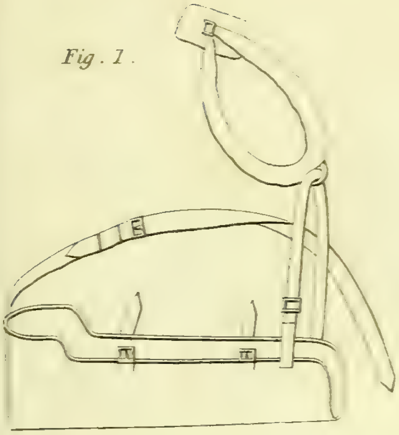

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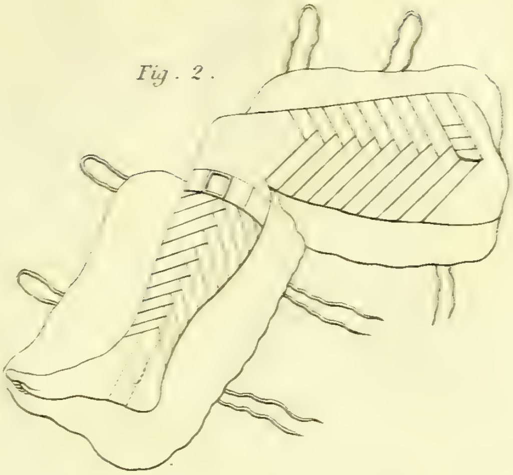

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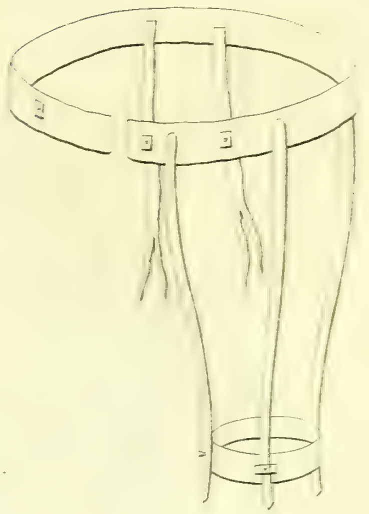

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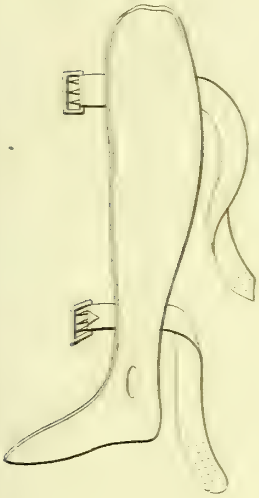

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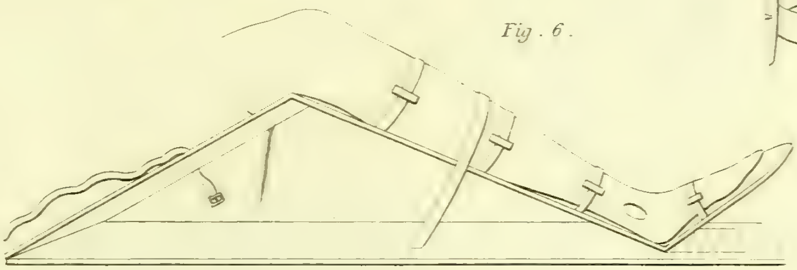
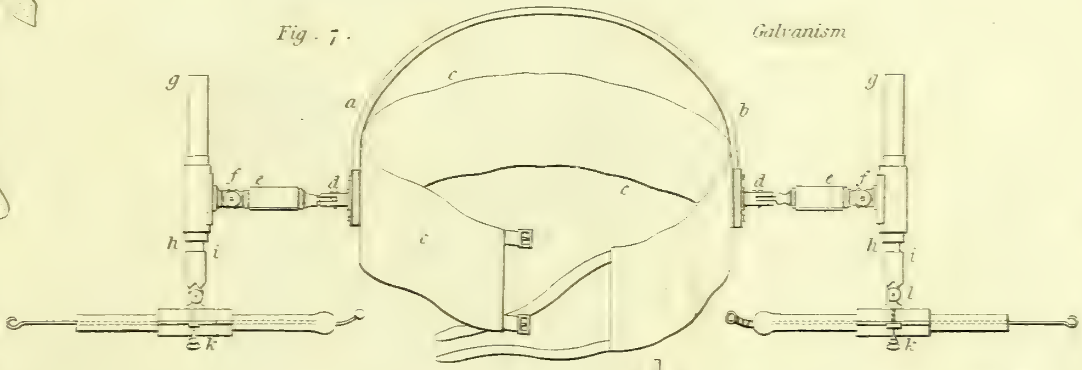


Fig. 7.

Galvanism



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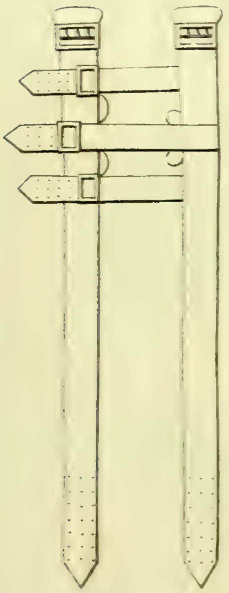

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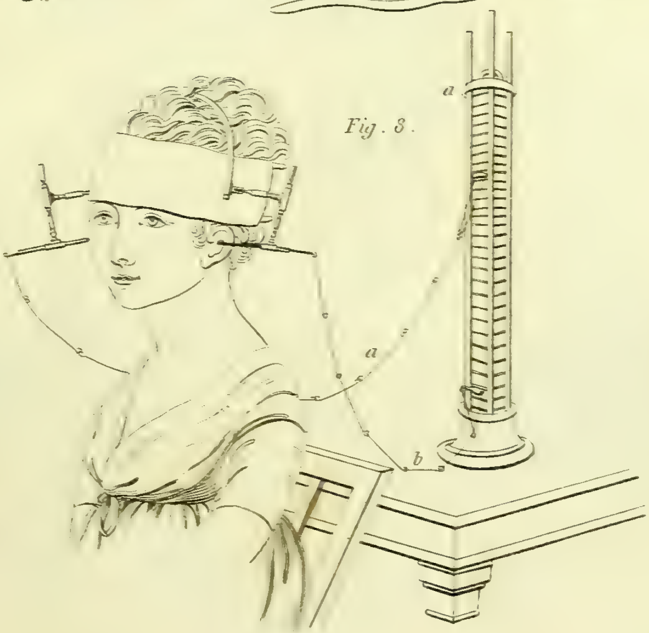

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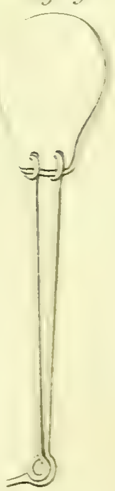

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Heart.

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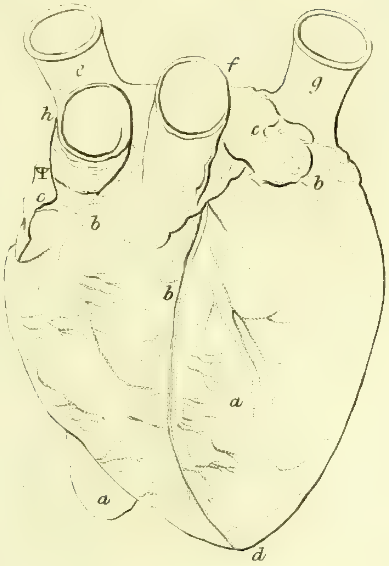

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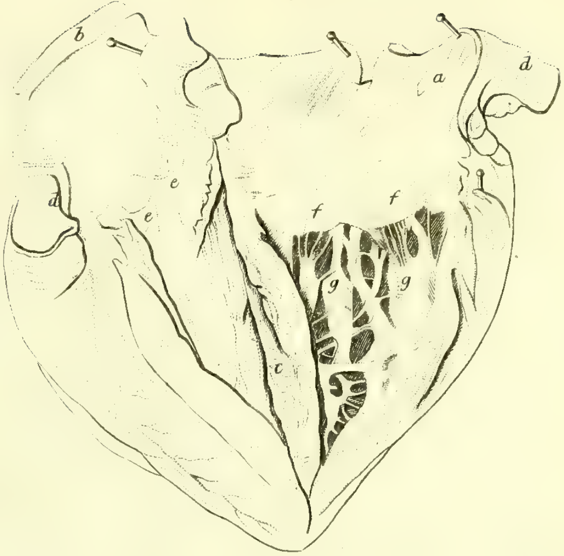

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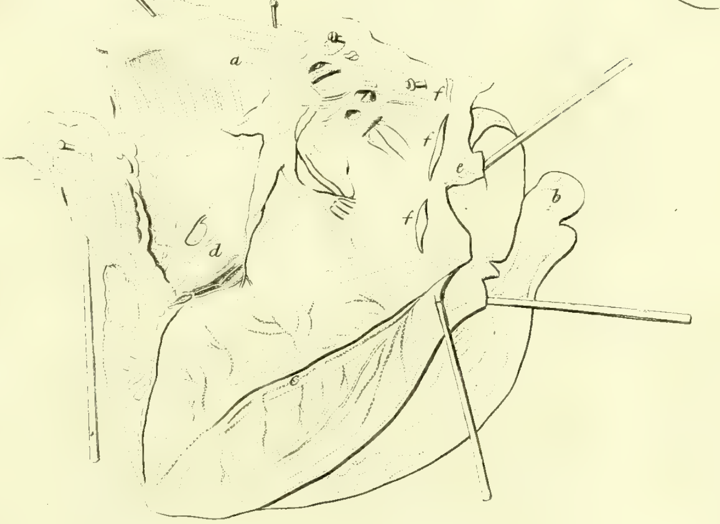

Supposed Hermaphrodites.

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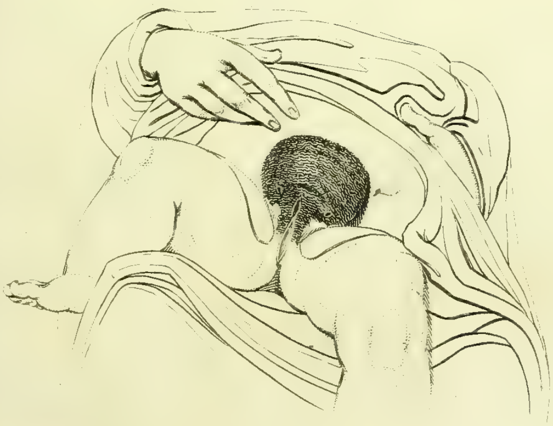

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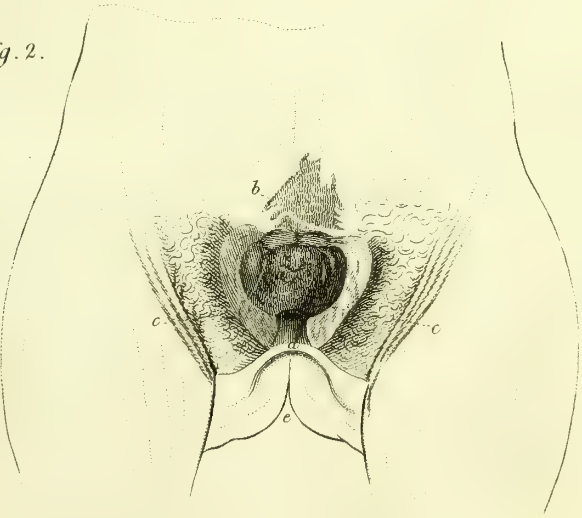
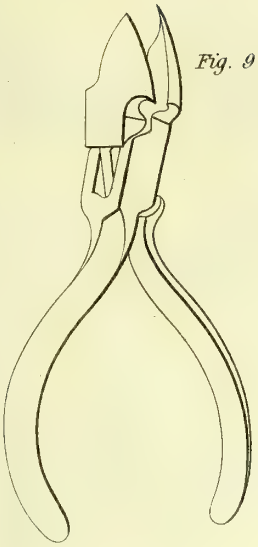


Amputation.



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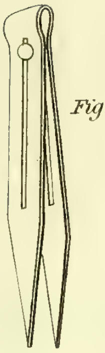
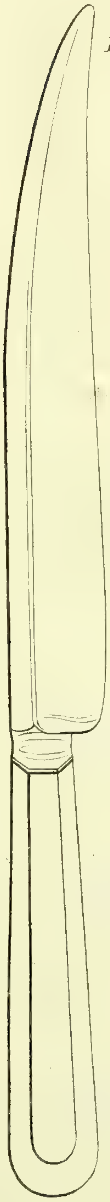


Fig. 7.



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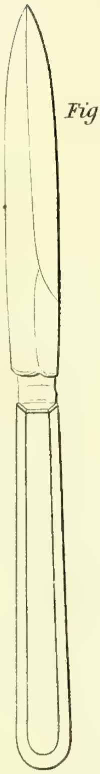

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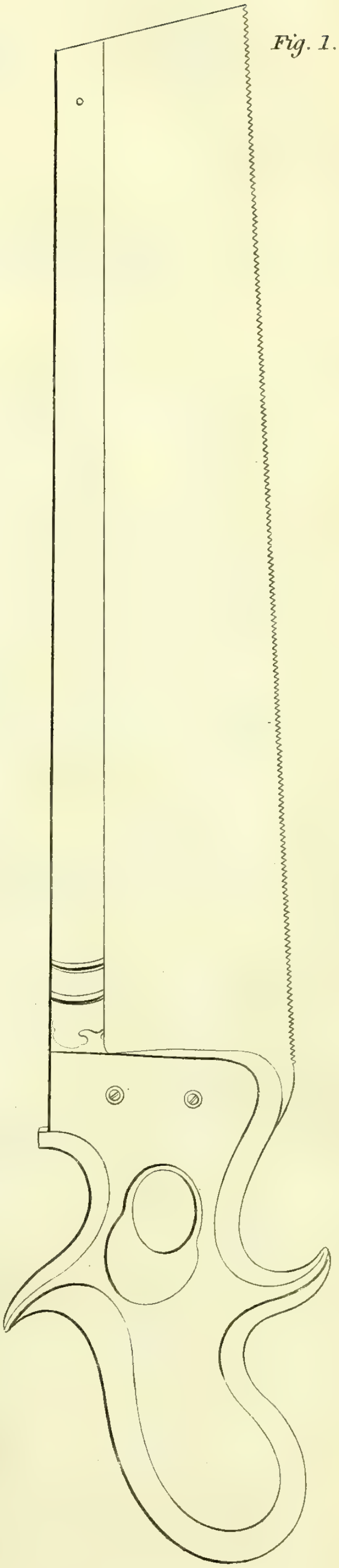

Fig. 1.

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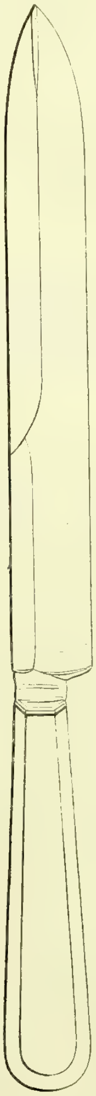

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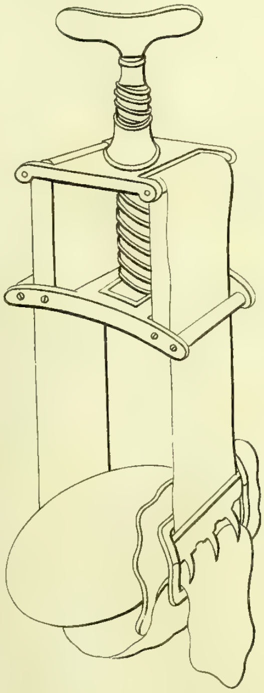

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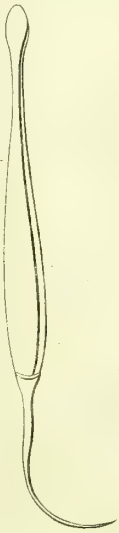


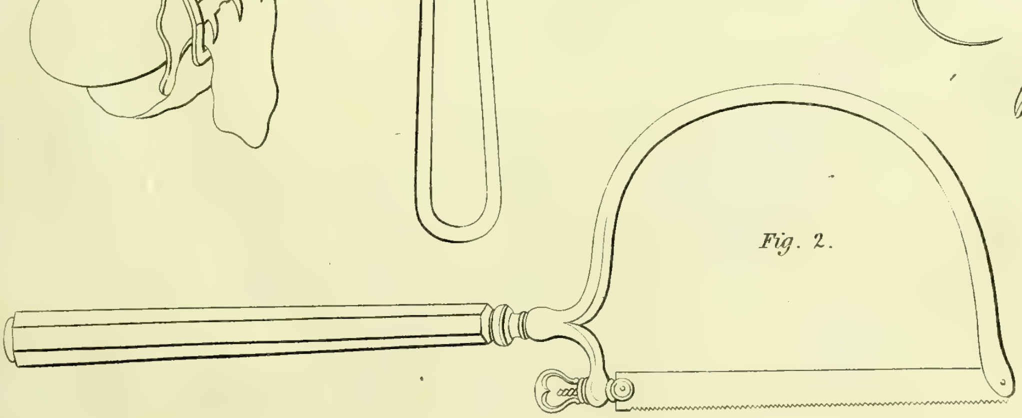
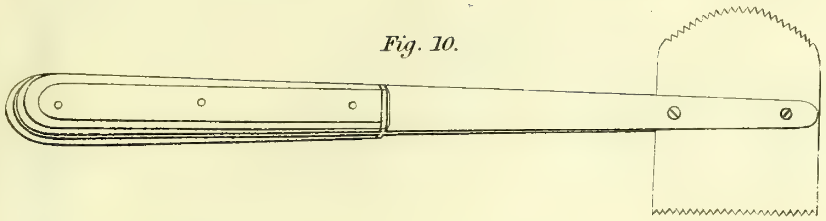


Fig. 2.

Instruments.

Trepanning.

Fig. 10.



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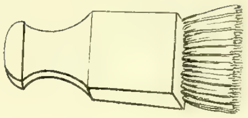

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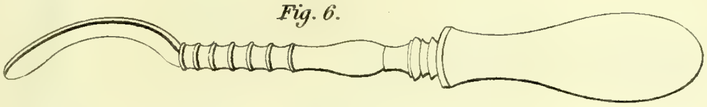

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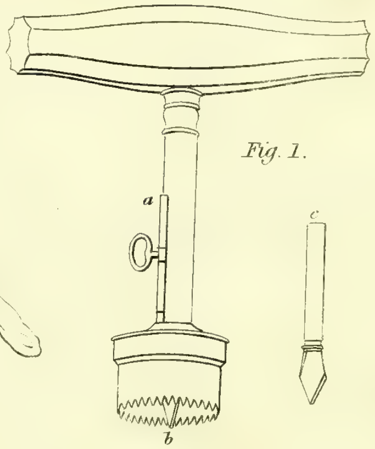

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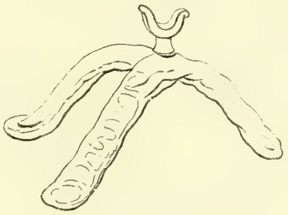

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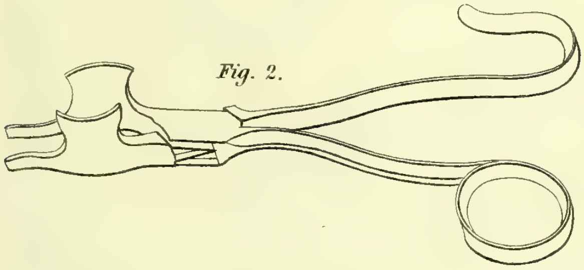

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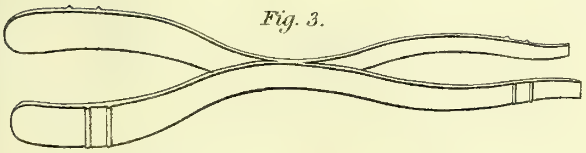

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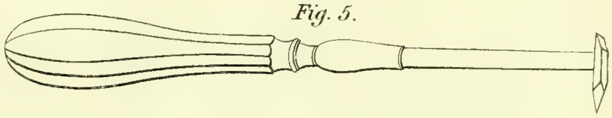

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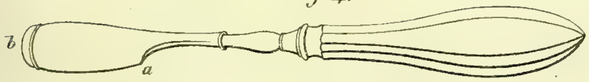

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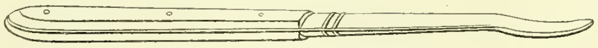

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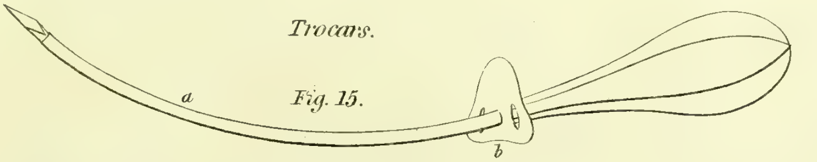
Fig. 15.



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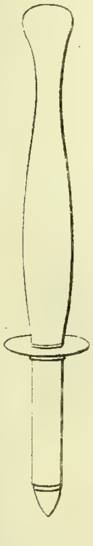

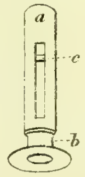

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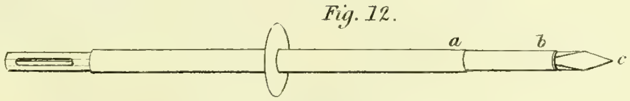

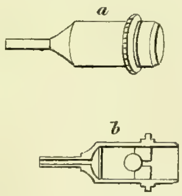

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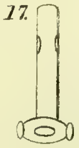

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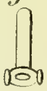

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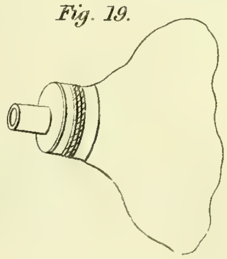

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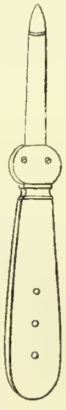

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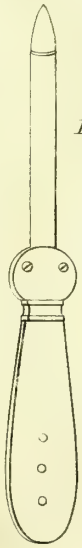

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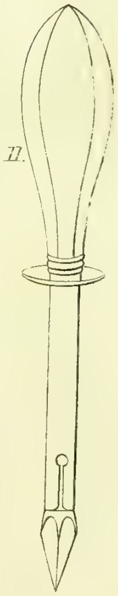

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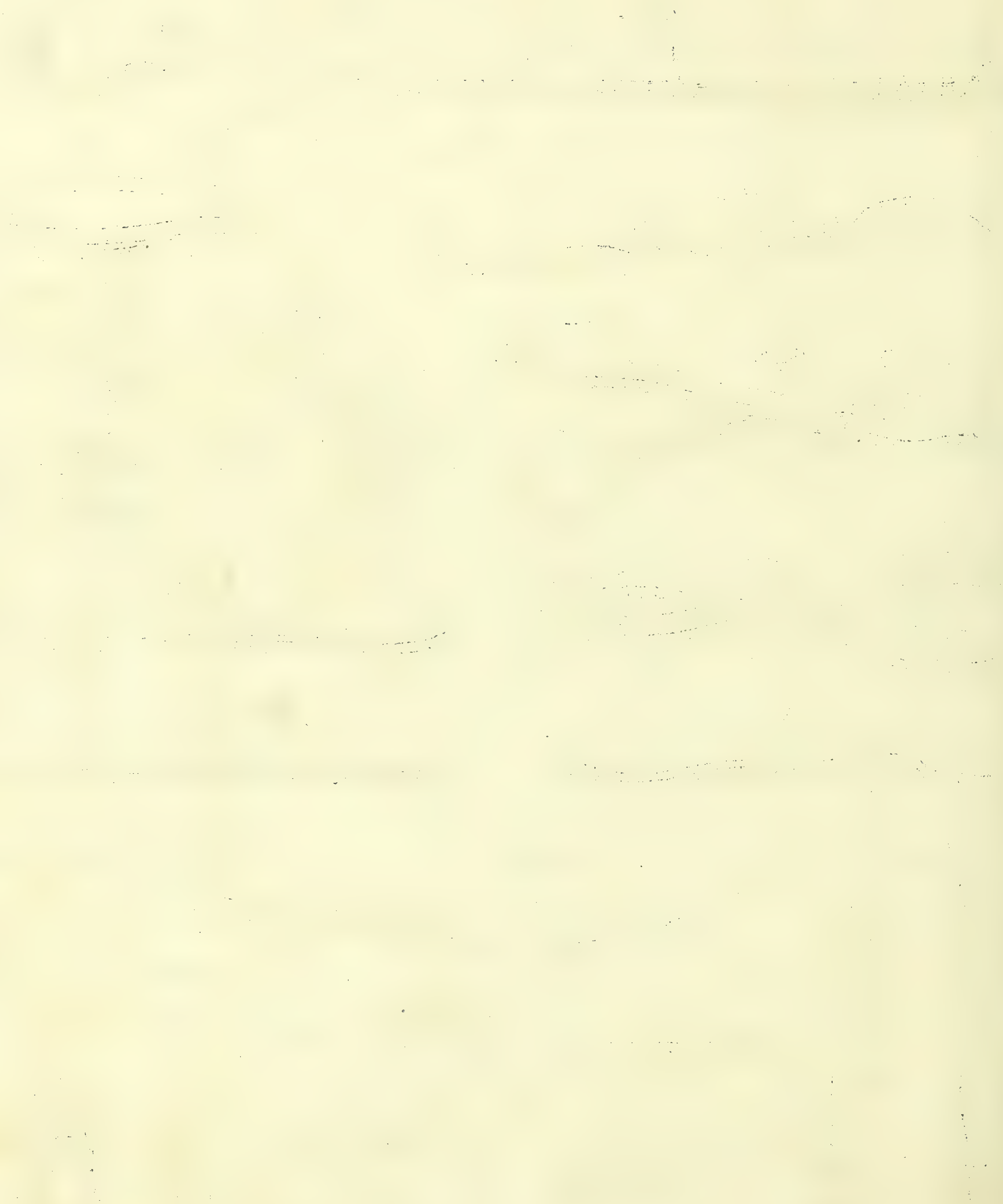

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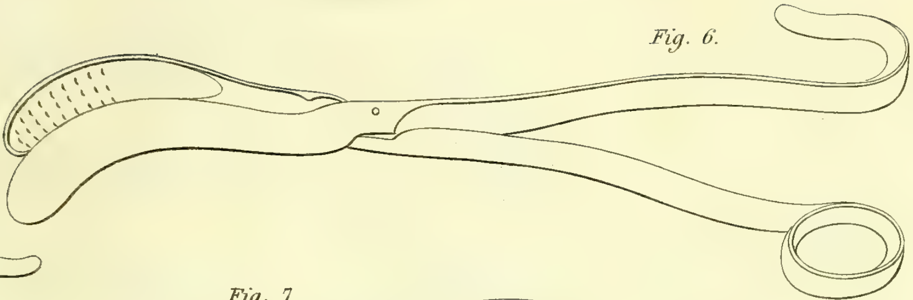
Fig. 6.



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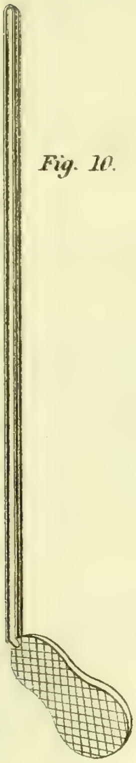

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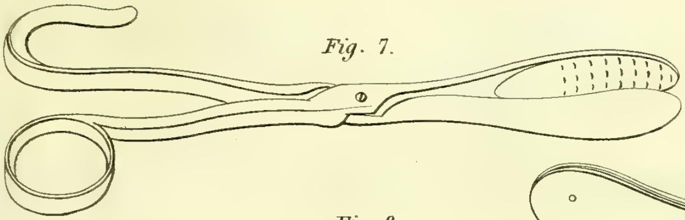

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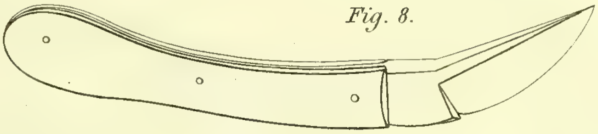

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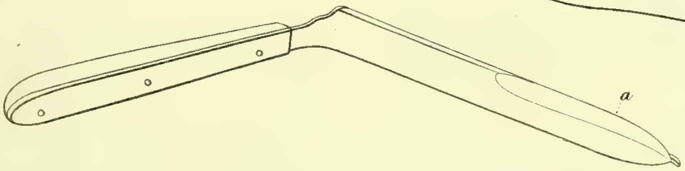

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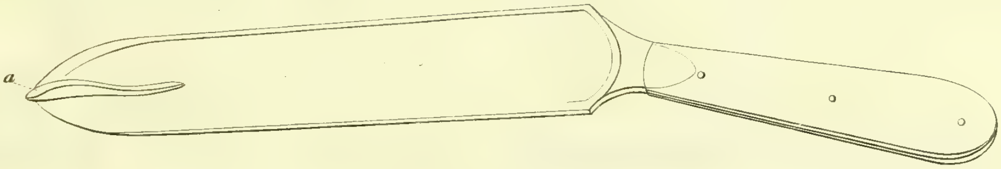

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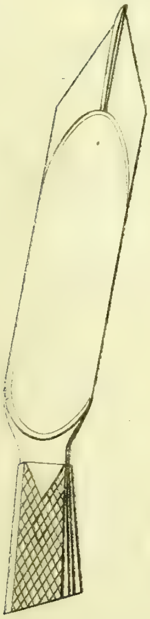

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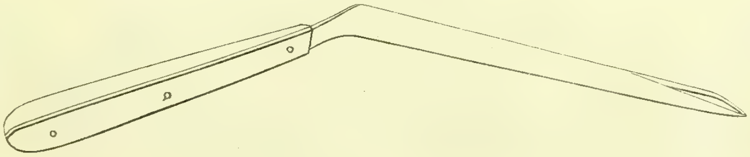

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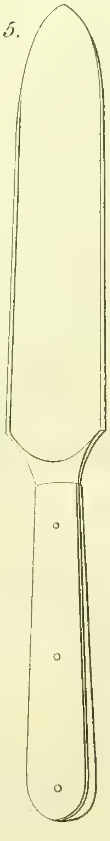

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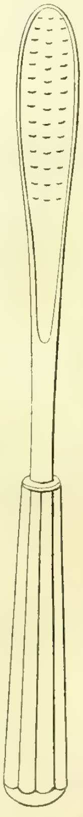

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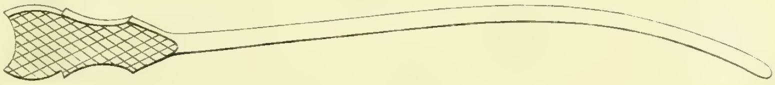

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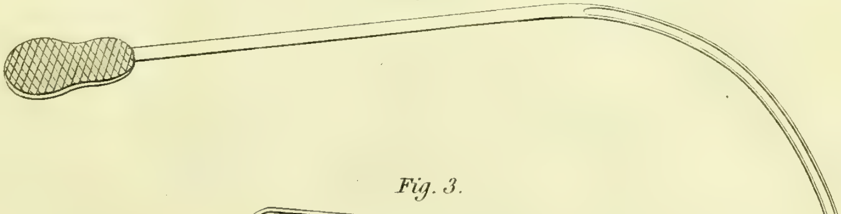

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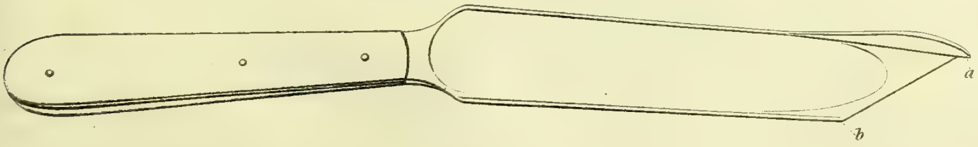
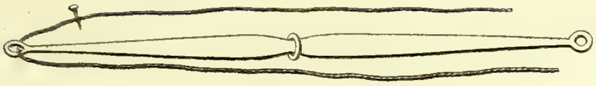


Instruments.

Polypi.

Fig. 5.



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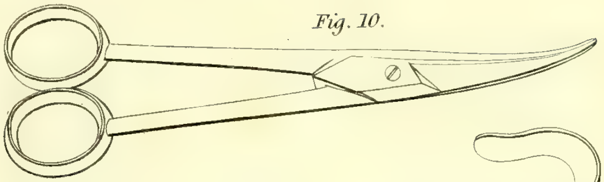

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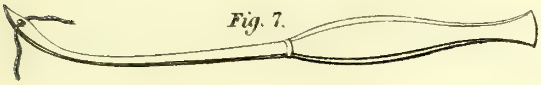

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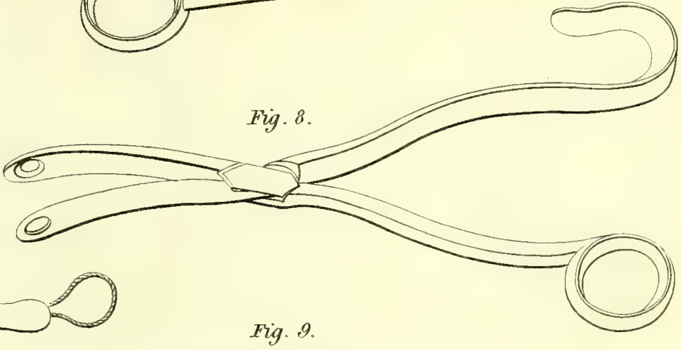

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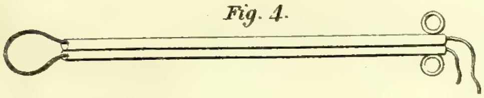

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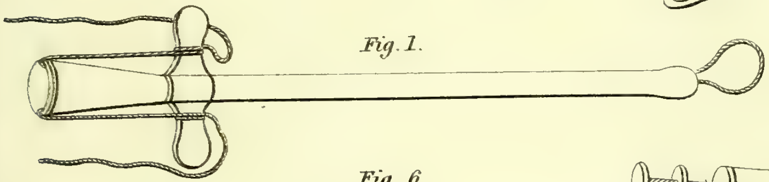

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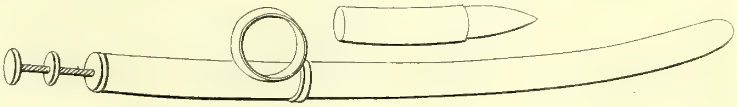

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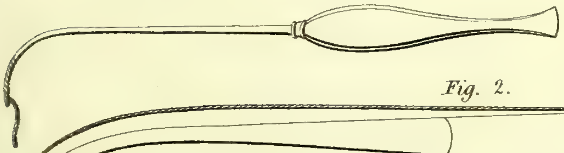

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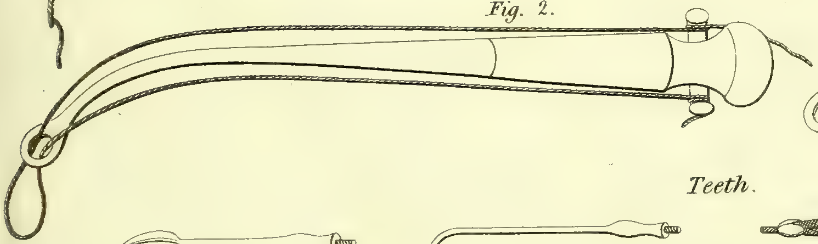

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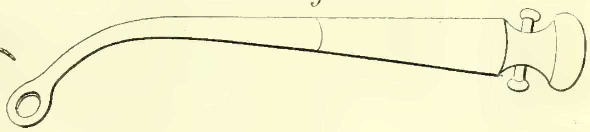

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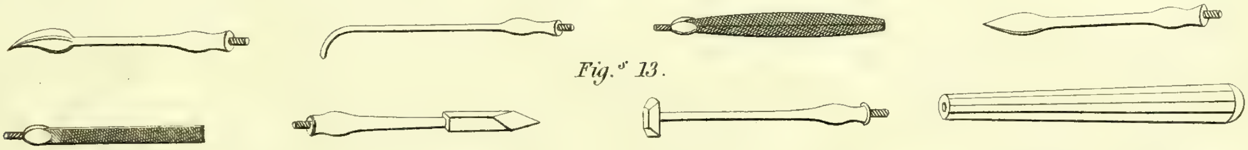
Fig.^s 13.



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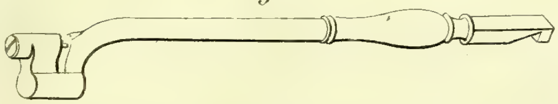

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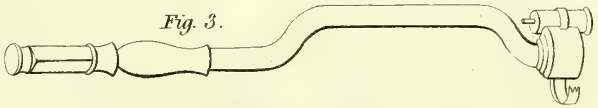

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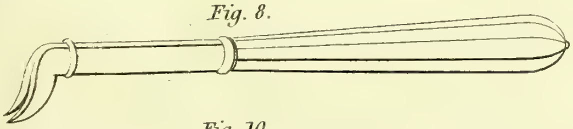

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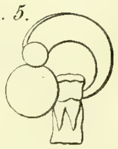

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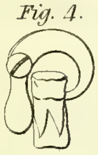

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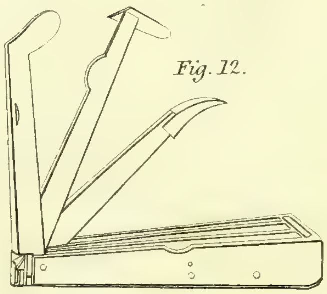

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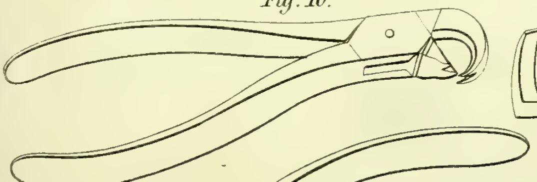

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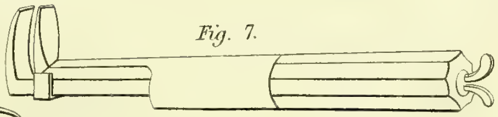

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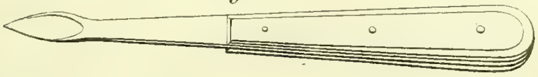

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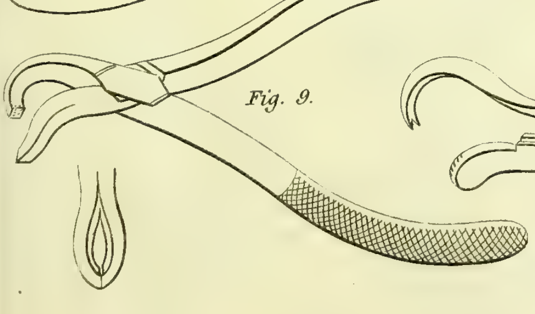

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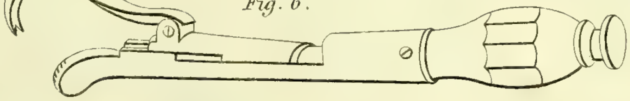

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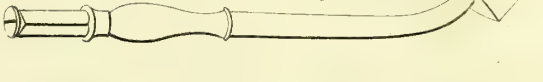

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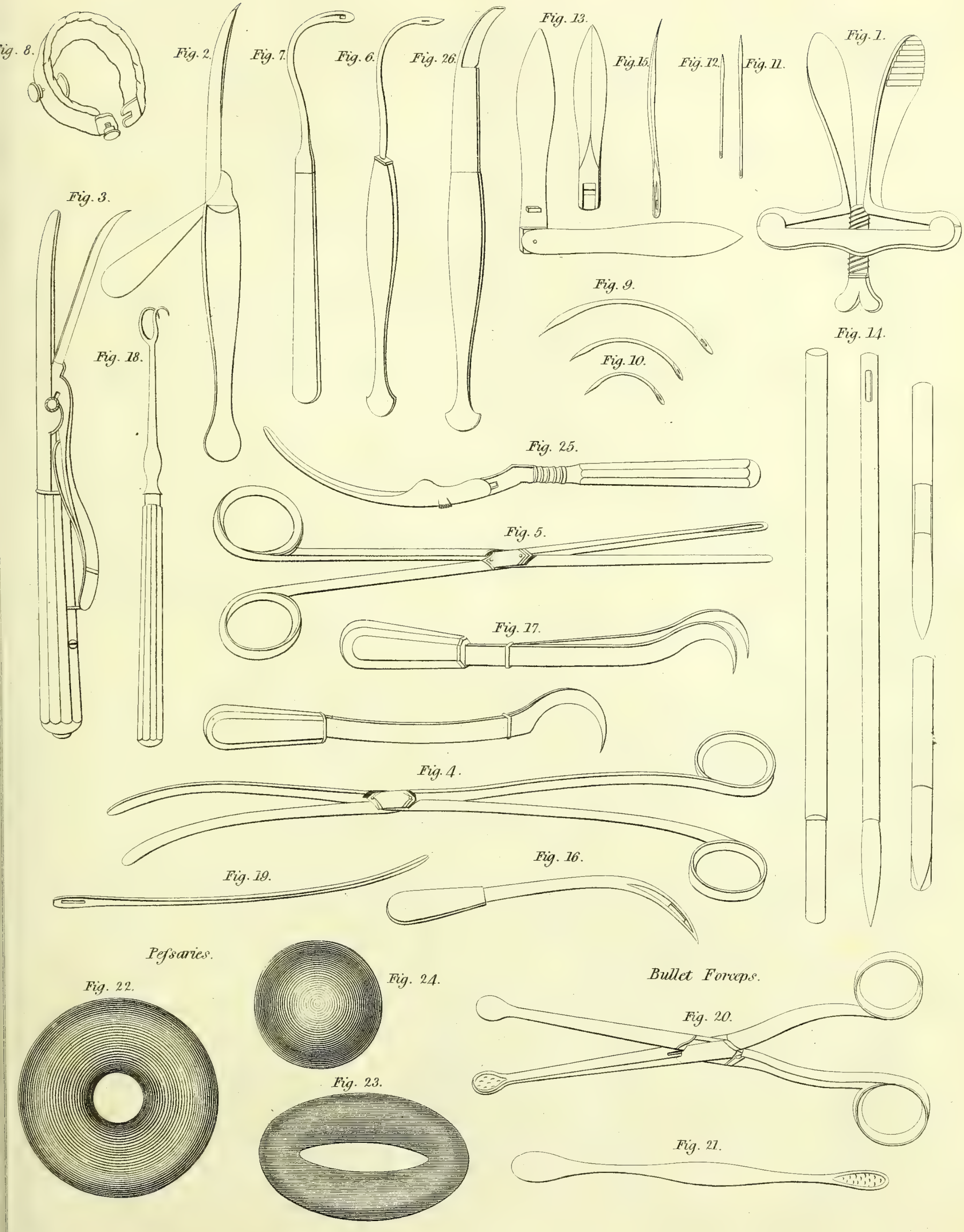

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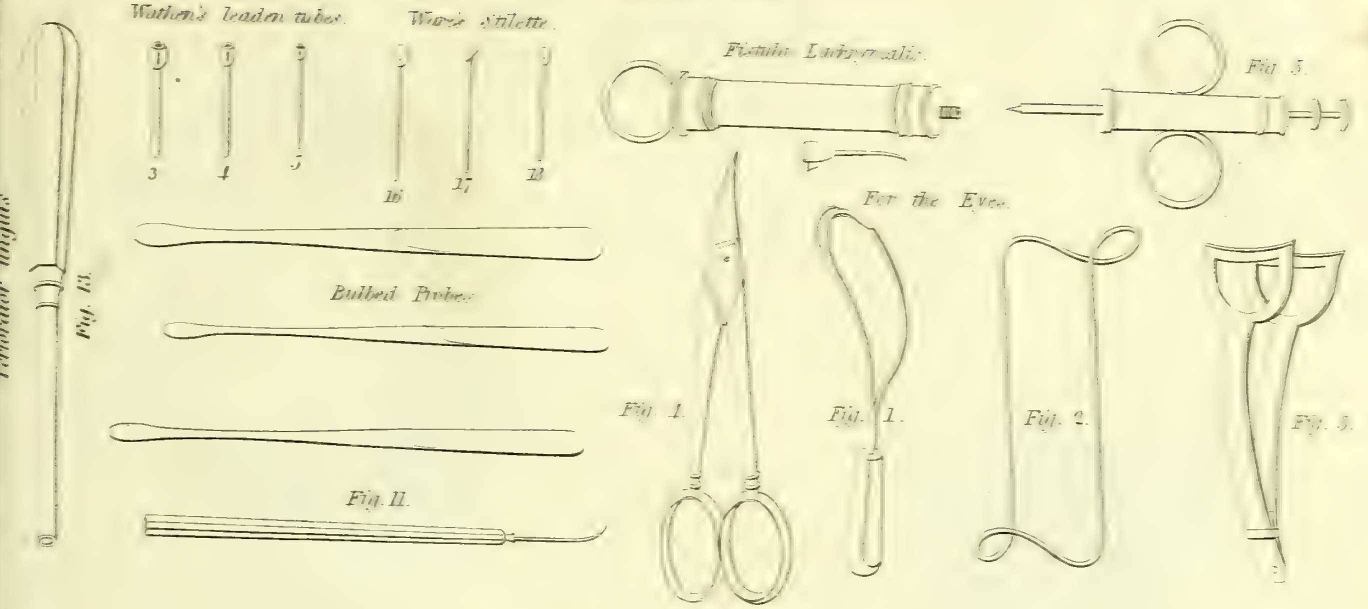
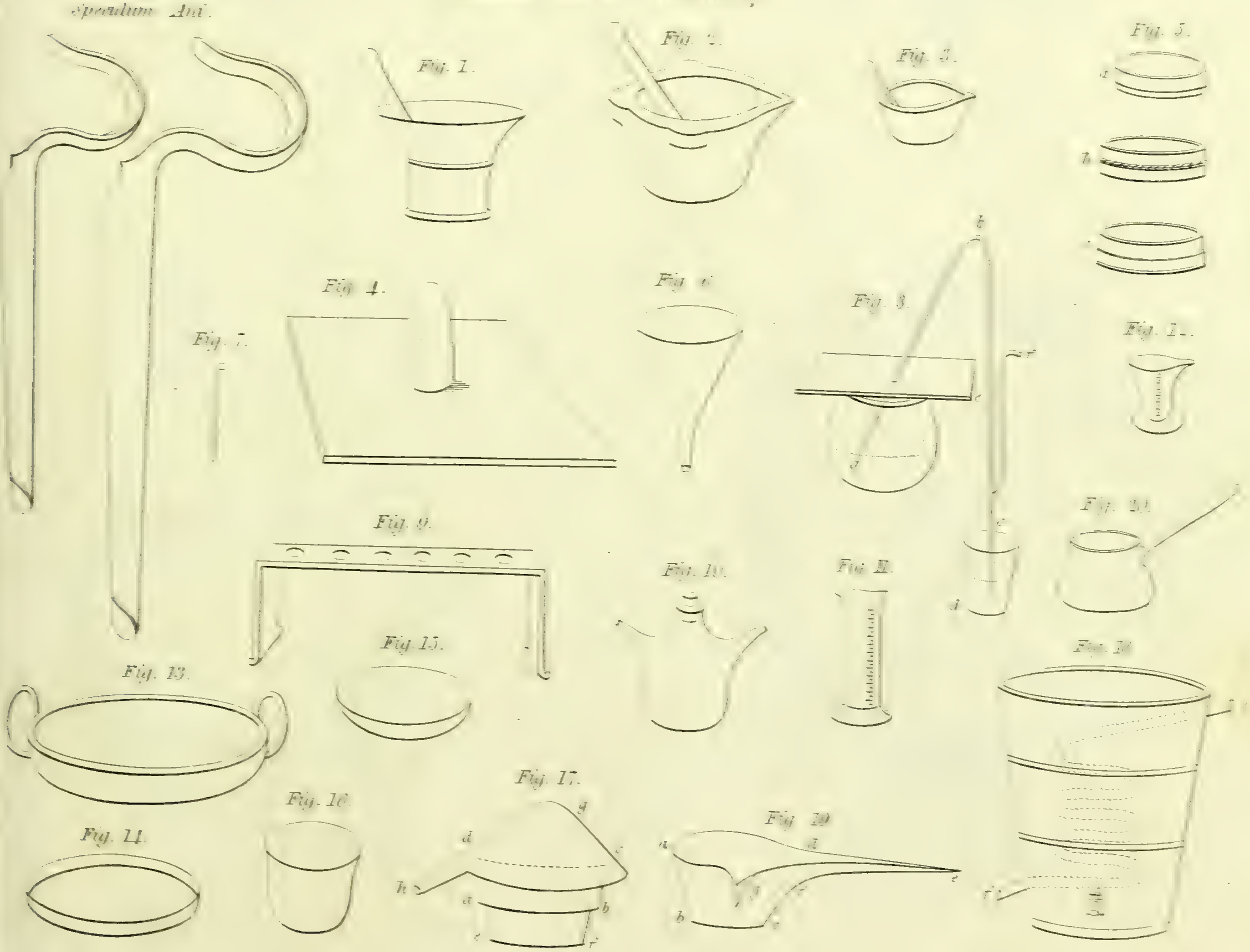
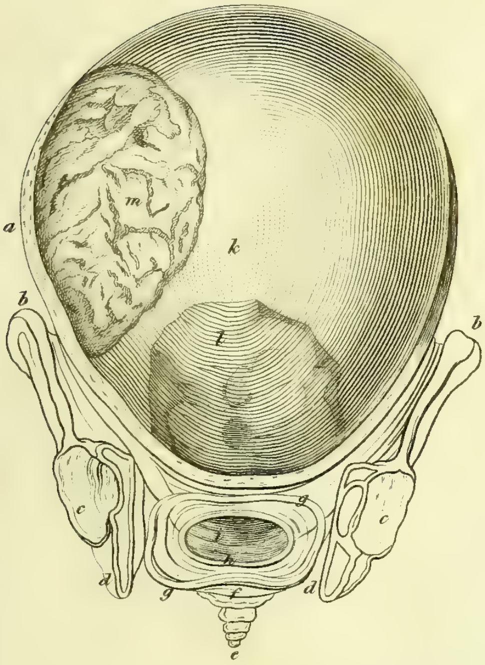


Apparatus used in Pharmacy.



Labour.

Fig. 1.



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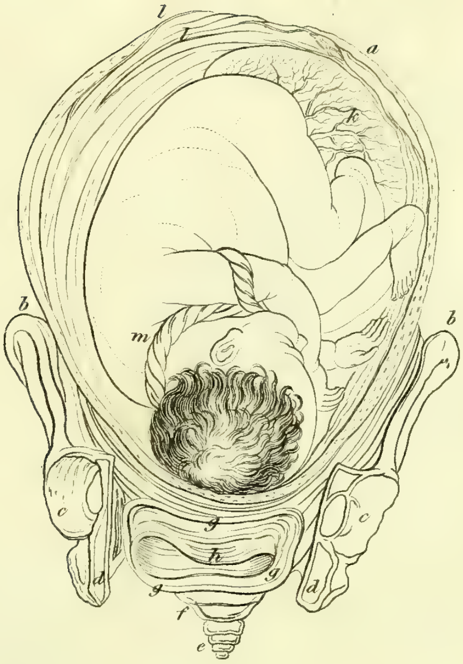

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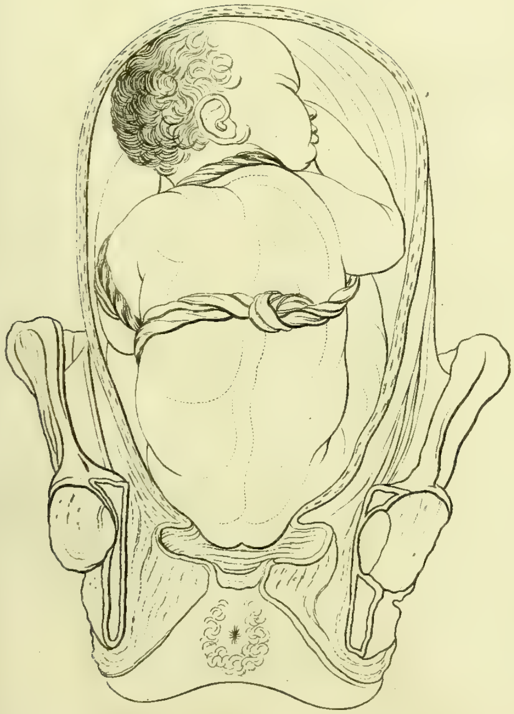

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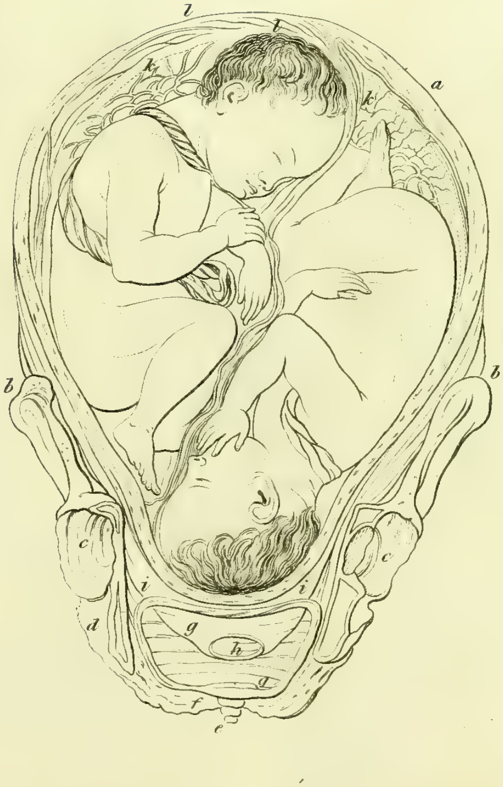
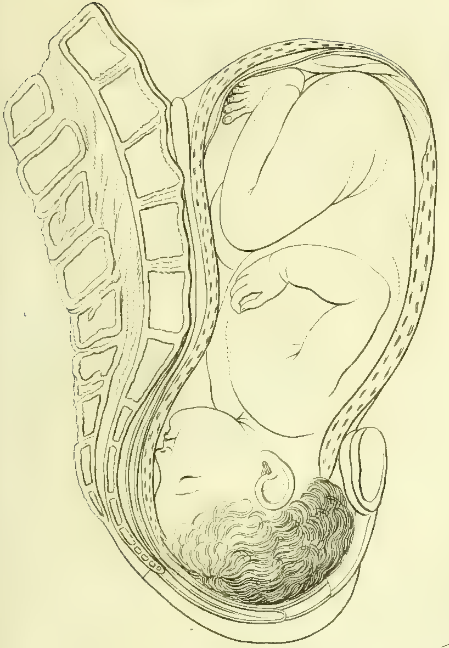


Labour.

Fig. 5.



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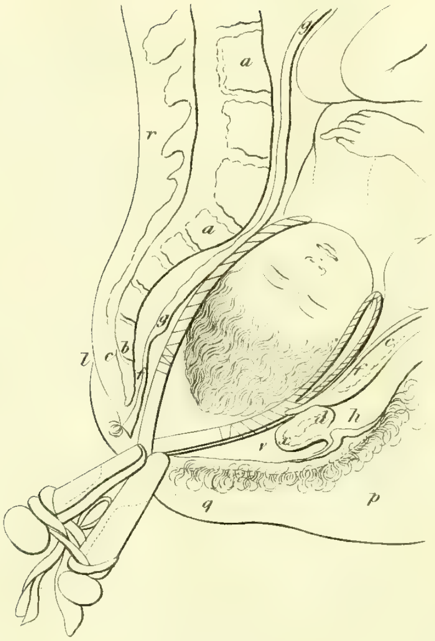

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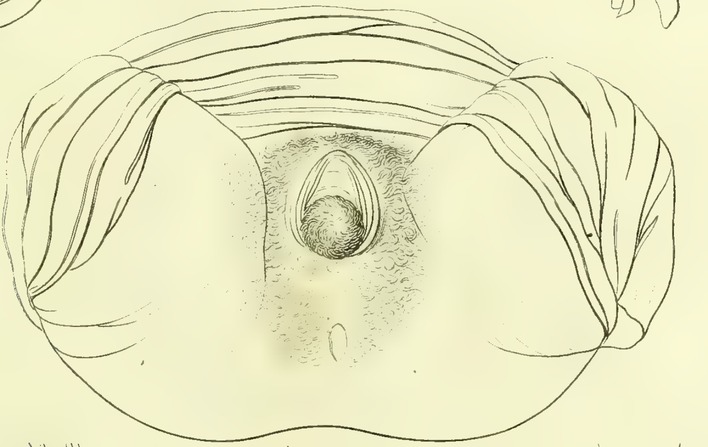

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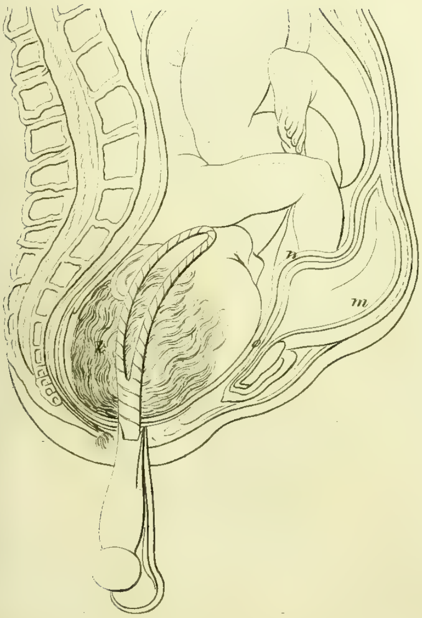

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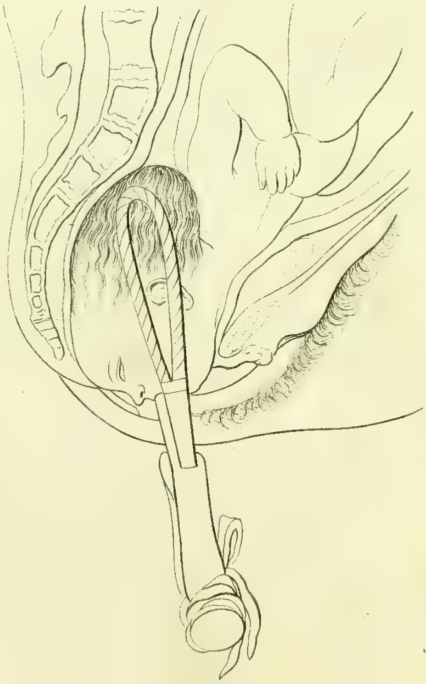

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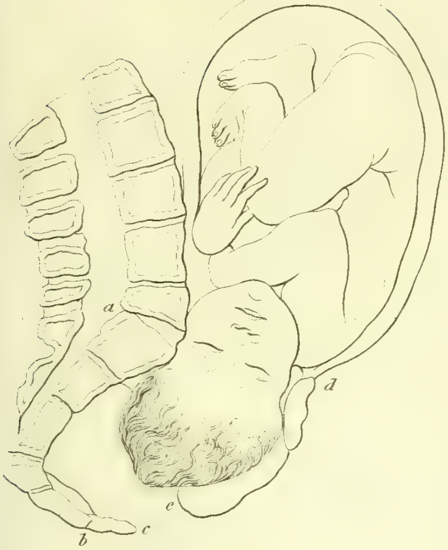

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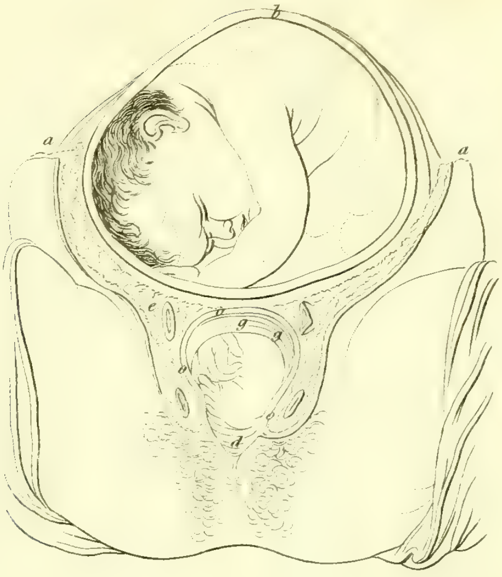

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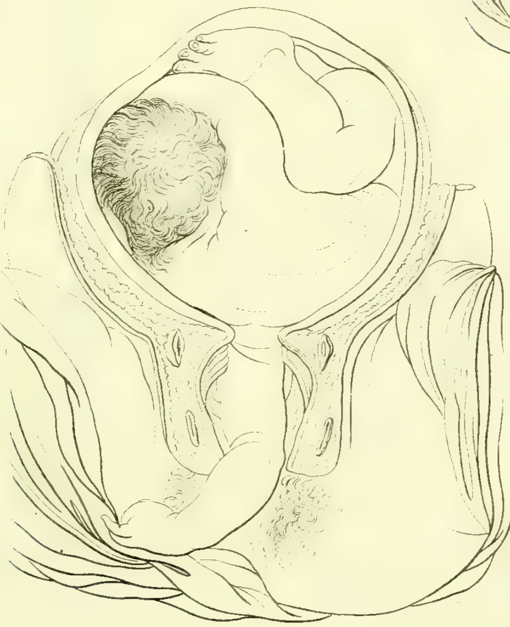

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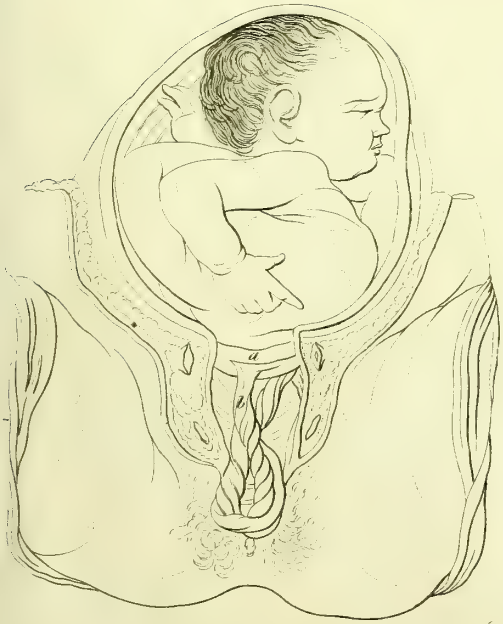

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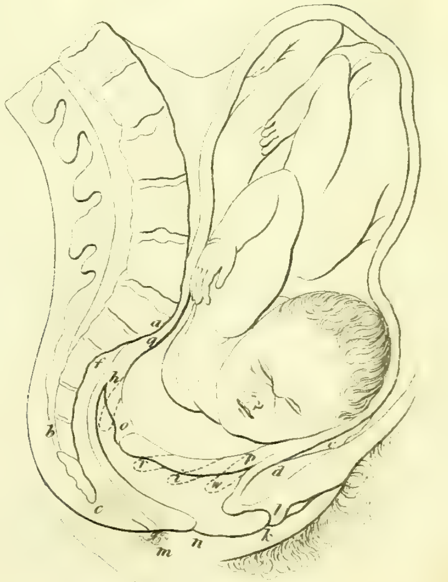
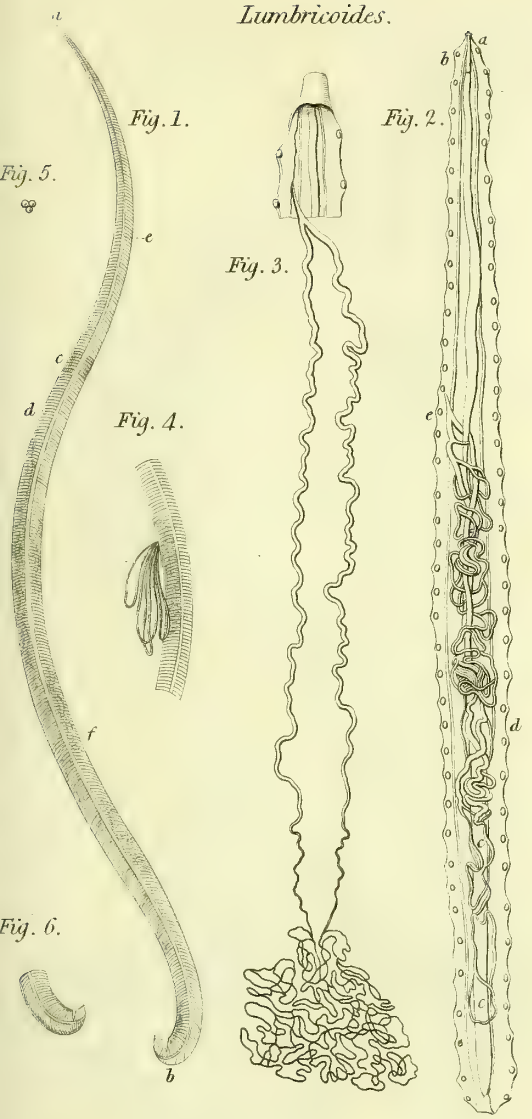
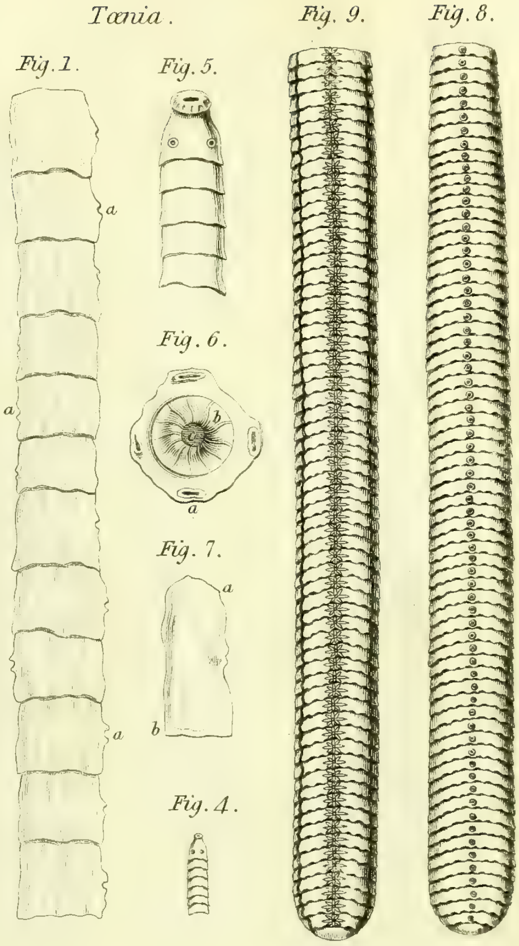


Worms.

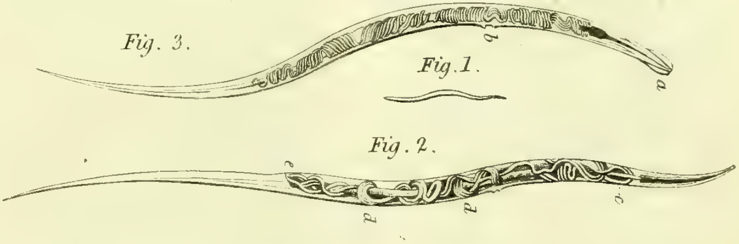
Lumbricoides.



Tænia.

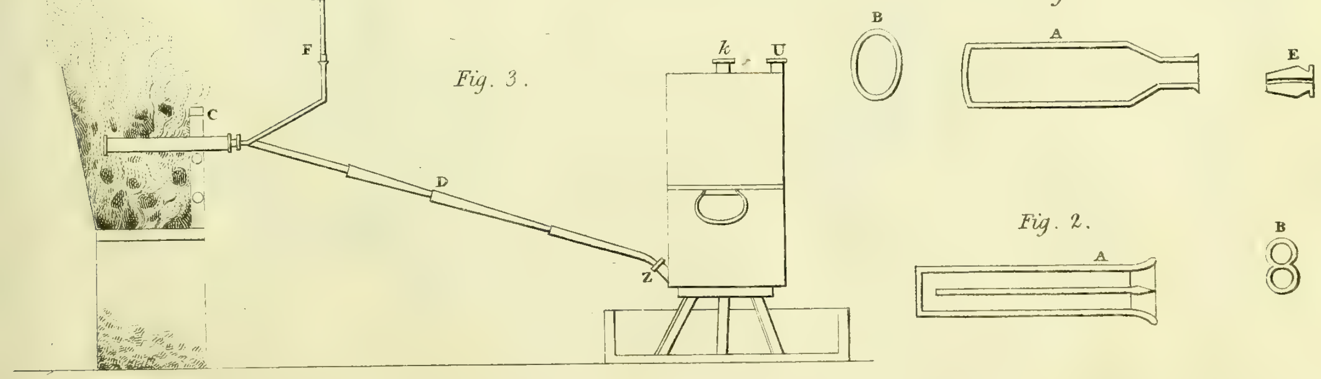


Ascaris vermicularis.

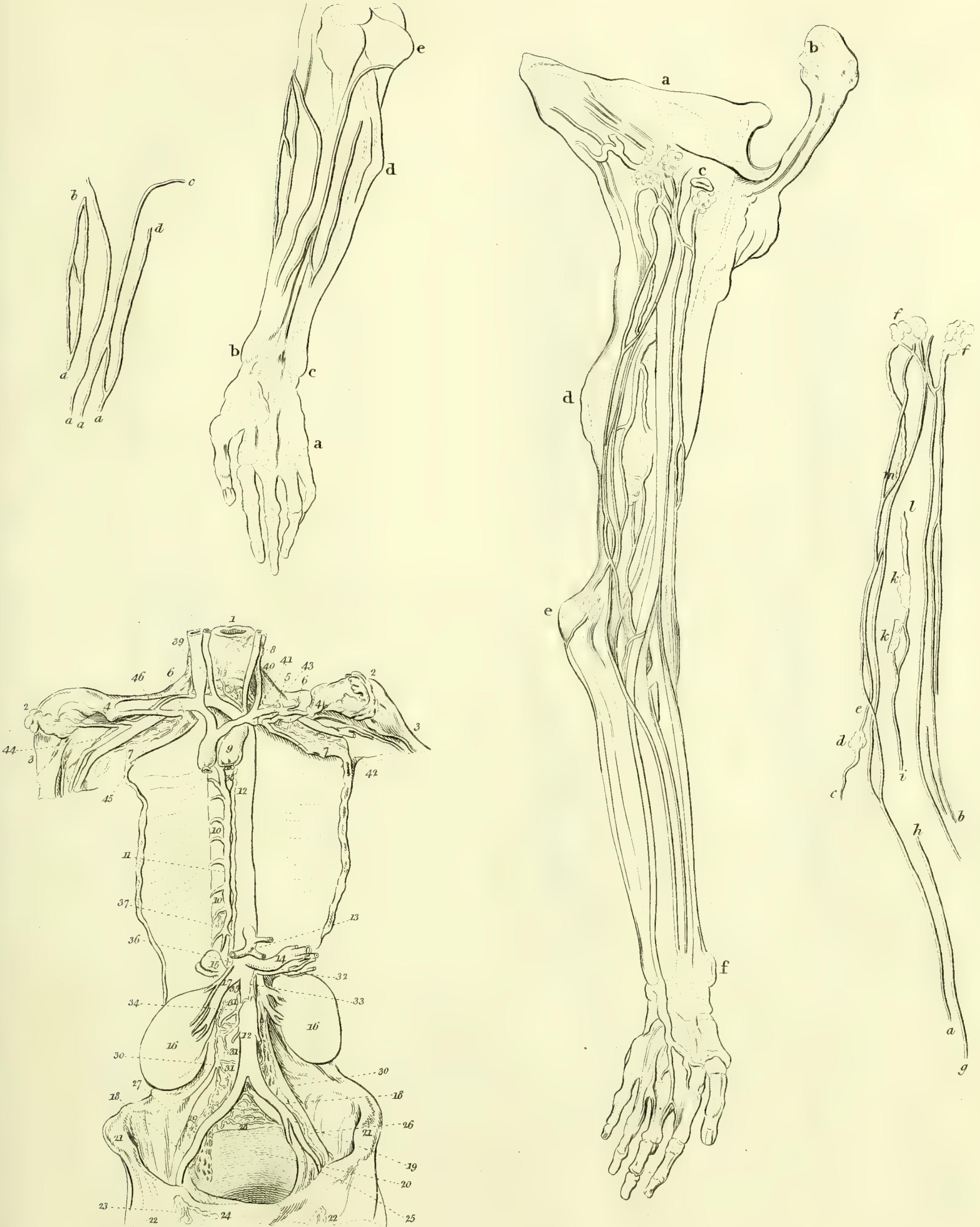


Trichuris.

Pneumatic Apparatus.

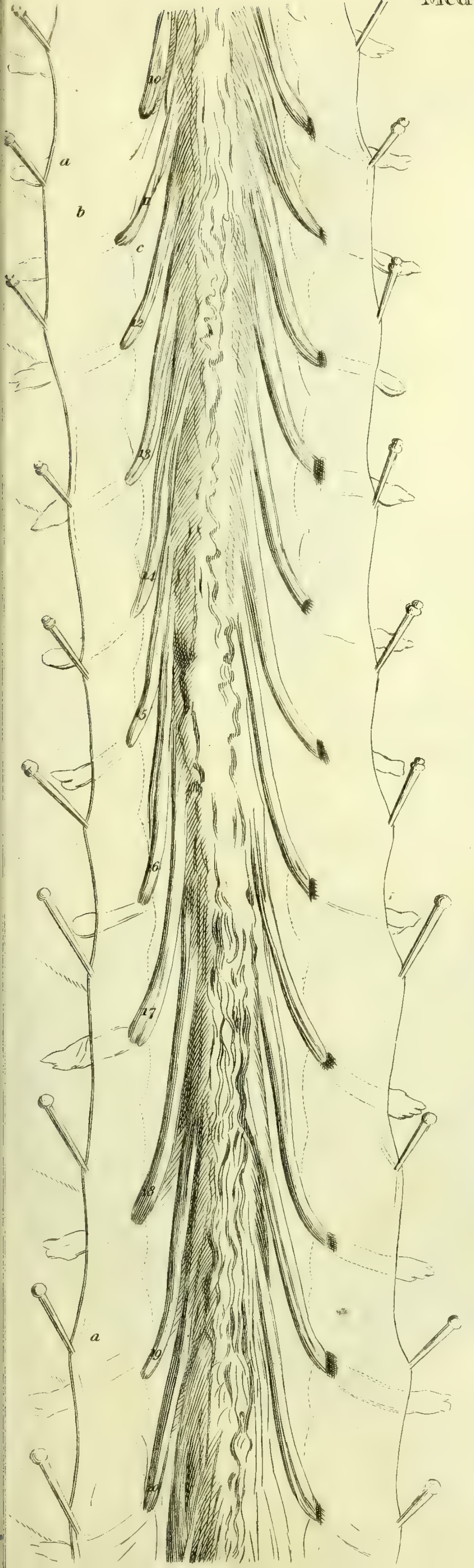


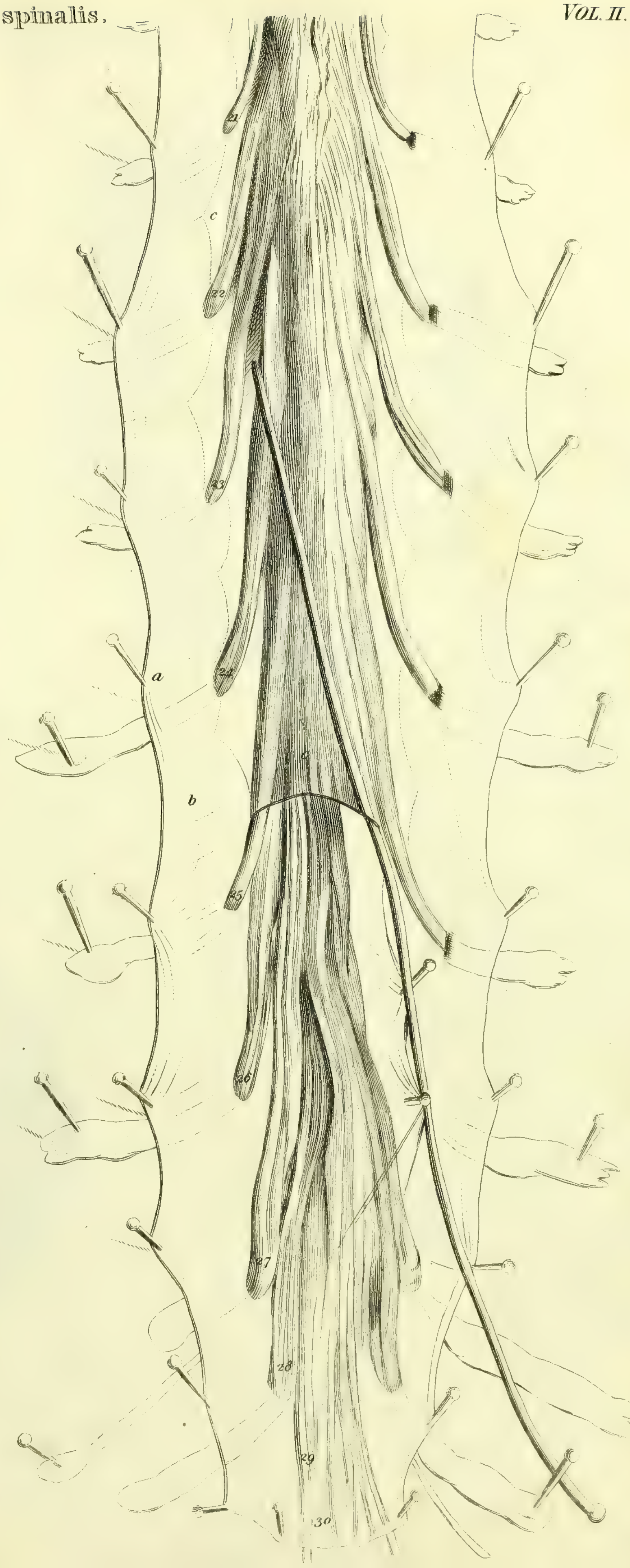
Lymphatics.



Campbell fc.

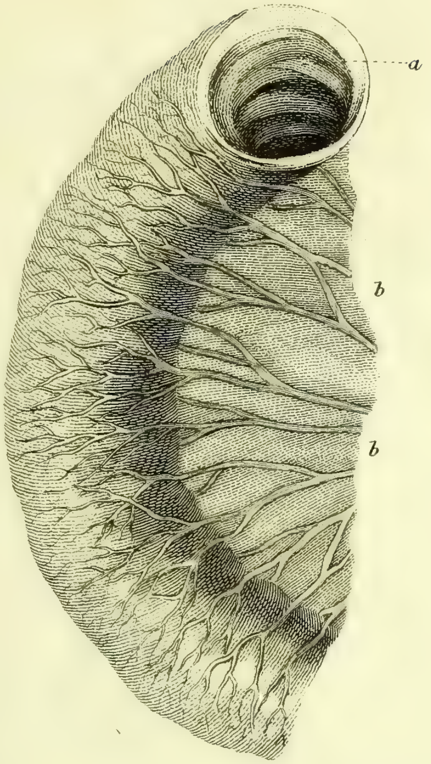
Medulla spinalis,





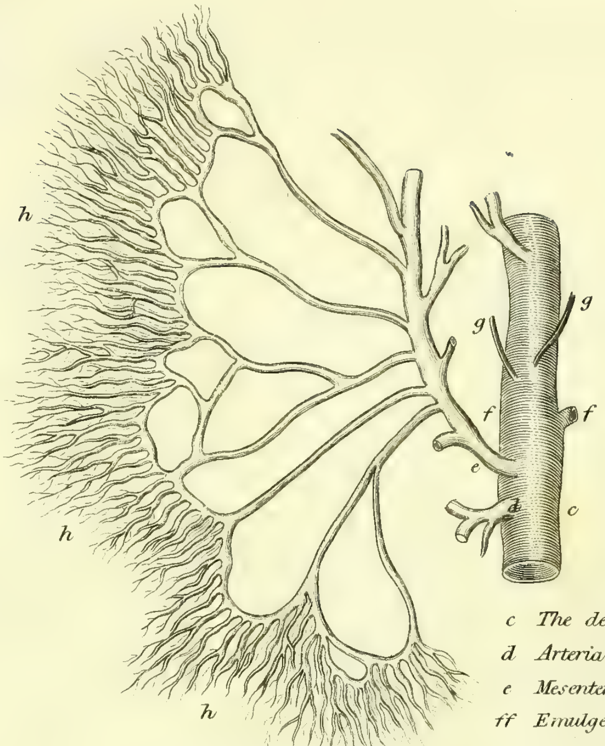
Mesentery,

Lacteals.



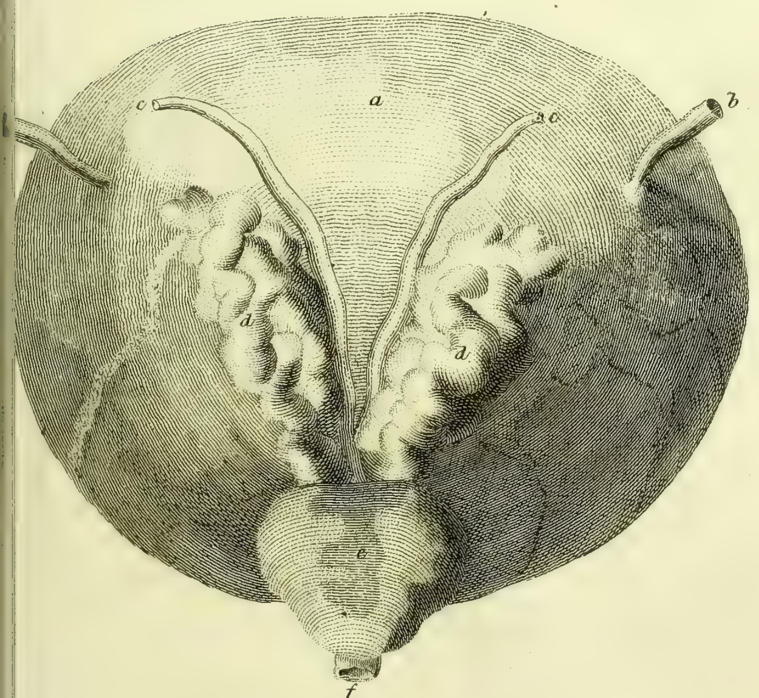
a. A portion of the jejunum, with the valvulæ conniventes.

b.b. The lacteals paſsing through the Mesentery.

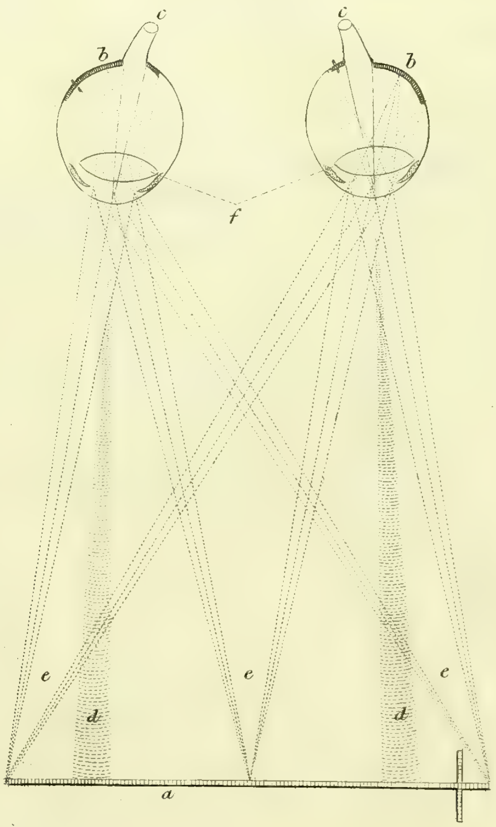


c *The descending Aorta.*
d *Arteria coeliaca.*
e *Mesenterica superior.*
ff *Emulgentes.*
gg *Spermaticæ.*
hhh *Branches of the mesenterica inferior.*

Vesica Urinaria.



Vision.



Campbell fc

Fig. 3.

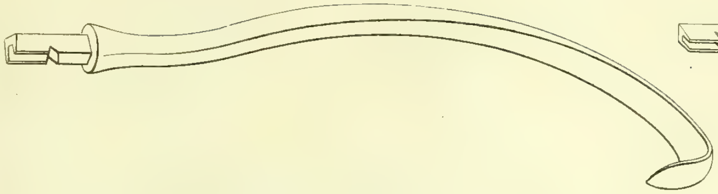


Fig. 4.

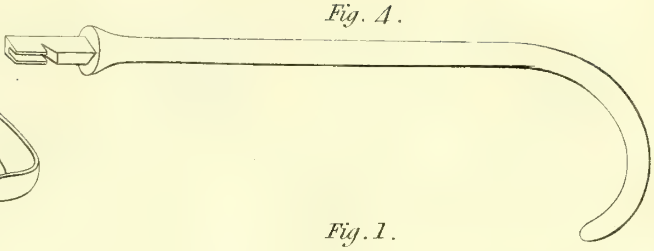


Fig. 2.

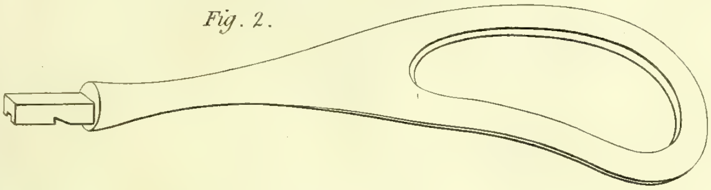


Fig. 1.

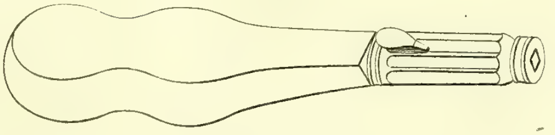


Fig. 5.

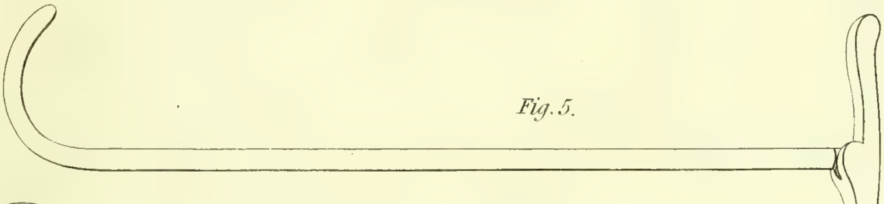


Fig. 6.

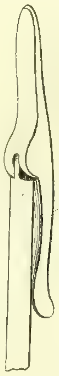


Fig. 7.

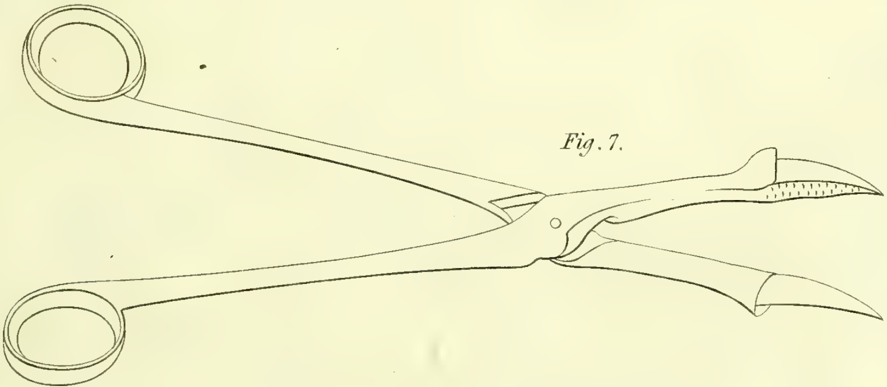
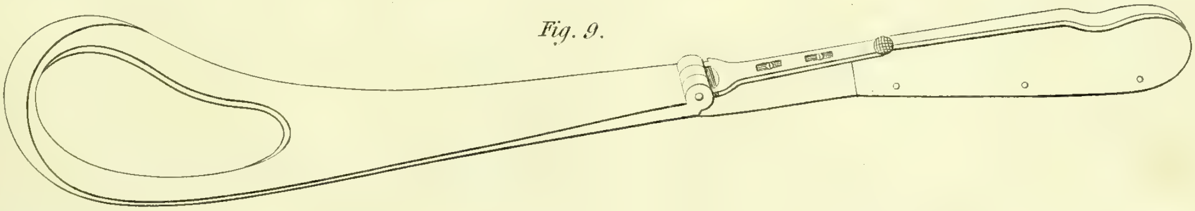


Fig. 9.



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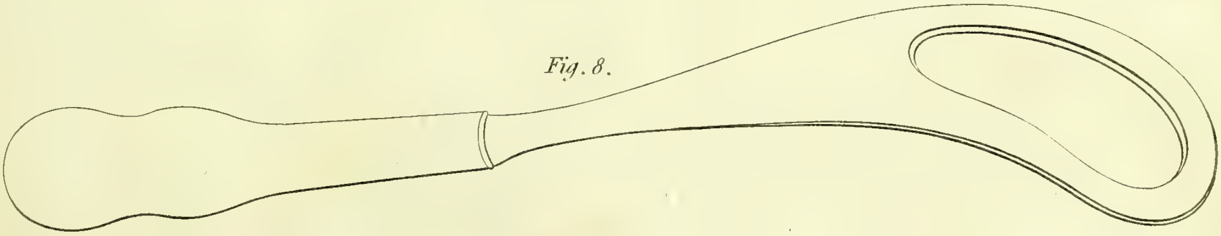
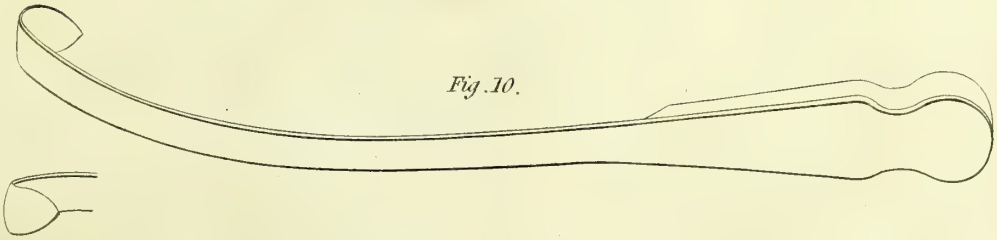


Fig. 10.



Monsters.

Fig. 1.

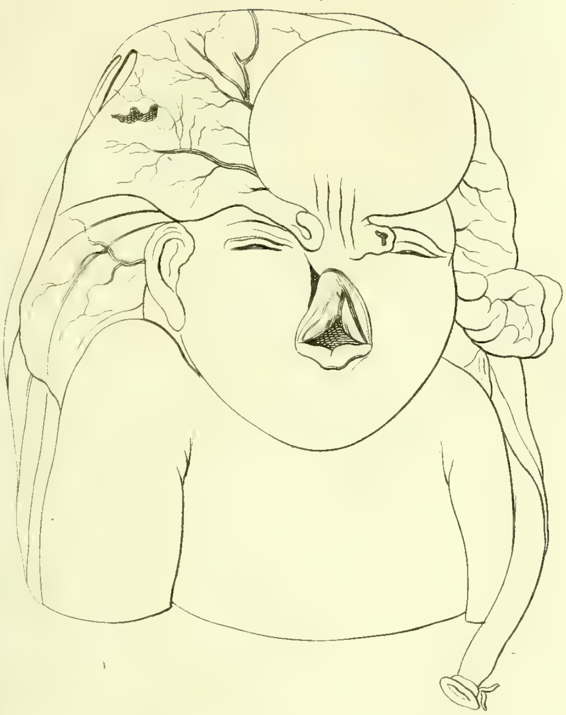


Fig. 2.

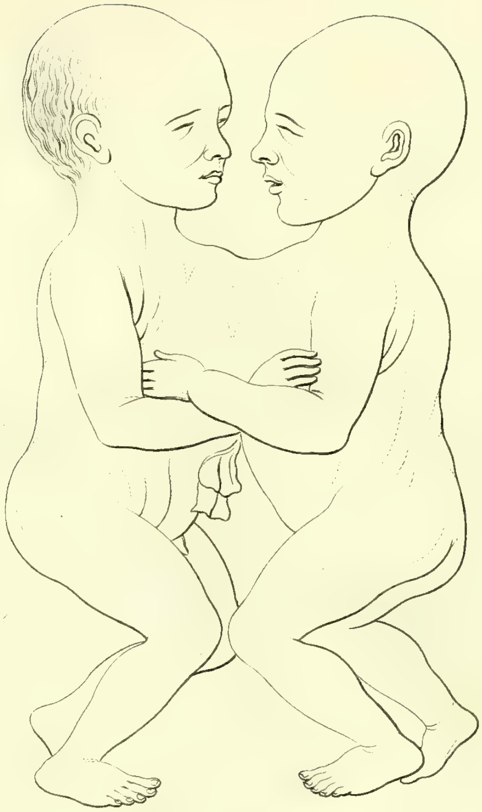


Fig. 4.

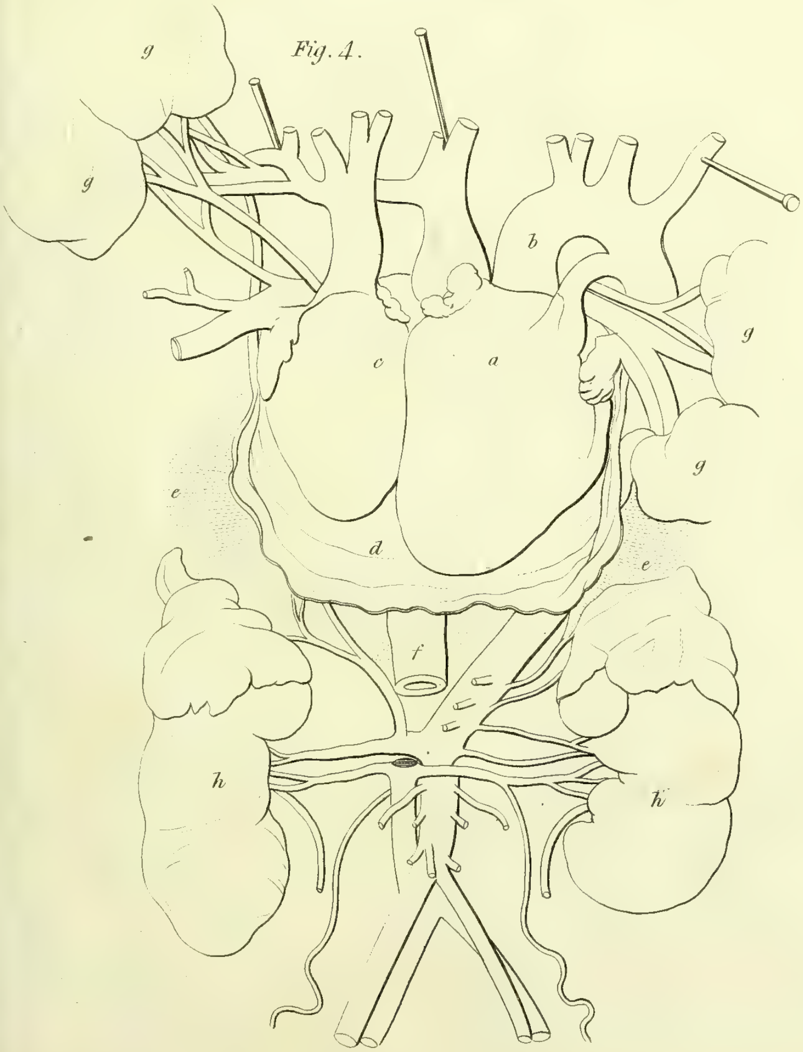
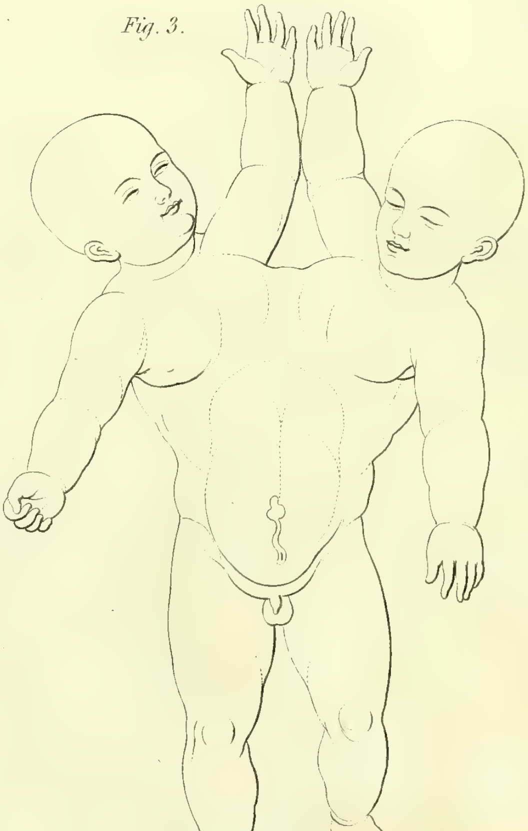
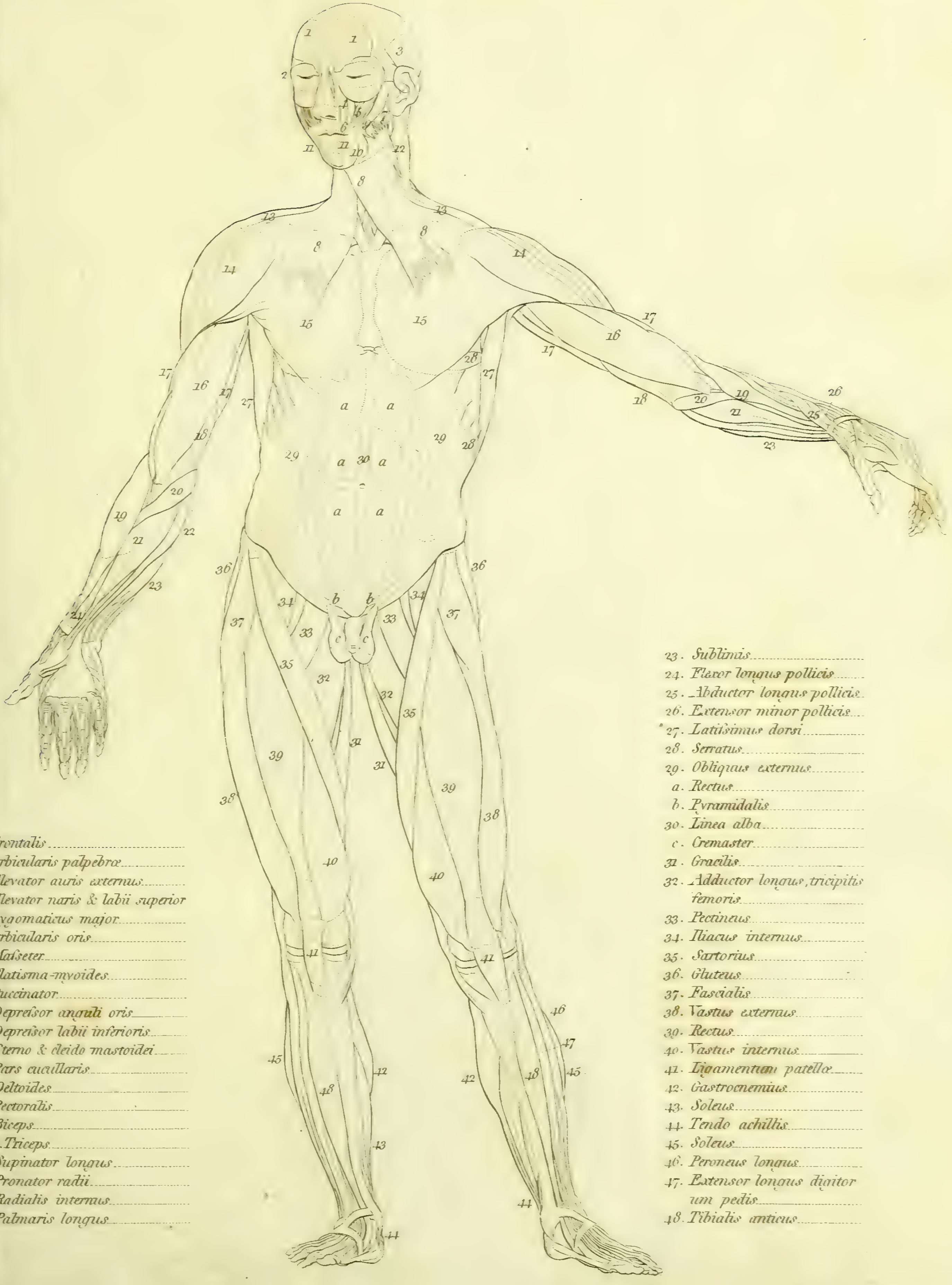


Fig. 3.

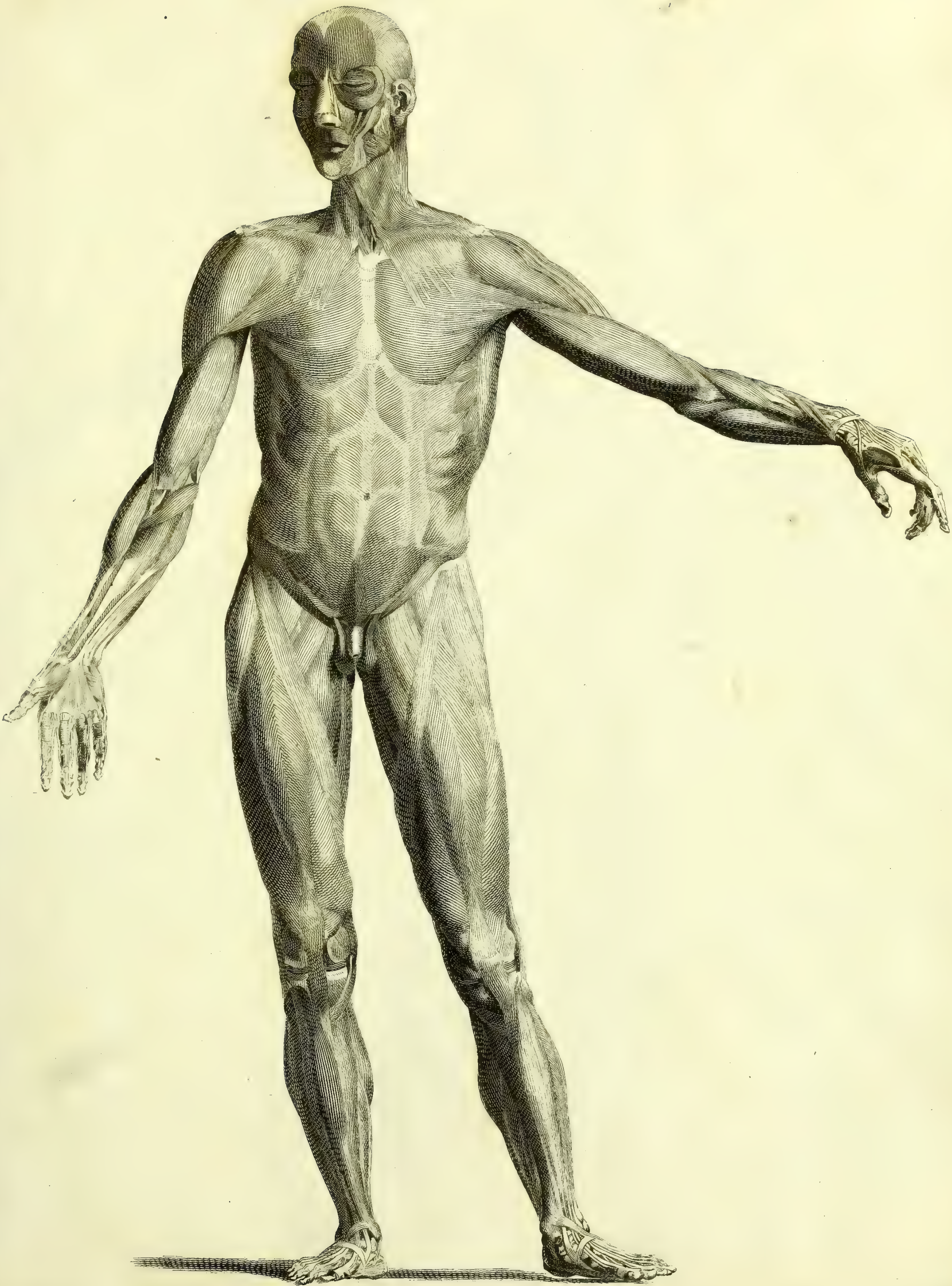




Frontalis
Orbicularis palpebræ
Elevator auris externus
Elevator naris & labii superior
Zygomaticus major
Orbicularis oris
Maſseter
Platisma-myoides
Buccinator
Depreſsor anguli oris
Depreſsor labii inferioris
Sterno & cleido mastoidei
Pars cucullaris
Deltoides
Pectoralis
Biceps
8. Triceps
Supinator longus
Pronator radii
Radialis internus
Palmaris longus

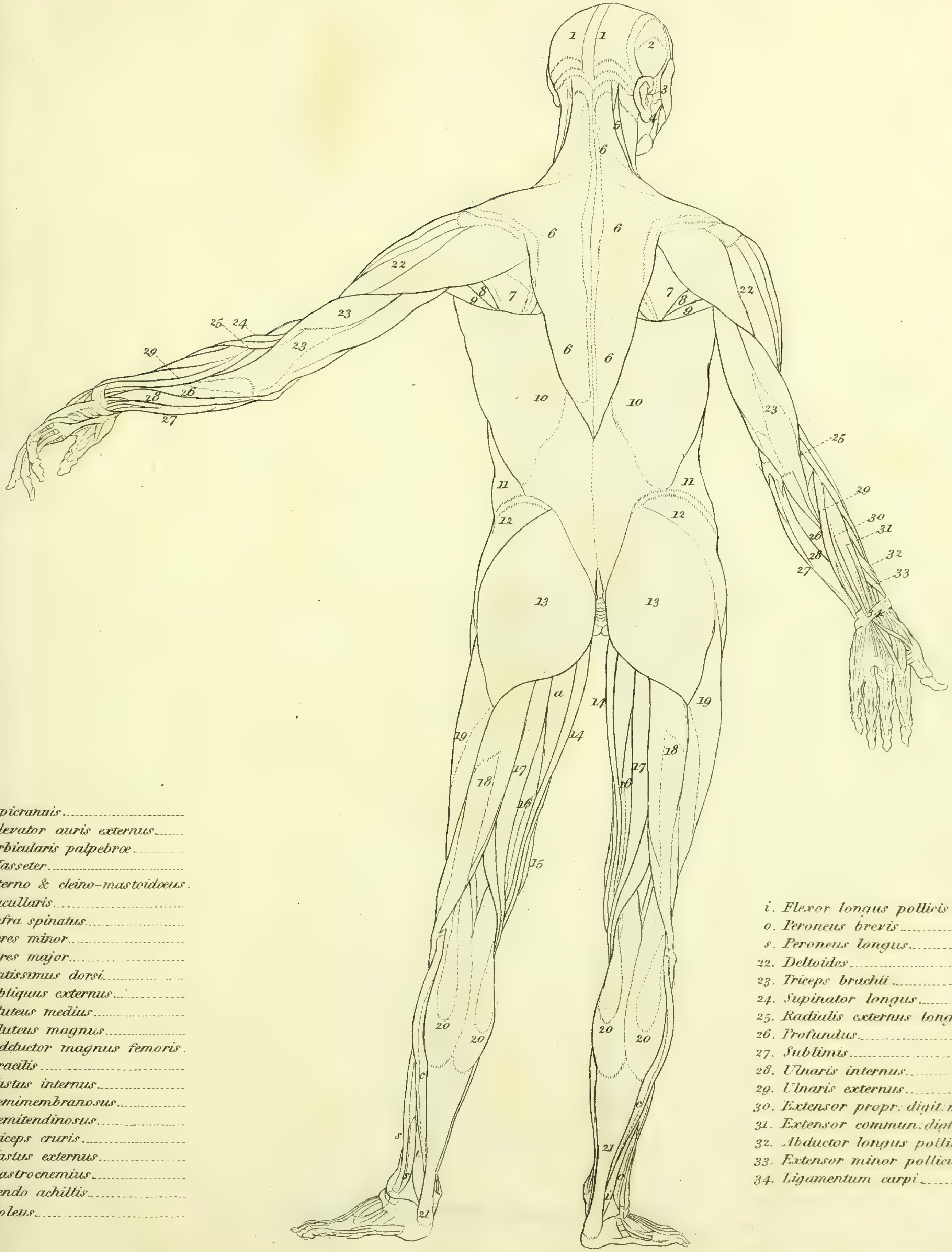
23. Sublimis
24. Flexor longus pollicis
25. Abductor longus pollicis
26. Extensor minor pollicis
27. Latiſsimus dorsi
28. Serratus
29. Obliquus externus
a. Rectus
b. Pyramidalis
30. Linea alba
c. Cremaster
31. Gracilis
32. Adductor longus, tricipitis femoris
33. Pectineus
34. Iliacus internus
35. Sartorius
36. Gluteus
37. Fascialis
38. Vastus externus
39. Rectus
40. Vastus internus
41. Ligamentum patellæ
42. Gastrocnemius
43. Soleus
44. Tendo achillis
45. Soleus
46. Peroneus longus
47. Extensor longus digitorum pedis
48. Tibialis anticus

Muscles.



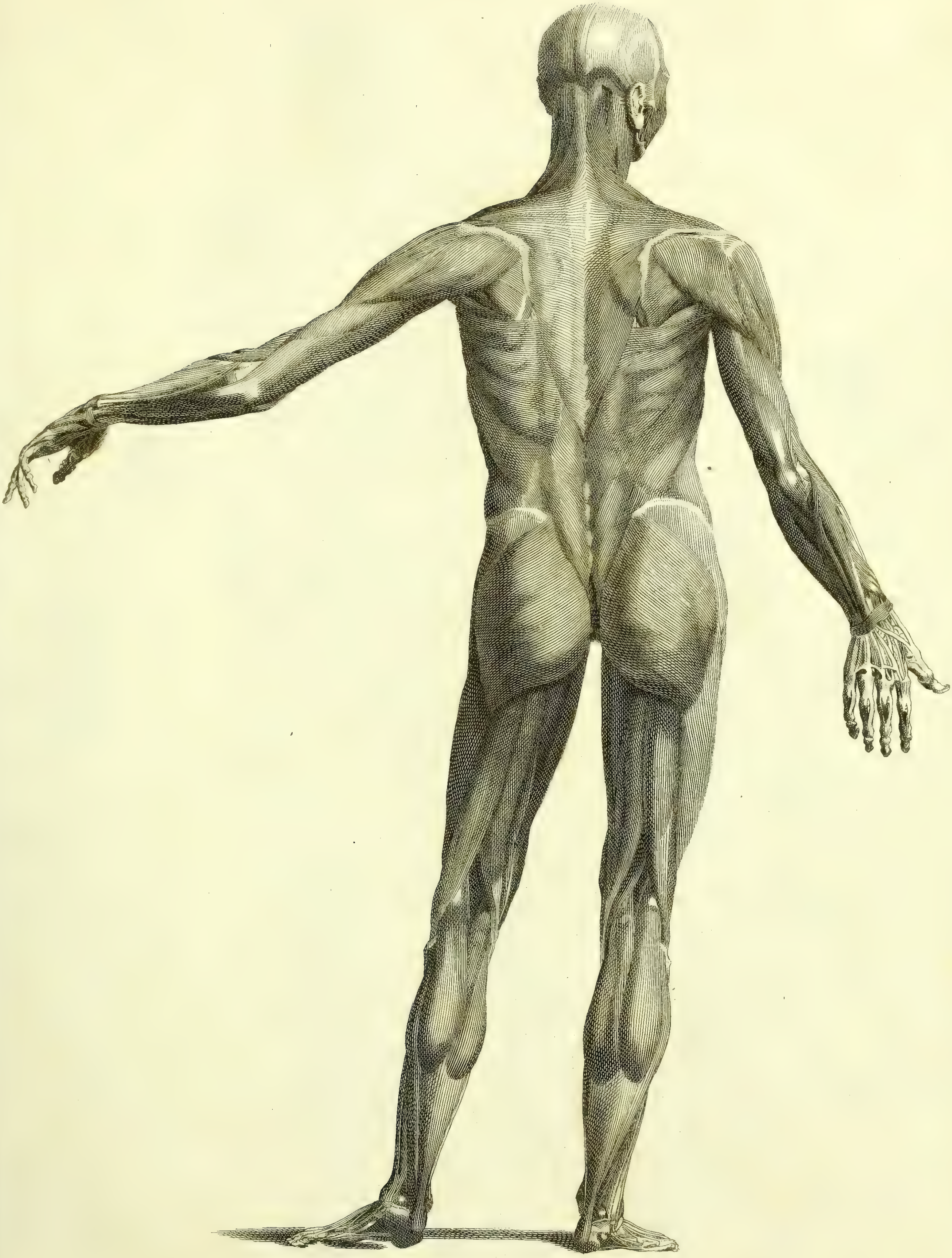
Campbell sculp.

Muscles.

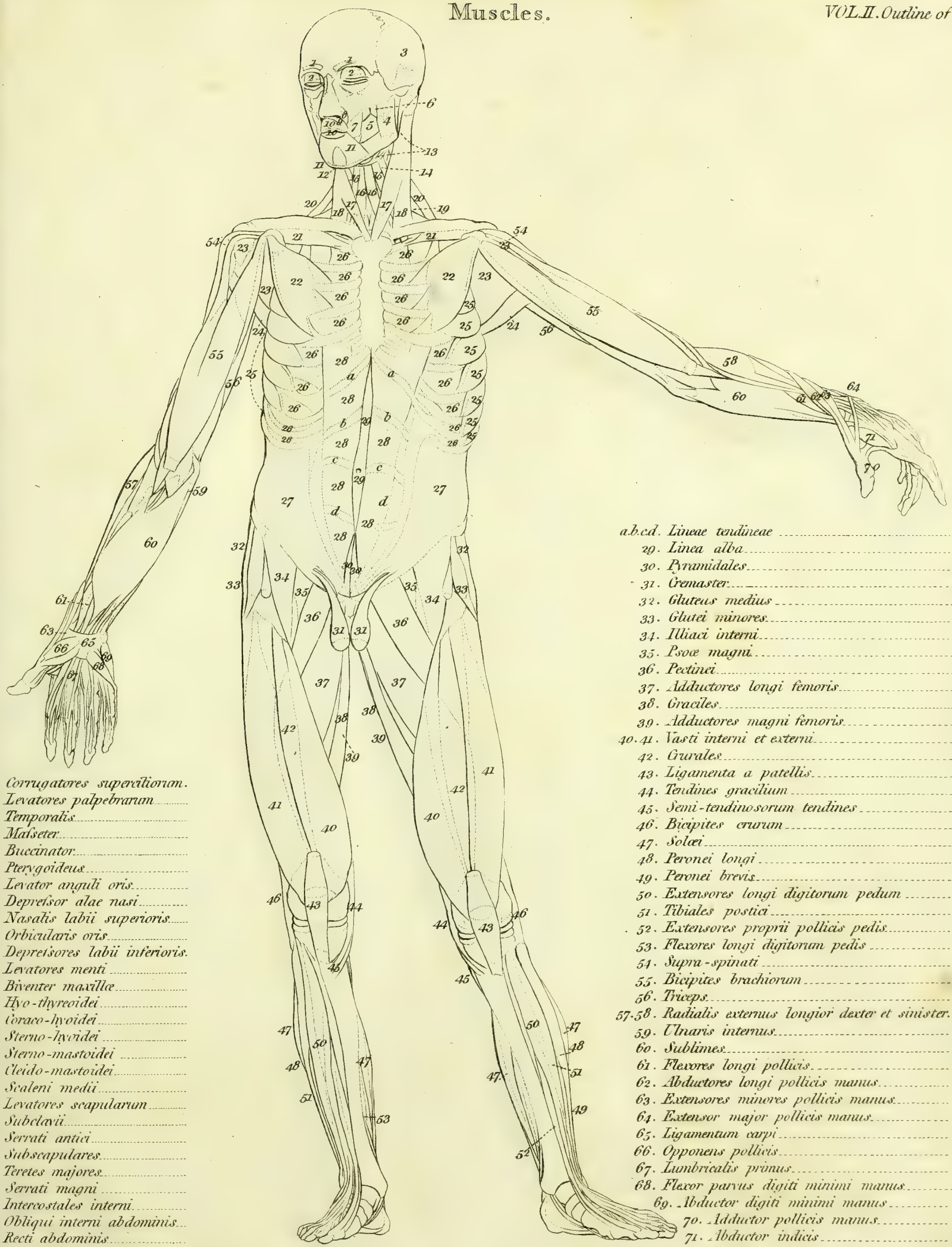


Epicranius
Elevator auris externus
Orbicularis palpebroe
Masseter
Sterno & cleino-mastoidœus
Cucullaris
Infra spinatus
Teres minor
Teres major
Latissimus dorsi
Obliquus externus
Gluteus medius
Gluteus magnus
Adductor magnus femoris
Gracilis
Vastus internus
Semimembranosus
Semitendinosus
Biceps cruris
Vastus externus
Gastrocnemius
Tendo achillis
Soleus

i. Flexor longus pollicis pedis.
o. Peroneus brevis
s. Peroneus longus
22. Deltoides
23. Triceps brachii
24. Supinator longus
25. Radialis externus longus
26. Profundus
27. Sublimis
28. Ulnaris internus
29. Ulnaris externus
30. Extensor propr: digit. minim.
31. Extensor commun: digitorum.
32. Abductor longus pollicis
33. Extensor minor pollicis
34. Ligamentum carpi



Muscles.



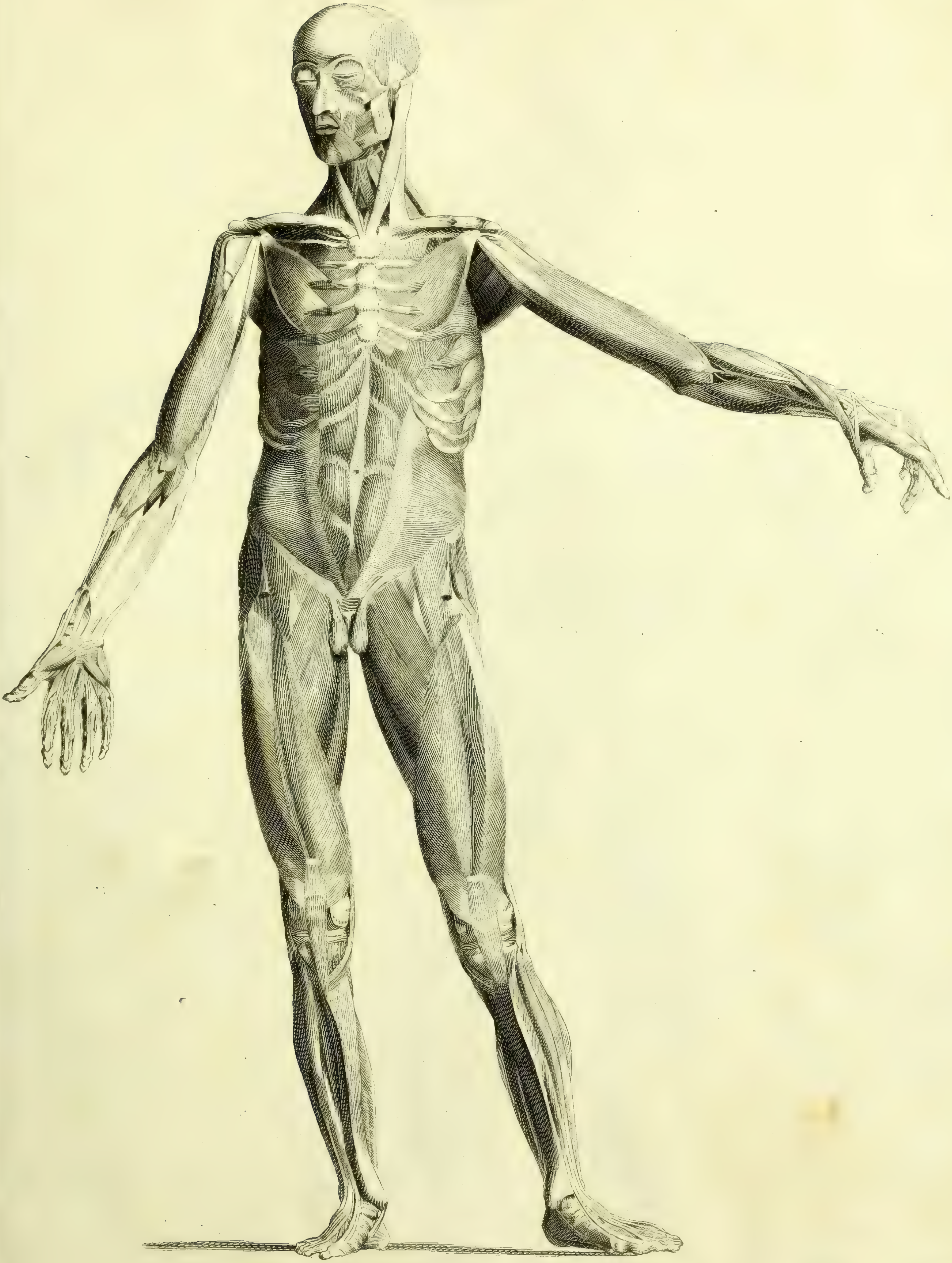
1. *Corrugatores supercilioium.*
2. *Levatores palpebrarum*
3. *Temporalis*
4. *Maſseter*
5. *Buccinator*
6. *Pterygoideus*
7: *Levator anguli oris*
8. *Depreſsor alae nasi*
9. *Nasalis labii superioris*
0. *Orbicularis oris*
11. *Depreſsores labii inferioris.*
2. *Levatores menti*
3. *Biventer maxillæ*
4. *Hyo-thyreoidei*
5. *Coraco-hyoidei*
6. *Sterno-hyoidei*
7. *Sterno-mastoidei*
8. *Cleido-mastoidei*
9. *Scaleni medii*
0. *Levatores scapularum*
1. *Subclavii*
2. *Serrati antici*
3. *Subscapulares*
4. *Teretes majores*
5. *Serrati magni*
6. *Intercostales interni*
7. *Obliqui interni abdominis*
8. *Recti abdominis*

a.b.c.d. *Lineae tendineae*
29. *Linea alba*
30. *Pyramidales*
31. *Cremaster*
32. *Gluteus medius*
33. *Glutei minores*
34. *Illiaci interni*
35. *Psoæ magni*
36. *Pectinei*
37. *Adductores longi femoris*
38. *Graciles*
39. *Adductores magni femoris*
40.41. *Vasti interni et externi*
42. *Crurales*
43. *Ligamenta a patellis*
44. *Tendines gracilium*
45. *Semi-tendinosorum tendines*
46. *Bicipites crurum*
47. *Solæi*
48. *Peronei longi*
49. *Peronei brevis*
50. *Extensores longi digitorum pedum*
51. *Tibiales postici*
52. *Extensores proprii pollicis pedis*
53. *Flexores longi digitorum pedis*
54. *Supra-spinati*
55. *Bicipites brachiorum*
56. *Triceps*
57.58. *Radialis externus longior dexter et sinister.*
59. *Ulnaris internus*
60. *Sublimes*
61. *Flexores longi pollicis*
62. *Abductores longi pollicis manus*
63. *Extensores minores pollicis manus*
64. *Extensor major pollicis manus*
65. *Ligamentum carpi*
66. *Opponens pollicis*
67. *Lumbricalis primus*
68. *Flexor parvus digiti minimi manus*
69. *Abductor digiti minimi manus*
70. *Adductor pollicis manus*
71. *Abductor indicis*

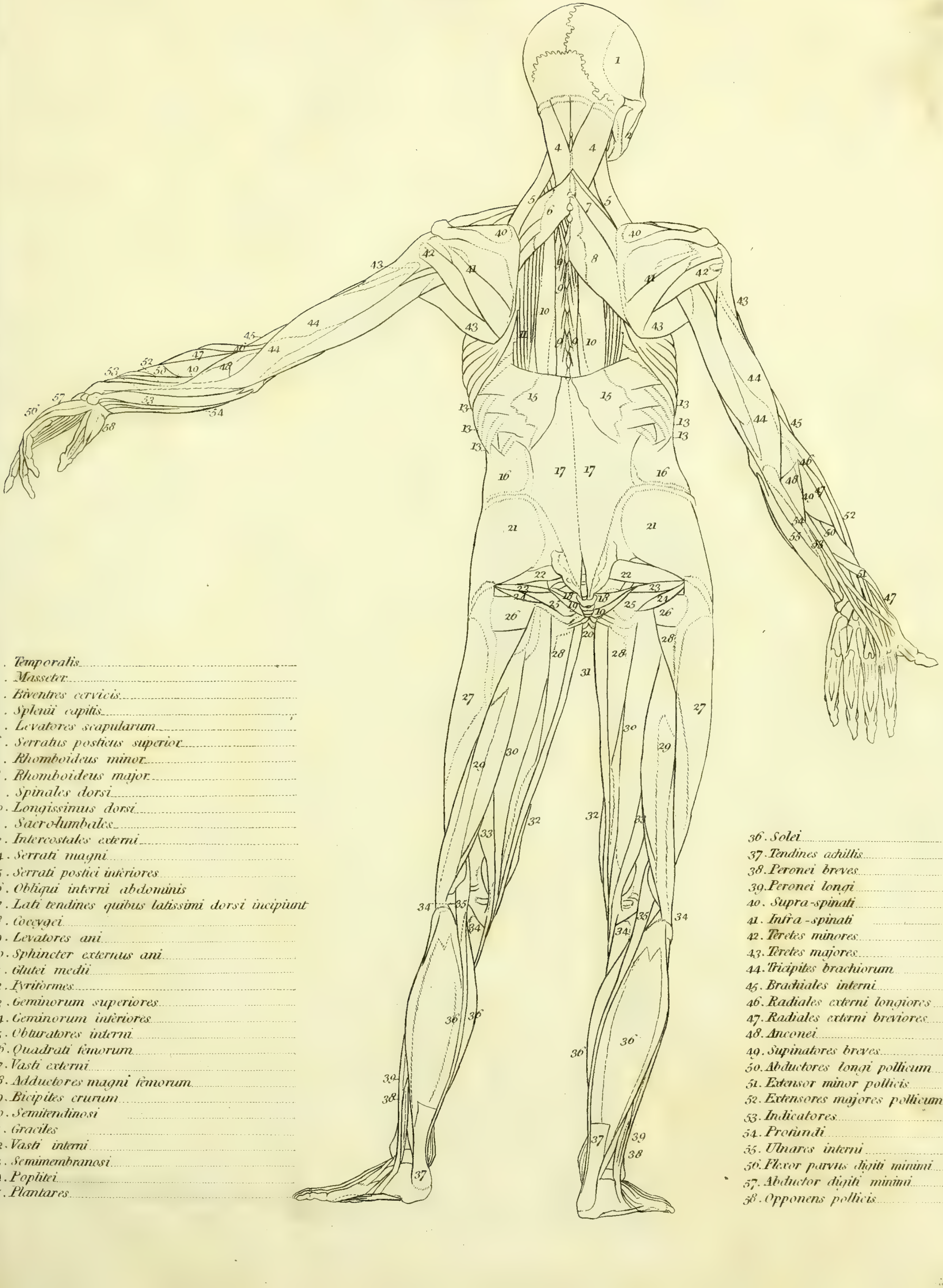
Campbell sculp

Muscles.

VOL. II. Pl. XXII.



Campbell sculp.



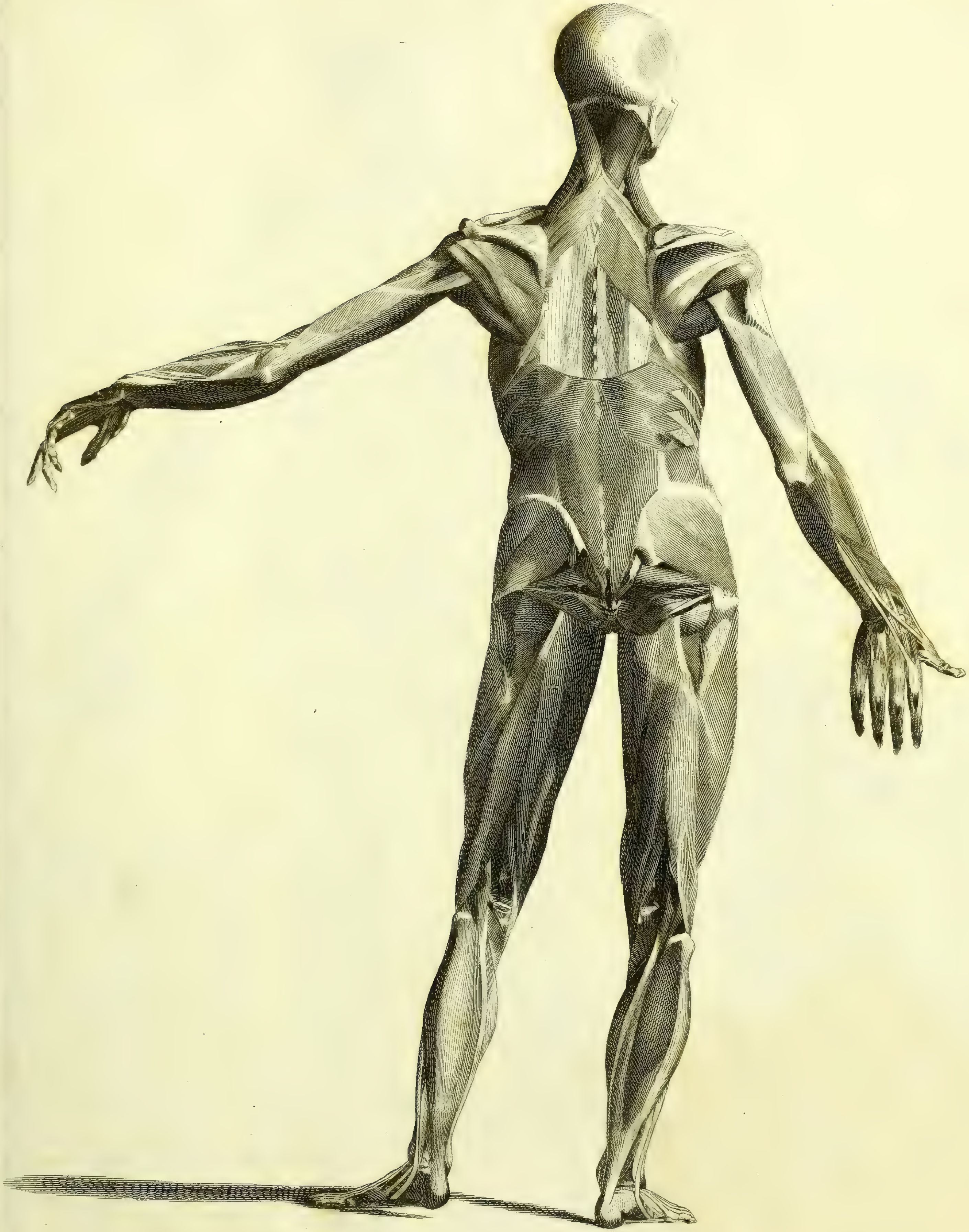
1. Temporalis
2. Masseter
3. Biventres cervicis
4. Splenii capitis
5. Levatores scapularum
6. Serratus posticus superior
7. Rhomboideus minor
8. Rhomboideus major
9. Spinales dorsi
10. Longissimus dorsi
11. Sacro-lumbales
13. Intercostales externi
14. Serrati magni
15. Serrati postici inferiores
16. Obliqui interni abdominis
17. Lati tendines quibus latissimi dorsi incipiunt
18. Coccygei
19. Levatores ani
20. Sphincter externus ani
21. Glutei medii
22. Pyriformes
23. Geminorum superiores
24. Geminorum inferiores
25. Obturatores interni
26. Quadrati femorum
27. Vasti externi
28. Adductores magni femorum
29. Bicipites crurum
30. Semitendinosi
31. Graciles
32. Vasti interni
33. Semimembranosi
34. Poplitei
35. Plantares

36. Solei
37. Tendines achillis
38. Peronei breves
39. Peronei longi
40. Supra-spinati
41. Infra-spinati
42. Teretes minores
43. Teretes majores
44. Tricipites brachiorum
45. Brachiales interni
46. Radiales externi longiores
47. Radiales externi breviores
48. Anconei
49. Supinatores breves
50. Abductores longi pollicum
51. Extensor minor pollicis
52. Extensores majores pollicum
53. Indicatores
54. Profundi
55. Ulnares interni
56. Flexor parvus digiti minimi
57. Abductor digiti minimi
58. Opponens pollicis

ampbell s.

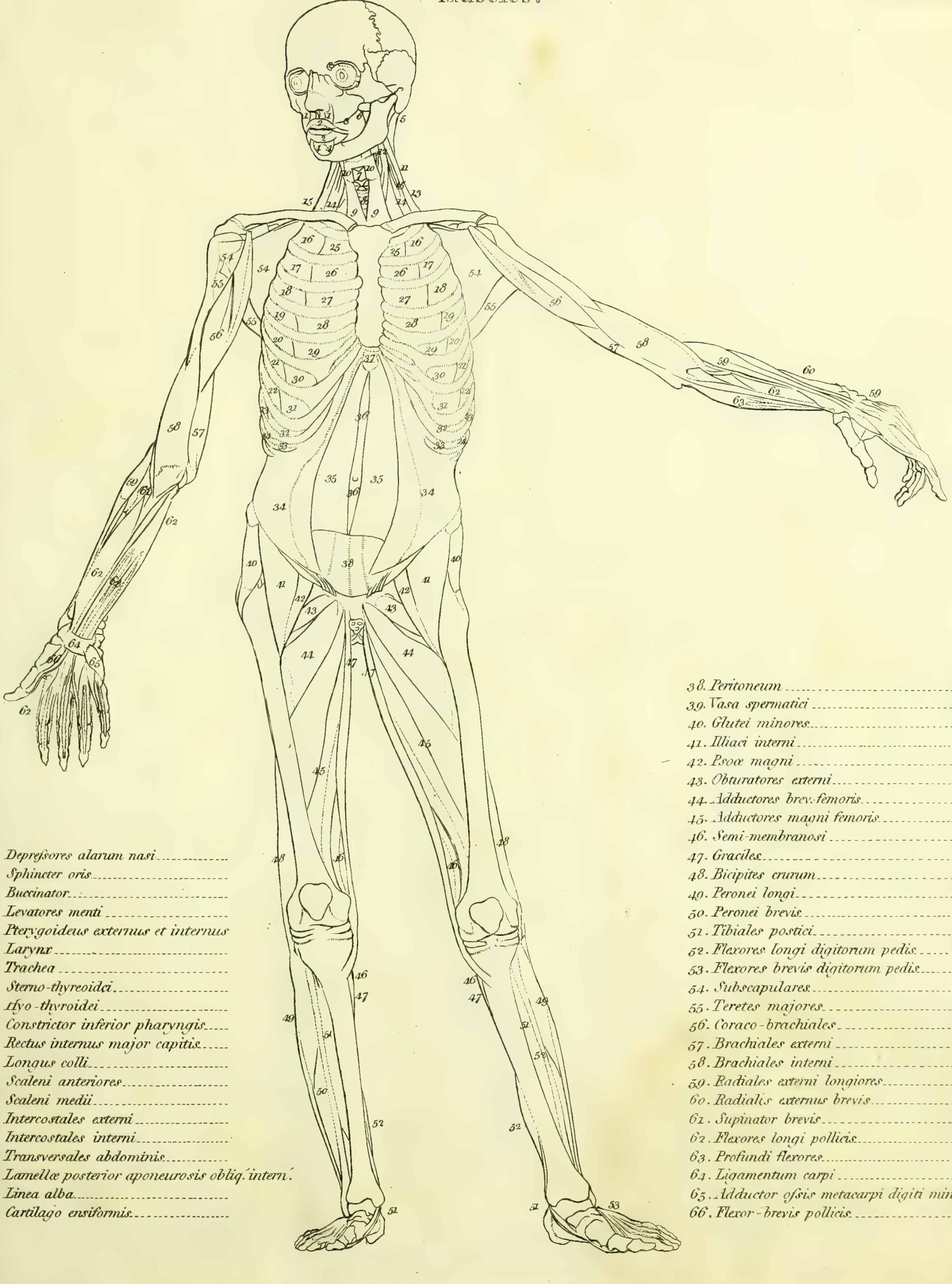
Muscles.

VOL. II. Pl. XXIII.



Campbell sculp.

Muscles.

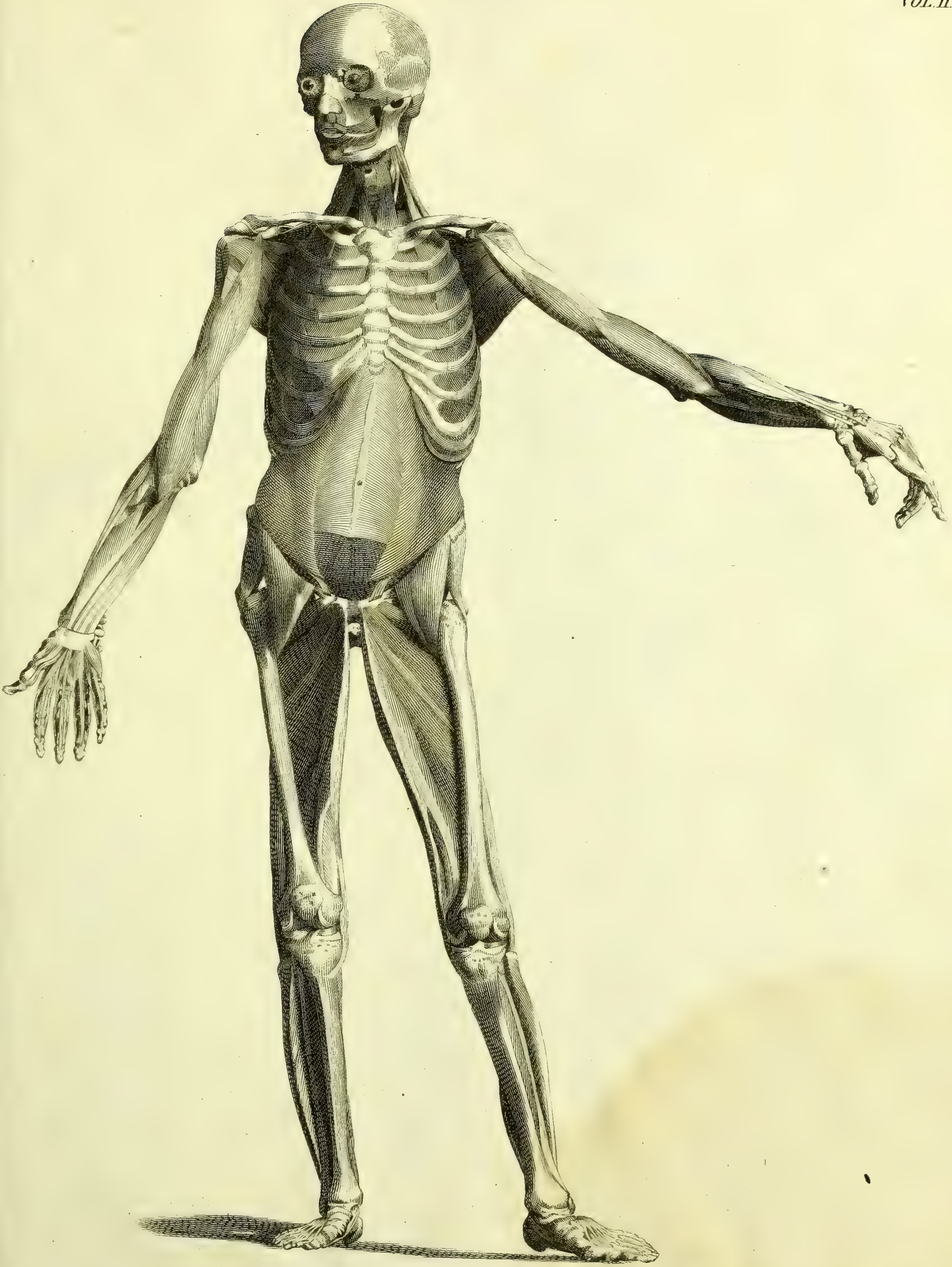


1. Depreſsores alarum nasi
2. Sphincter oris
3. Buccinator
4. Levatores menti
5. 6. Pterygoideus externus et internus
7. Larynx
8. Trachea
9. Sterno-thyreoidei
10. Hyo-thyroidei
11. Constrictor inferior pharyngis
12. Rectus internus major capitis
13. Longus colli
14. Scaleni anteriores
15. Scaleni medii
24. Intercostales externi
33. Intercostales interni
34. Transversales abdominis
35. Lamellæ posterior aponeurosis obliq. intern.
36. Linea alba
37. Cartilago ensiformis

38. Peritoneum
39. Vasa spermatici
40. Glutei minores
41. Illiaci interni
42. Psoæ magni
43. Obturatores externi
44. Adductores brev. femoris
45. Adductores magni femoris
46. Semi-membranosi
47. Graciles
48. Bicipites crurum
49. Peronei longi
50. Peronei brevis
51. Tibiales postici
52. Flexores longi digitorum pedis
53. Flexores brevis digitorum pedis
54. Subscapulares
55. Teretes majores
56. Coraco-brachiales
57. Brachiales externi
58. Brachiales interni
59. Radiales externi longiores
60. Radialis externus brevis
61. Supinator brevis
62. Flexores longi pollicis
63. Profundi flexores
64. Ligamentum carpi
65. Adductor oſsis metacarpi digiti minimi
66. Flexor-brevis pollicis

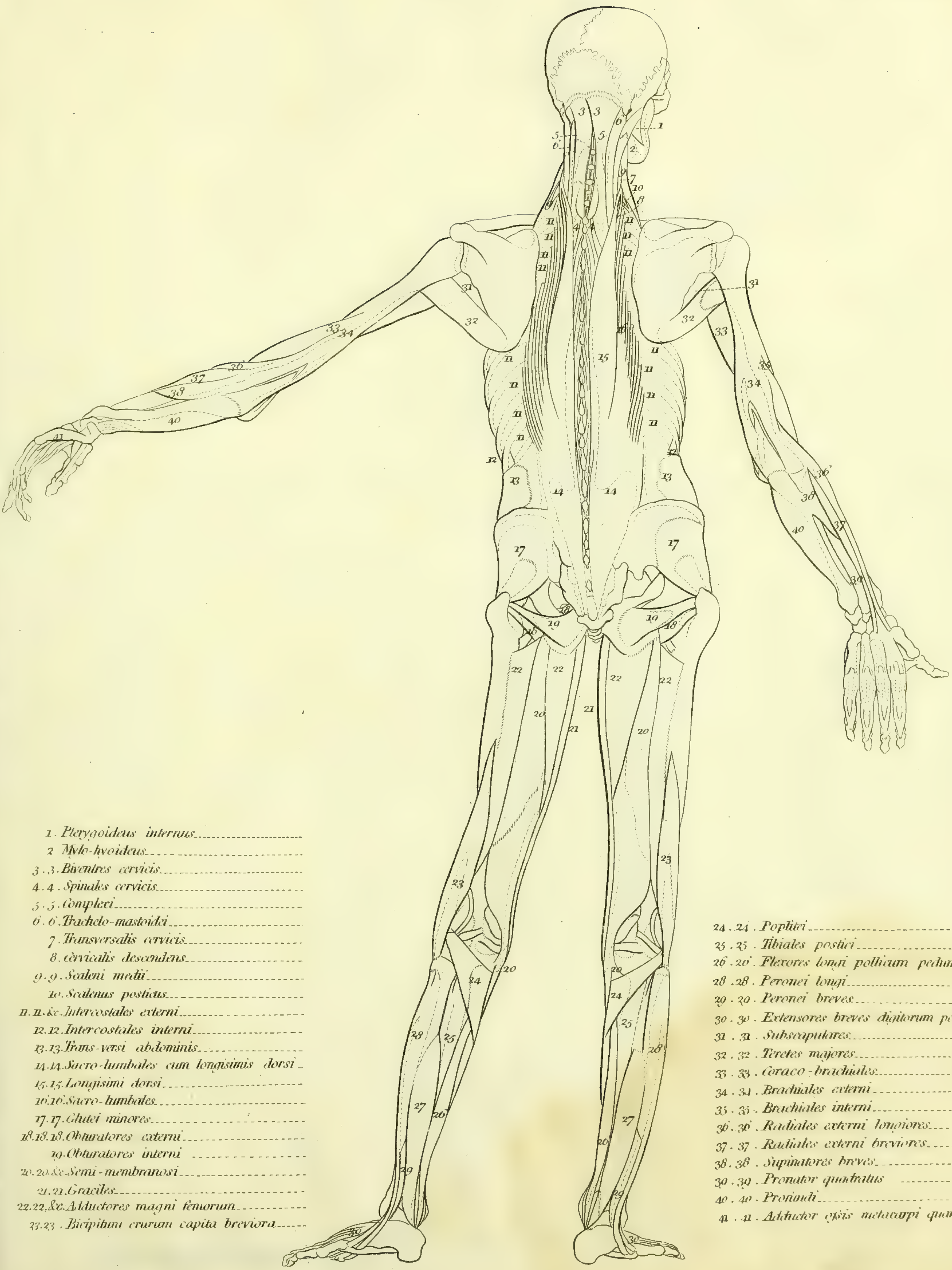
Campbell

Muscles.



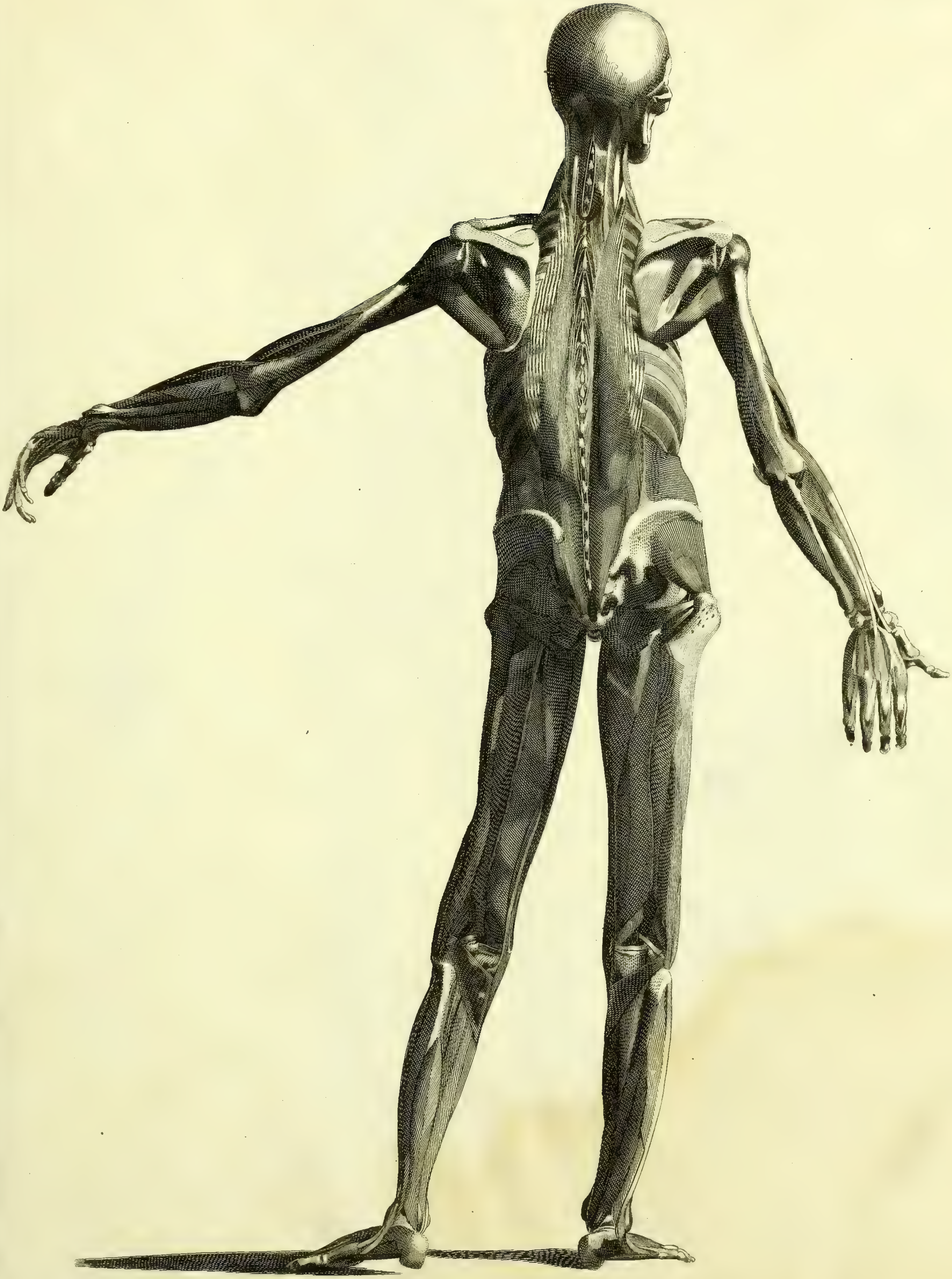
Campbell sculp.

Muscles.



1 . Pterygoideus internus
2 Mylo-hyoideus
3 . 3 . Biventres cervicis
4 . 4 . Spinales cervicis
5 . 5 . Complexi
6 . 6 . Trachelo-mastoidei
7 . Transversalis cervicis
8 . Cervicalis descendens
9 . 9 . Scaleni medii
10 . Scalenus posticus
11 . 11 . &c. Intercostales externi
12 . 12 . Intercostales interni
13 . 13 . Trans-versi abdominis
14 . 14 . Sacro-lumbales cum longisimis dorsi
15 . 15 . Longisimi dorsi
16 . 16 . Sacro-lumbales
17 . 17 . Glutei minores
18 . 18 . 18 . Obturatores externi
19 . Obturatores interni
20 . 20 . &c. Semi-membranosi
21 . 21 . Graciles
22 . 22 . &c. Adductores magni femorum
23 . 23 . Bicipitum crurum capita breviora

24 . 24 . Poplitei
25 . 25 . Tibiales postici
26 . 26 . Flexores longi pollicum pedum
28 . 28 . Peronei longi
29 . 29 . Peronei breves
30 . 30 . Extensores breves digitorum pedum
31 . 31 . Subscapulares
32 . 32 . Teretes majores
33 . 33 . Coraco-brachiales
34 . 34 . Brachiales externi
35 . 35 . Brachiales interni
36 . 36 . Radiales externi longiores
37 . 37 . Radiales externi breviores
38 . 38 . Supinatores breves
39 . 39 . Pronator quadratus
40 . 40 . Profundi
41 . 41 . Adductor oſsis metacarpi quarti



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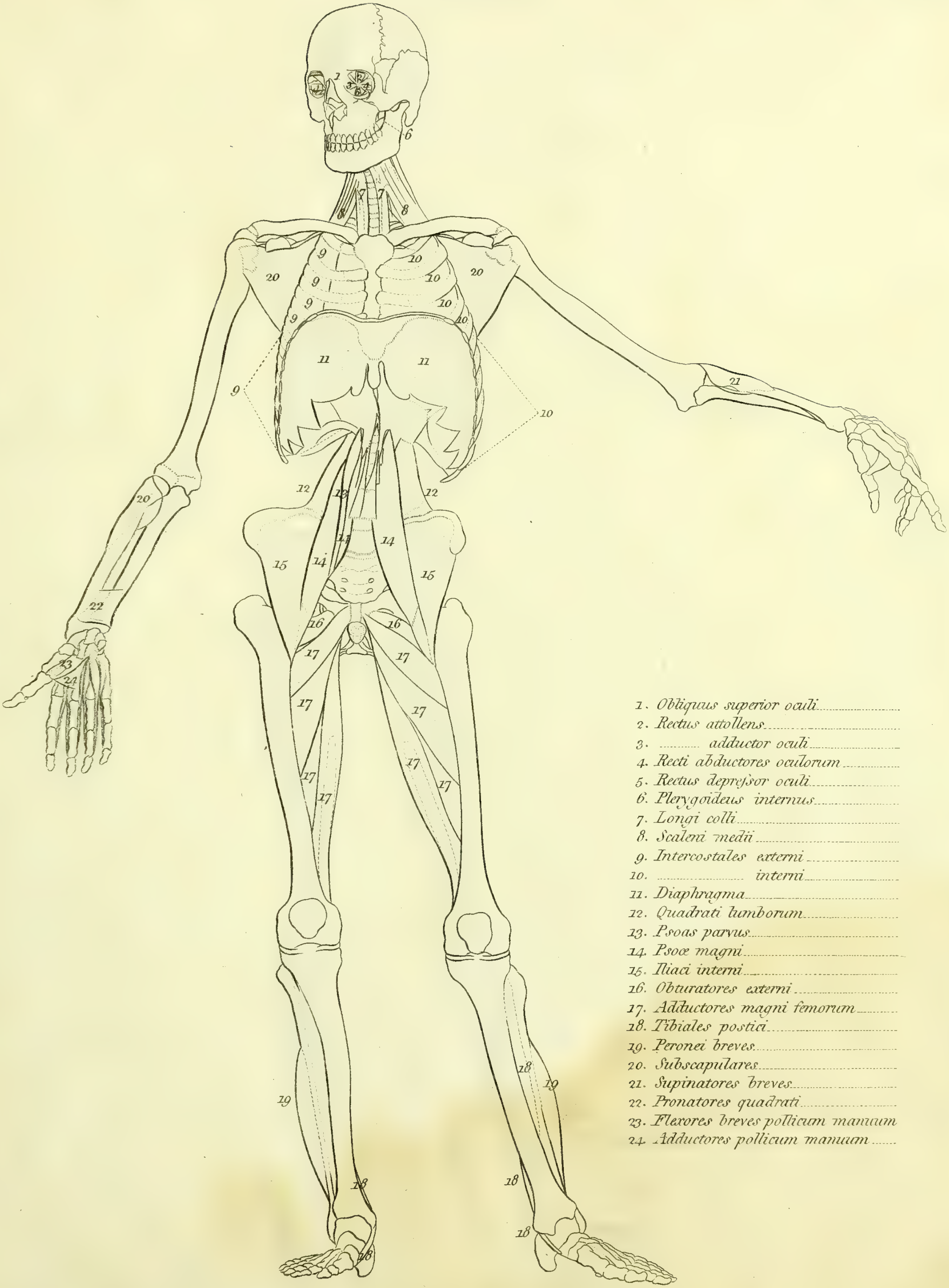
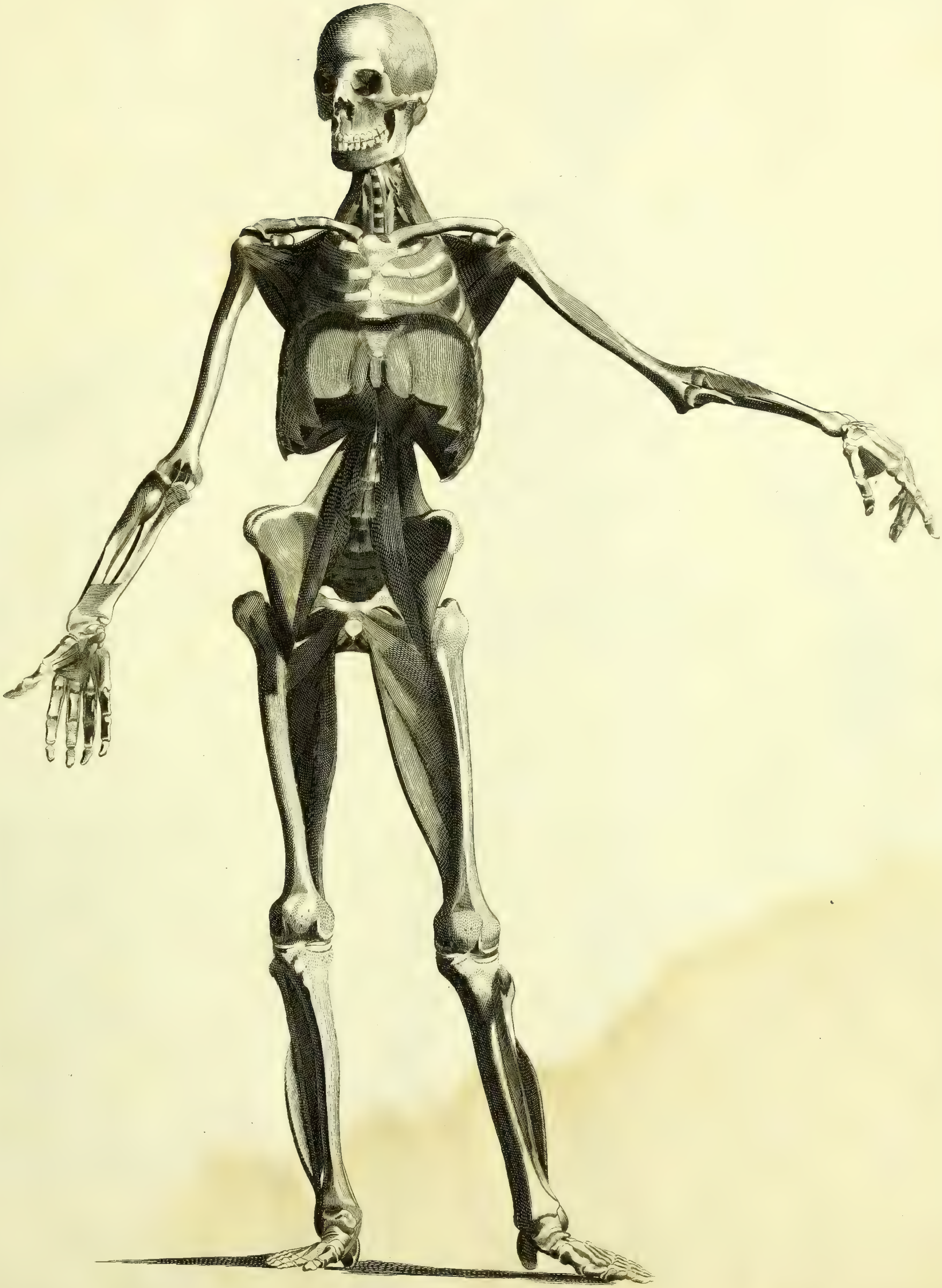
Muscles.

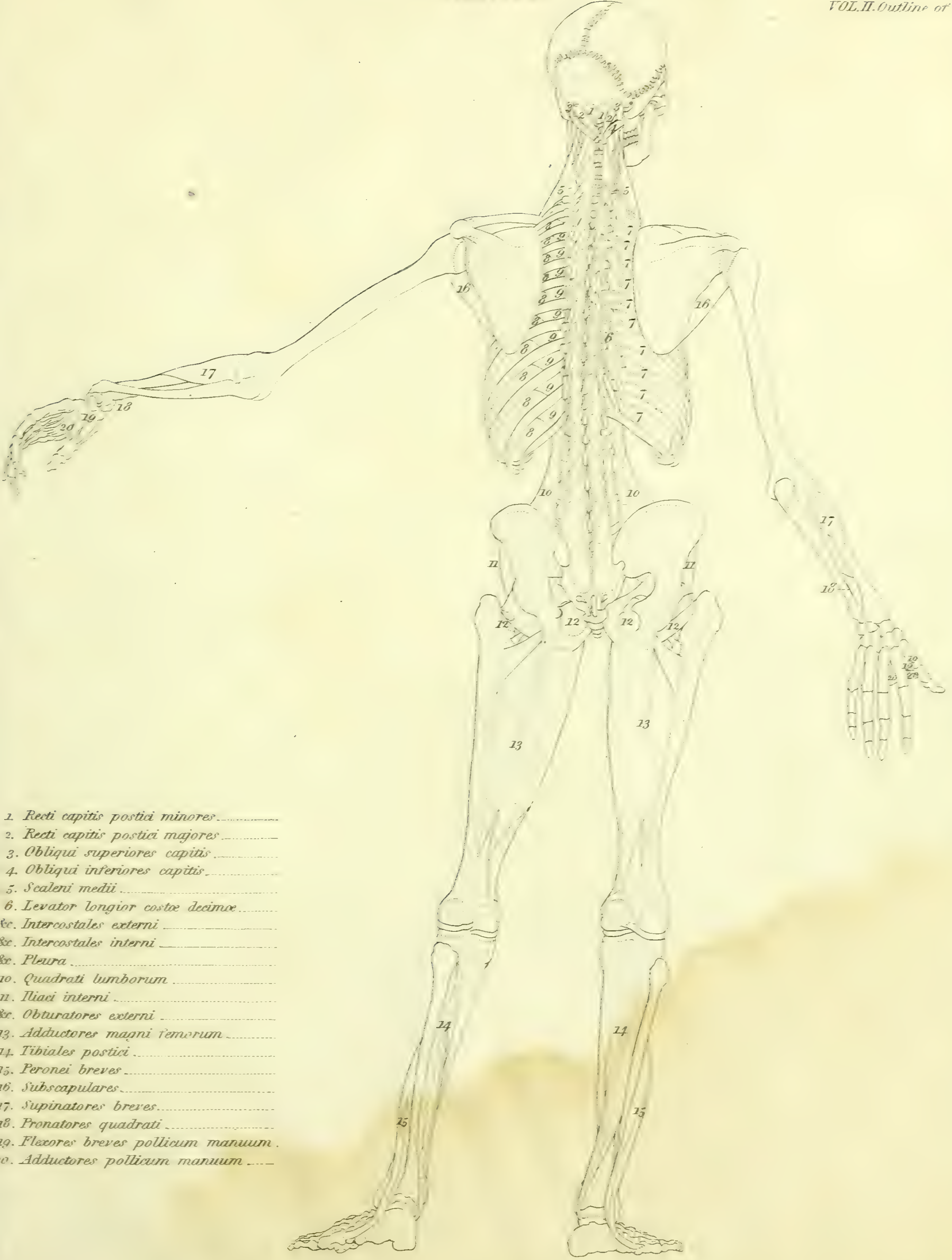


1. *Obliquus superior oculi*
2. *Rectus attollens*
3. *.......... adductor oculi*
4. *Recti abductores oculorum*
5. *Rectus depreſsor oculi*
6. *Pterygoideus internus*
7. *Longi colli*
8. *Scaleni medii*
9. *Intercostales externi*
10. *.......... interni*
11. *Diaphragma*
12. *Quadrati lumborum*
13. *Psoas parvus*
14. *Psoæ magni*
15. *Iliaci interni*
16. *Obturatores externi*
17. *Adductores magni femorum*
18. *Tibiales postici*
19. *Peronei breves*
20. *Subscapulares*
21. *Supinatores breves*
22. *Pronatores quadrati*
23. *Flexores breves pollicum manuum*
24. *Adductores pollicum manuum*

Muscles.

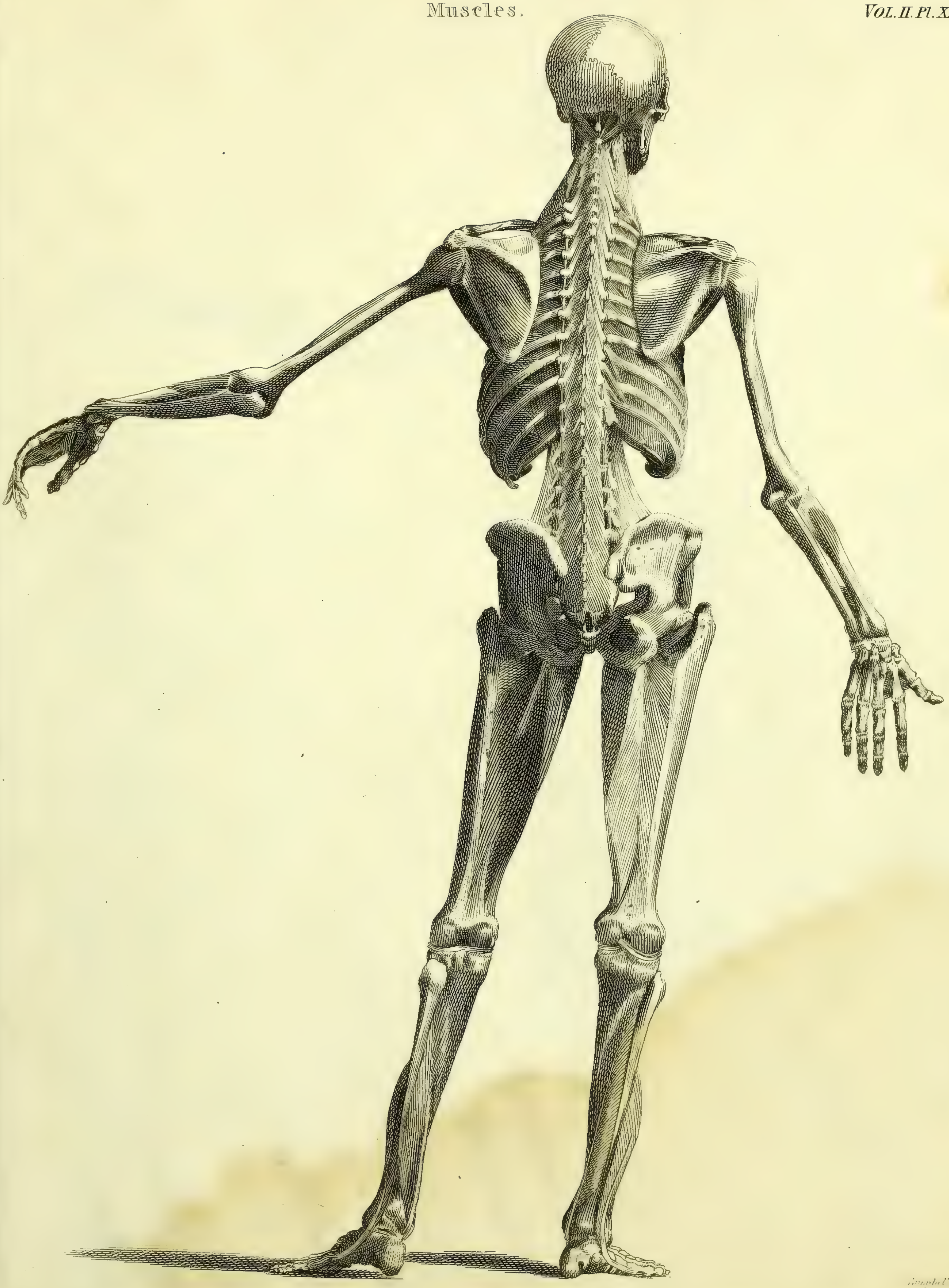


Muscles.



1. 1. *Recti capitis postici minores* ....
2. 2. *Recti capitis postici majores* ....
3. 3. *Obliqui superiores capitis* ....
4. 4. *Obliqui inferiores capitis* ....
5. 5. *Scaleni medii* ....
6. *Levator longior costœ decimœ* ....
7. 7. &c. *Intercostales externi* ....
8. 8. &c. *Intercostales interni* ....
9. 9. &c. *Pleura* ....
10. 10. *Quadrati lumborum* ....
11. 11. *Iliaci interni* ....
2.12. &c. *Obturatores externi* ....
13. 13. *Adductores magni femorum* ....
14. 14. *Tibiales postici* ....
15. 15. *Peronei breves* ....
16. 16. *Subscapulares* ....
17. 17. *Supinatores breves* ....
18. 18. *Pronatores quadrati* ....
19. 19. *Flexores breves pollicum manuum* .
20. 20. *Adductores pollicum manuum* ....

Muscles.



Campbell sc. Edin.

Muscles.

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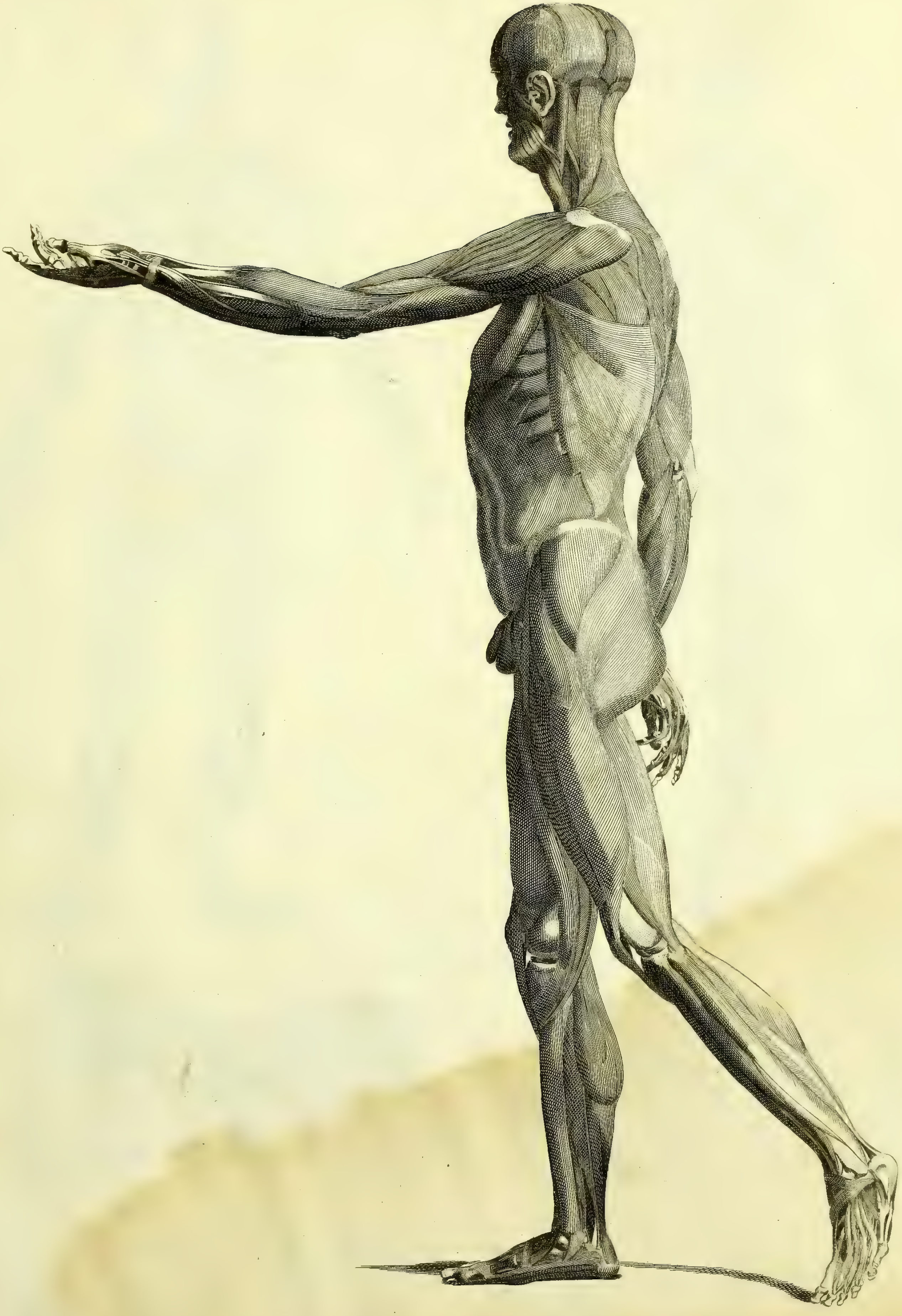
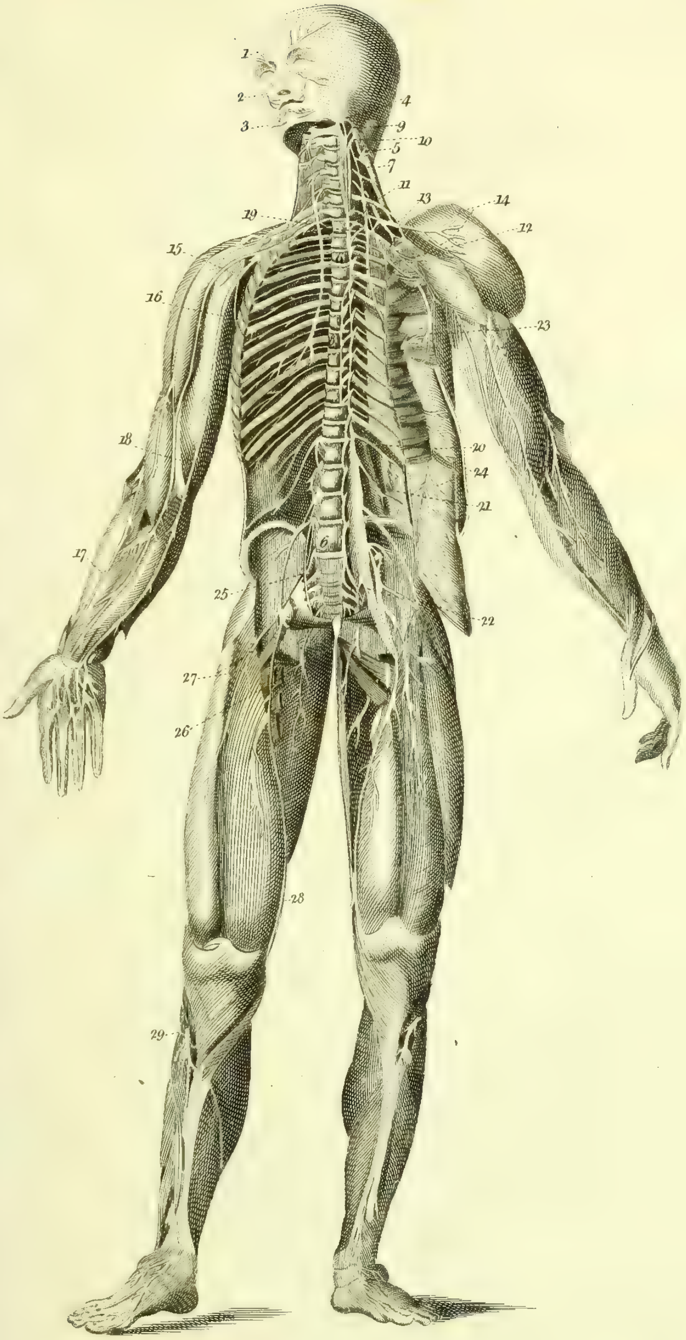
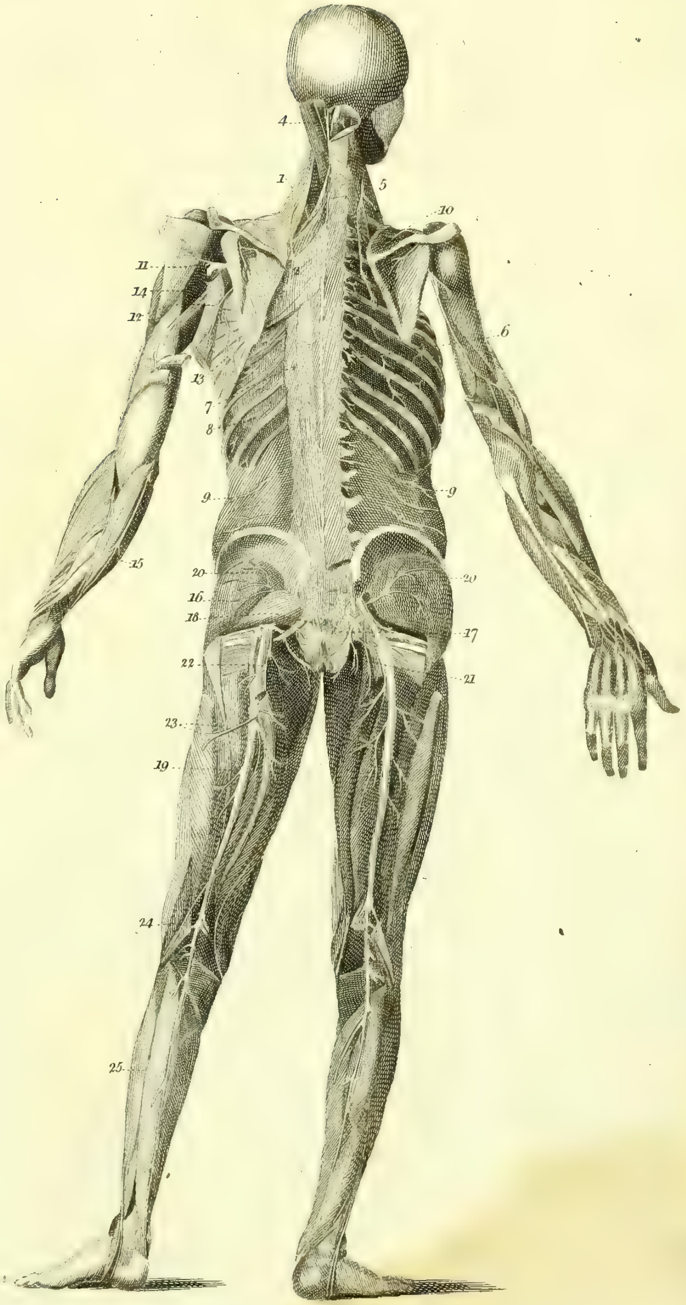


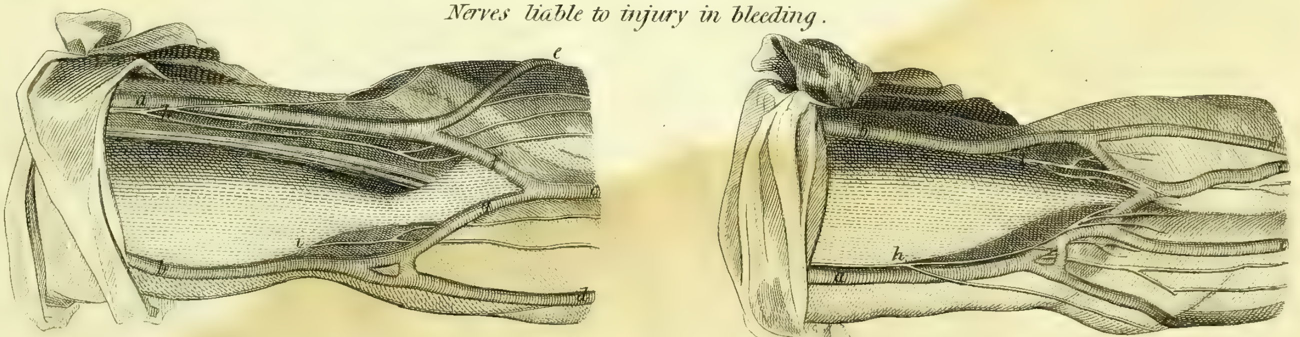
Campbell sculp

Nerves.





Nerves liable to injury in bleeding.



a, Vena basilica. b, Cephalica. c, Mediana. d, Radialis. e, Cubitalis. f. g. Mediana, basilica, & cephalica.
h, Nervus cutaneus internus. i, Cutaneus externus.

Pelvis.

Fig. 1.

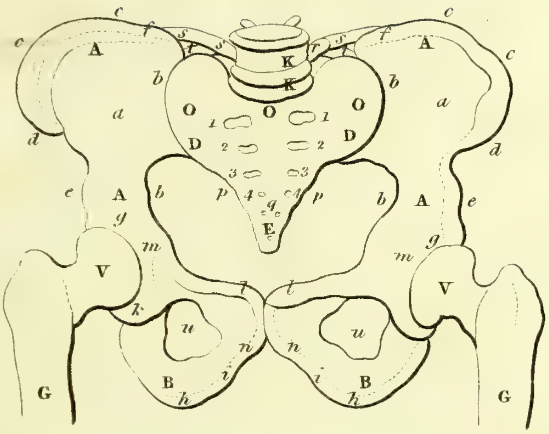


Fig. 2.

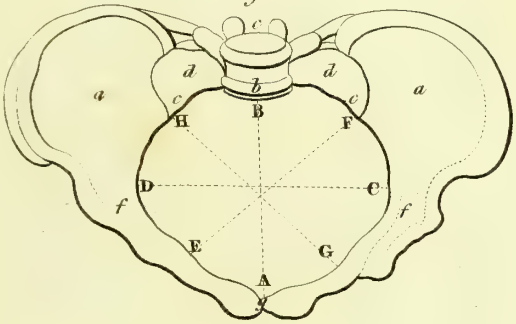


Fig. 3.

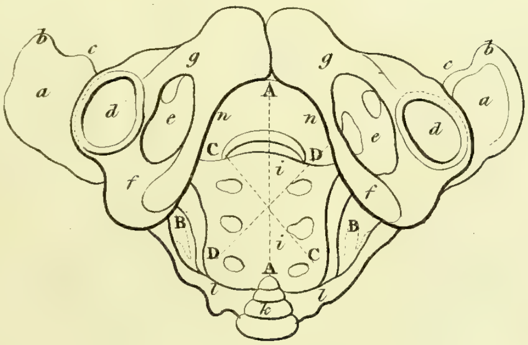


Fig. 4.

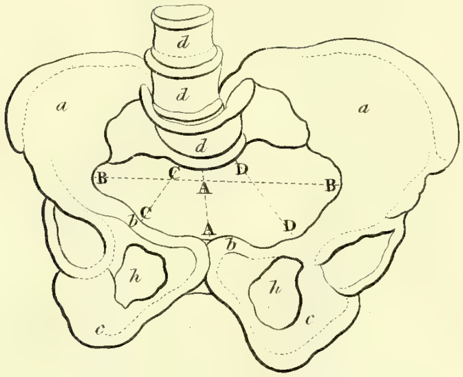


Fig. 5.

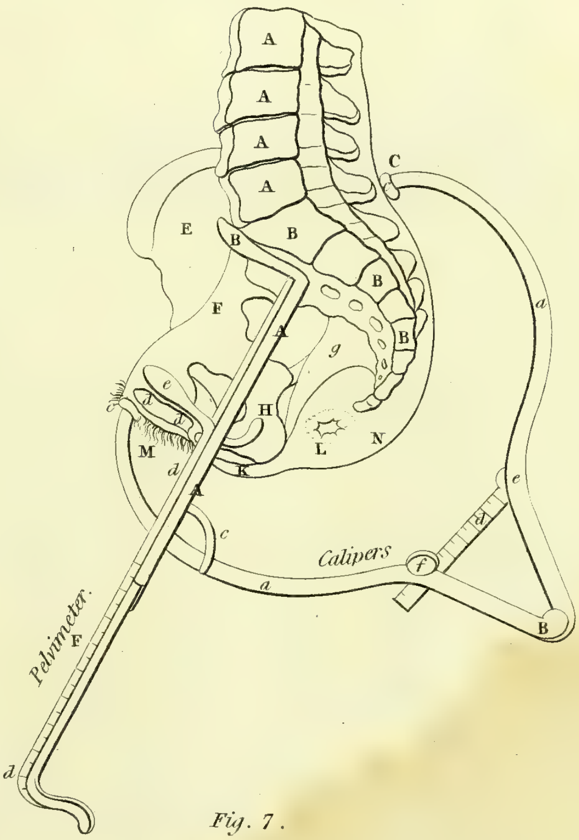


Fig. 6.

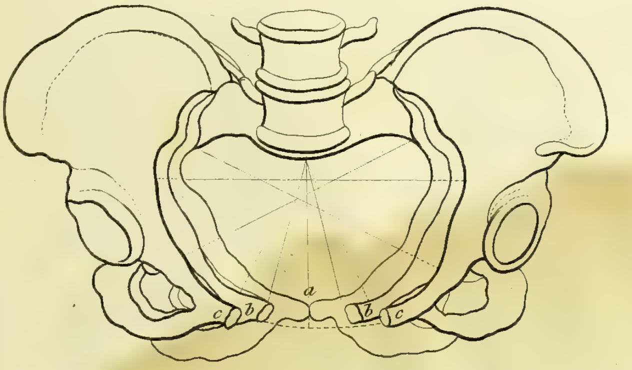
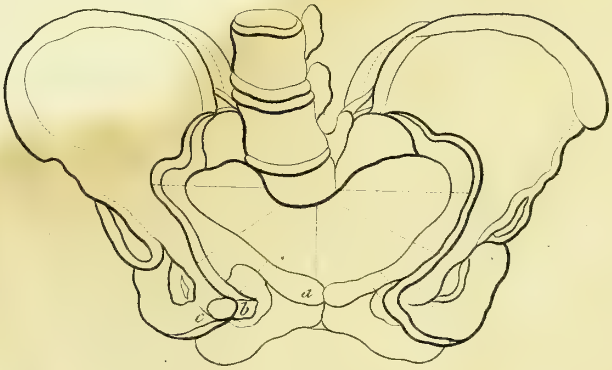
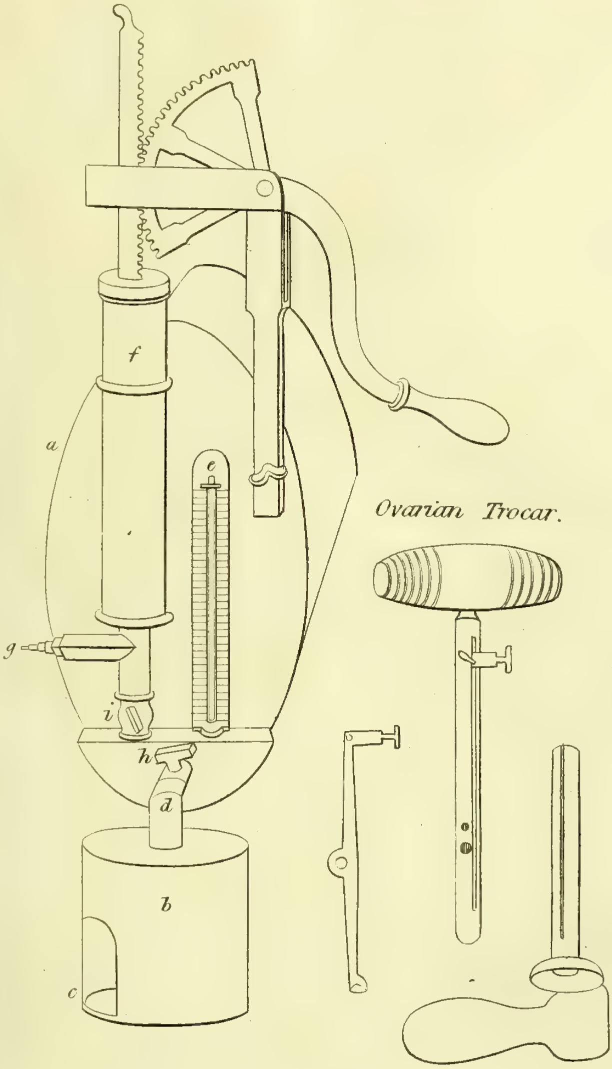


Fig. 7.



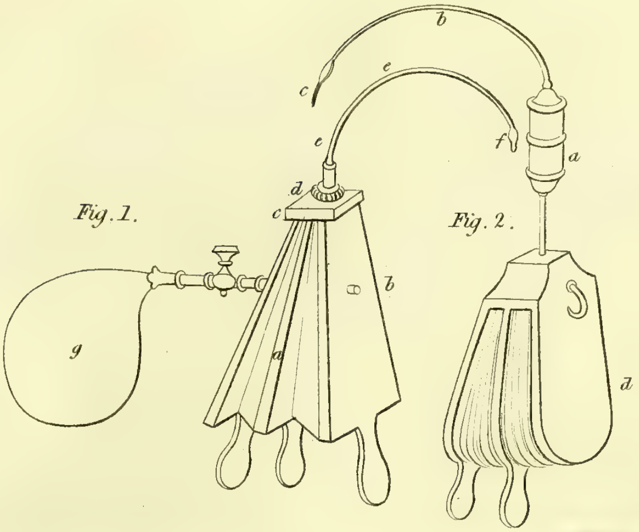
Air Pump Vapour Bath.



Resuscitation.

Fig. 1.

Fig. 2.



Ovarian Trocar.

Fig. 3.

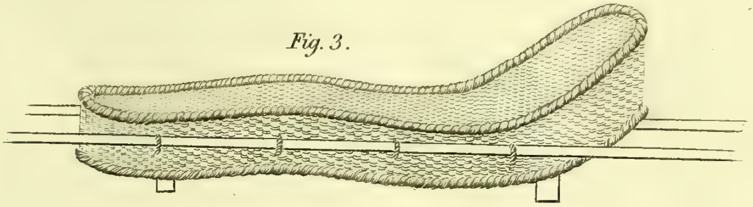
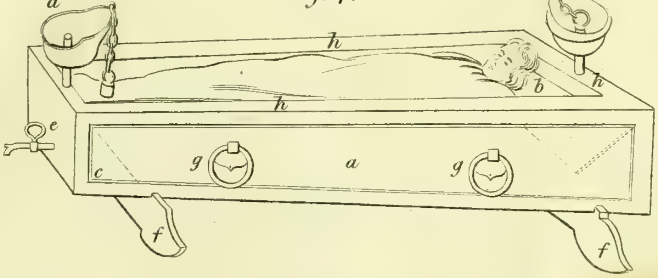


Fig. 4.



Distorted Spine

Fig. 1.

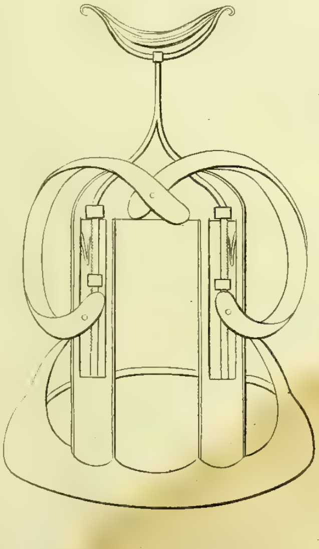


Fig. 2.

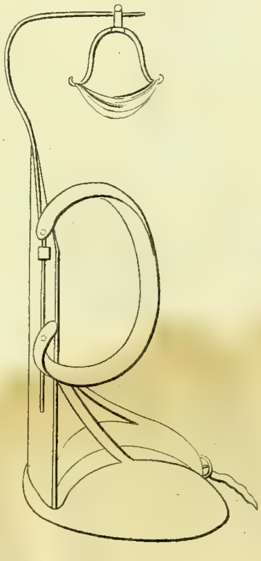
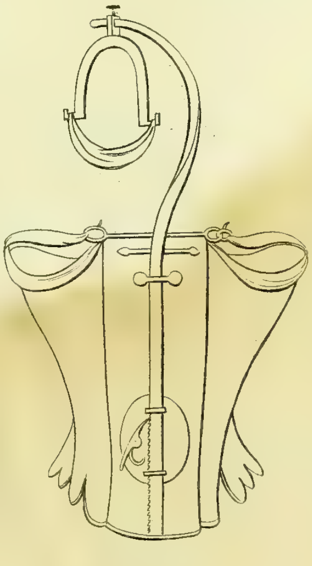
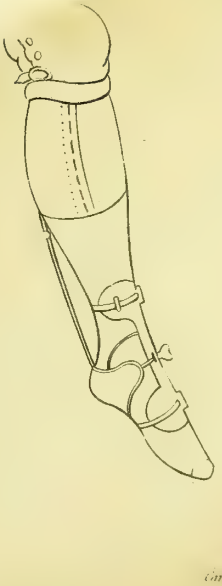


Fig. 3.



Tendon.



[illegible] sc.

Uterus.

Fig. 2.

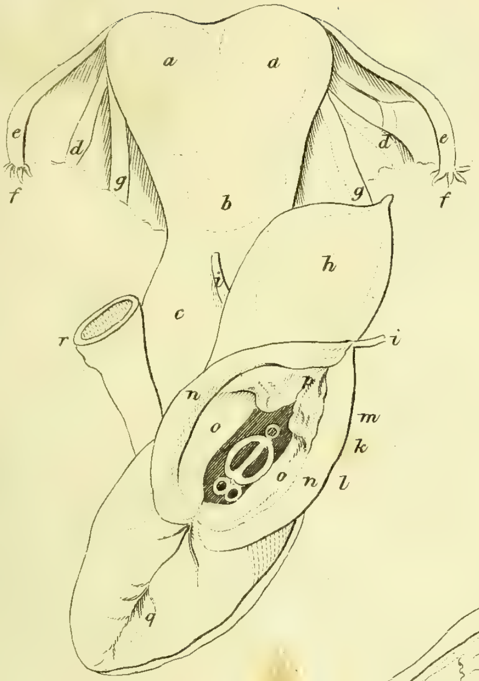
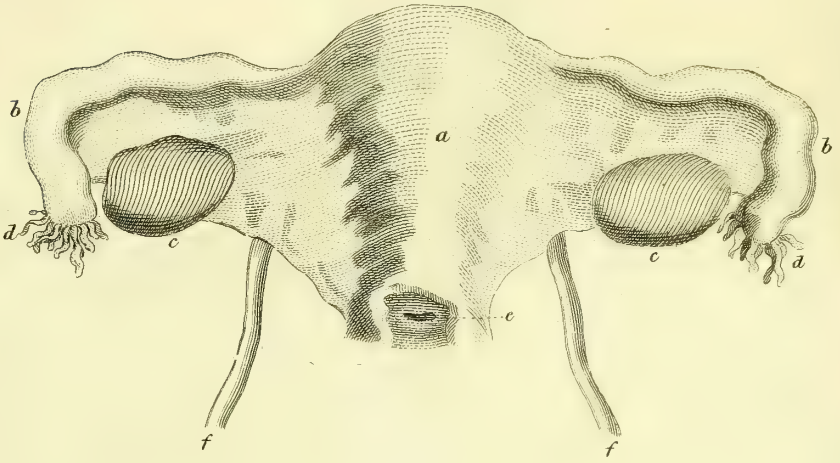
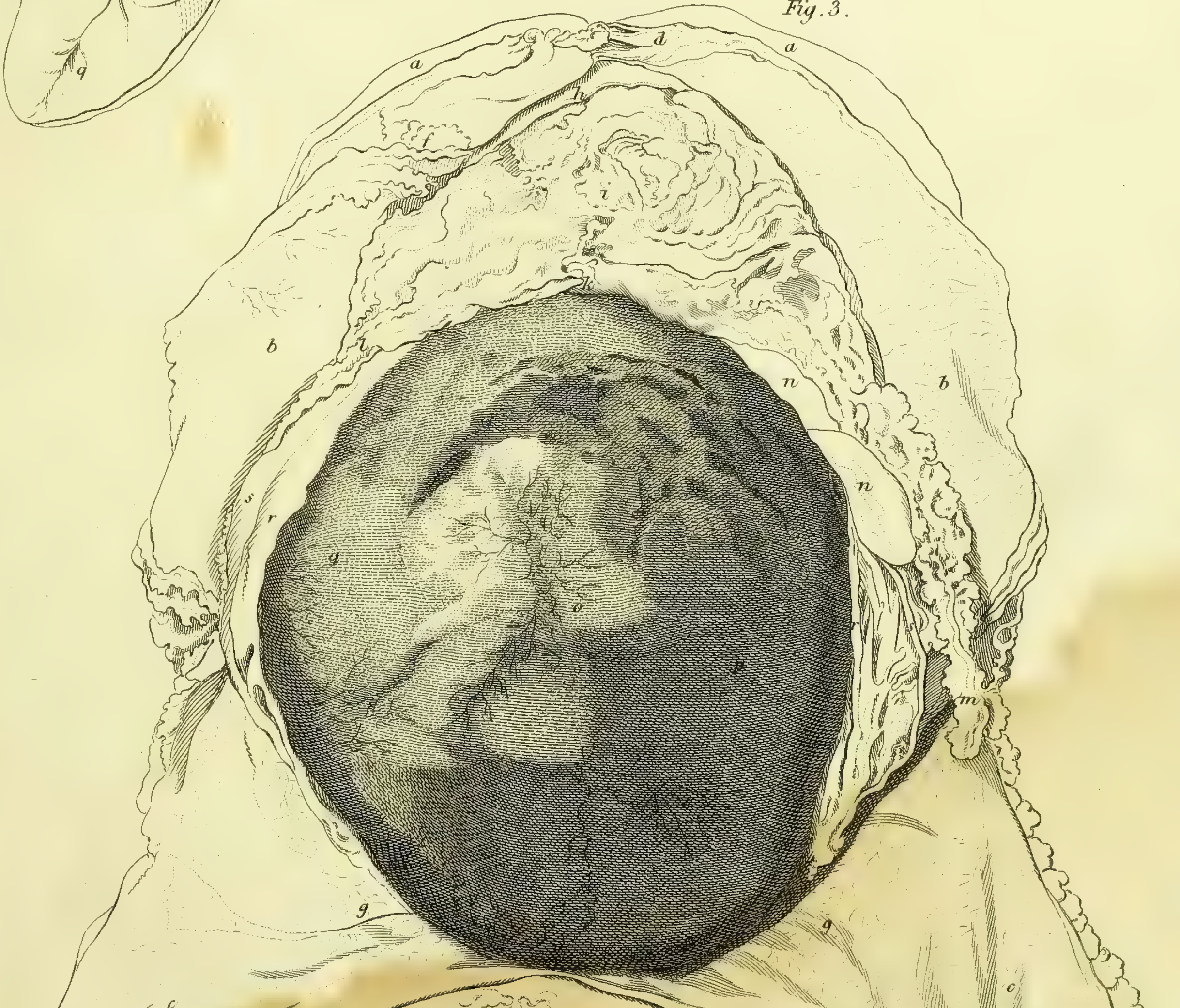


Fig. 1.



Gravid Uterus.

Fig. 3.



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